PREDICTION? PRESCRIPTION?
AN ANALYSIS OF CHINESE AND ENGLISH MODALITIES:
A COMPARATIVE APPROACH

A DISSERTATION SUBMITTED TO THE GRADUATE DIVISION OF THE
UNIVERSITY OF HAWAII IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR THE DEGREE OF

DOCTOR OF PHILOSOPHY

IN

EAST ASIAN LANGUAGES AND LITERATURES (CHINESE)

MAY 2003

BY

Shao-ling Wang

Dissertation Committee:

Tao-chung (Ted) Yao, Chairperson
Ying-che Li
Robert L. Cheng
Chin-tang Lo
Cynthia Ning
ACKNOWLEDGEMENTS

I am not quite sure why my parents, You-min Chen and Yung-jang Wang, since my early years of schooling, have not cared too much about what is taught at school, but instead about what I have learned or sensed from the outside world, from the surroundings. However I know that from then on the passion for languages became what Shakespeare’s Leontes calls magic, “an art/Lawful as eating” (Estrin, 1994). I remember that most of the days when other students were cramming for exams, I was sitting in my parents’ language classes, becoming cultivated in the exquisite syntax and semantics of the tool for human communication. Most importantly, I was inspired by how to efficiently and effectively transmit a natural language to a non-native speaker of that language.

In college, I was privileged to meet Dr. Chin-tang Lo who later supported my receipt of a Teaching Assistant Fellowship in the Ph.D program at the Department of East Asian Languages and Literatures. For the past four and half years, I have been lucky to have my advisor, Dr. Tao-chung (Ted) Yao who has been so tolerant with all my questions in teaching, studying and writing the dissertation; Dr. Ying-che Li and Dr. Robert L. Cheng who gave me many valuable comments during the process of completing my dissertation, and Dr. Cynthia Ning who served as one of the committee members, and who patiently assisted me with the correct usage of English expressions.

I am also indebted to my husband, Irsham who has always been there with great support and encouragement; my dearest three and half-year-old son, Yi-wei (Zan) from whom I have observed how a trilingual environment can affect child
language acquisition. I am very lucky in friends, too, particularly in the intelligence of Dr. Roderick Gammon who has generously shared his precious knowledge of computer technology with me. My dear sister who is also my best friend should be thanked for her efforts in finding useful materials for the dissertation. Numerous friends whose friendship and hospitality made my trip back to Hawai‘i for the defense unforgettable.

Last but not least, I am grateful for the exquisite University of Hawai‘i. It is because of this unique academic environment that I have been able to be “somewhere” far beyond what I deserve.
ABSTRACT

Modality, known as “Qing Tai Ci” in Mandarin, is one of the most important parts in a natural language. Failure to properly grasp the use of modality may cause unexpected misunderstandings.

This paper, firstly, uses the definitions of the concept of modality proposed by western linguists, and then makes a syntactic and semantic comparison of modal expressions in both Mandarin and English. In view that modal expressions are a large inventory in these two languages, this paper, in Mandarin, selects and focuses on the analysis of modal auxiliaries hui, neng, keyi, yao, dei, and modal adverbs yiding, yinggai, keneng/dagai/yexu. In English, it includes WILL (BE GOING TO), CAN, MAY, MUST, and OUGHT TO with its variant, SHOULD. The negated modal expressions are discussed under the wide and the narrow scopes of the negation. The Klima (1964) tests, mainly used for Indo-European languages, are applied to Mandarin modals in Chapter Five of this paper.

Aside from the comparison of Mandarin and English modal expressions, Chapter Six, utilizing corpora linguistic study, compares the negated modal usages in Taiwan Mandarin and Beijing Mandarin.

This paper only concentrates on the linguistic features of the selected modals. It is definitely necessary to have an integrated analysis on all the modal expressions in both Mandarin and English from the pedagogical prospective. It is the ambition of the author to continue studying modality with a symbiotic approach of Linguistics and Pedagogy.
Table of Contents

Acknowledgments. ................................................................. iv
Abstract .................................................................................... vi
List of Tables.............................................................................. x
List of Graphs.............................................................................. xi
List of Abbreviations............................................................... xii
Chapter 1: Introduction. ............................................................. 1
  1.1 Motivation........................................................................... 1
  1.2 Structure of the dissertation................................................ 3
  1.3 Typographical conventions.................................................. 5
Chapter 2: Modals and Modality................................................... 6
  2.1 Definitions and Qualification of Modality.............................. 9
  2.2 Modal Expressions............................................................... 11
  2.3 Types of Modalities.............................................................. 13
  2.3.1 Epistemic vs. Deontic....................................................... 13
  2.3.2 Dynamic possibility and Dynamic necessity................. 23
  2.3.3 Alethic Modality.............................................................. 24
  2.3.4 Speech Event and Act....................................................... 26
  2.3.5 Mood Particles............................................................... 32
Chapter 3: A Prescription Or A Prediction?.................................... 36
  3.1 Epistemic............................................................................. 37
  3.1.1 Possibility........................................................................ 39
  3.1.2 Necessity......................................................................... 42
  3.1.3 Conclusion....................................................................... 46
  3.2 Deontic................................................................................ 46
  3.2.1 Possibility ...................................................................... 46
    3.2.1.1 Permission.............................................................. 47
    3.2.1.2 Command............................................................... 49
  3.2.2 Necessity......................................................................... 50
  3.3 Dynamic Possibility............................................................ 55
    3.3.1 WILL, CAN vs. Hui....................................................... 55
  3.4 Dynamic Necessity............................................................... 56
    3.4.1 MUST vs. Yiding........................................................ 56
    3.4.2 Mandarin Yao and Hui vs. English-WILL &
      BE GOING TO.............................................................. 58
Chapter 4: Hui, Neng, Keyi in Mandarin and "Can" in English.......... 61
  4.1 The Meaning of Keyi............................................................ 62
    4.1.1 Epistemic Possibility.................................................... 62
    4.1.2 The Indication of Capability......................................... 66
    4.1.3. Deontic: Personal-Promise: The Indication of
      Worthiness........................................................................ 68
    4.1.4. Deontic: Personal-Authority: Indication of Permission... 70
  4.2 The Meaning of Neng.......................................................... 72
    4.2.1. Indication of Capacity................................................. 74
# LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.3 The Distinction of Keyi and Neng</td>
<td>81</td>
</tr>
<tr>
<td>4.4 Functions of Modal Verb Hui in Mandarin</td>
<td>103</td>
</tr>
<tr>
<td>5.2 Use of Modals in AE and BE</td>
<td>159</td>
</tr>
<tr>
<td>6.3a ASBC Distribution of Contents</td>
<td>179</td>
</tr>
<tr>
<td>6.3b ASBC Distribution of Modes</td>
<td>179</td>
</tr>
<tr>
<td>6.3c ASBC Distribution of Media</td>
<td>179</td>
</tr>
<tr>
<td>6.3d ASBC Distribution of Language Style</td>
<td>180</td>
</tr>
<tr>
<td>6.3e ASBC Distribution of Literary Style</td>
<td>180</td>
</tr>
<tr>
<td>6.3f CDN and PD Corpus Composition</td>
<td>180</td>
</tr>
<tr>
<td>7.1a Contrast List of Positive Mandarin and English Modals</td>
<td>204</td>
</tr>
<tr>
<td>7.1b Negative Mandarin and English Modals - Narrow Scope of the Negation</td>
<td>204</td>
</tr>
<tr>
<td>7.1c Negative Mandarin and English Modals - Wide Scope of the Negation</td>
<td>205</td>
</tr>
</tbody>
</table>
# LIST OF GRAPHS

<table>
<thead>
<tr>
<th>Graph</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1a Square of Oppositions (SO) with quantifiers</td>
<td>142</td>
</tr>
<tr>
<td>5.1b Square of Oppositions (SO) in Modality</td>
<td>143</td>
</tr>
<tr>
<td>5.2a Matrix of Epistemic Interpretations</td>
<td>152</td>
</tr>
<tr>
<td>5.2b Continuum Model</td>
<td>152</td>
</tr>
<tr>
<td>5.3 Matrix of Deontic Interpretations</td>
<td>163</td>
</tr>
<tr>
<td>6.4a &quot;Menu&quot; for ASBC</td>
<td>183</td>
</tr>
<tr>
<td>6.4b &quot;Refine Results&quot; Page</td>
<td>187</td>
</tr>
</tbody>
</table>
**LIST OF ABBREVIATIONS**

1. **adj.** – adjectival
2. **adv.** – adverb
3. **ASBC** – Academia Sinica Balanced Corpus
4. **asp.** – aspect
5. **attr.** – attributive
6. **a.v.** – auxiliary verb
7. **CDN** – Central Daily News
8. **class.** – classifier
9. **excl.** – exclamation
10. **L1** – first language
11. **L2** – second language
12. **MSS** – Modal Suppletion Strategy
13. **neg.** – negative marker
14. **NPS** – Negation Placement Strategy
15. **PD** – People's Daily
16. **pl.** – plural
17. **qm.** – question marker
18. **RMRB** – Ren Min Ri Bao
19. **RR** – Reading Room
20. **SLS** – Second Language Acquisition
21. **SS** – Sentence Searcher
22. **vpp.** – past participle
CHAPTER 1
INTRODUCTION

1.1. Motivation

Once one of my Chinese friends who is studying Economics questioned me about the significance of studying modality. She was mocking me and saying that applied linguists always like to make things complicated; as long as one knows the meanings of *neng* or *keyi* in Mandarin, which are similar to the English *can* and *may*, there is no need to actually research this subject. It is not difficult to understand her logic. Economists tend to treat everything economically!

However most linguists will agree that when second language acquisition (SLA) is involved, things can never be easy. If *neng* and *keyi* could simply be explained with English *can* or *may*, then a sentence like this in Mandarin produced by a native English speaker:

1. "Wo zuotian shengbing, *bu keyi* qu shangxue."  
   l-yesterday-sick-not-can-go-school  
   "I was sick yesterday; I COULDN'T go to school"

should be acceptable. The truth is that it is not acceptable in a second language learning environment. One possible cause of this misuse can be due to the semantic confusion.

Given the fact that there is not a one to one correlation between Mandarin *neng*, *keyi* and English *may* and *can*, the distinctive approach I want to take is how to harness the influence of a learner’s mother tongue to facilitate second language acquisition. It is through understanding the syntax and use of one’s native language that one can establish a grasp for another language. To
facilitate this linguistic awareness, it is necessary to conduct a comparative study between English and Mandarin modal expressions.

Modality has become the topic of current research in that it covers an important part in an utterance in a natural language. Failing to properly use modal expressions may cause unexpected misunderstandings in interlocutions. Studies on the topic of modality are, however, as Perkins (1983) described, "very similar to move in an overcrowded room without treading on anyone else's feet." Nevertheless, studies that compare Chinese and English modalities are few. Therefore, the purpose of the present study is to present a preliminary comparative analysis of English and Chinese modalities. It is expected to make a contribution to both SLA and linguistics.

Modality considered as "qingtai ci" in Mandarin appears in various forms in the discourse of natural languages. The scope of the present study does not intend to examine all modal expressions in these two languages.

For my purpose, I shall select modality only as the basic modal notions expressed by the modal auxiliaries\(^1\) or modal adverbs along with some other notions related to them. The modal auxiliaries in Mandarin include *hui, neng, keyi, yao, dei,* and modal adverbs\(^2\) are *yiding, yinggai, keneng.*

In English they are *WILL (BE GOING TO), CAN, MAY, MUST, OUGHT TO* and its variant *SHOULD.* The notions related to *hui/CAN* are ability, possibility and

---

\(^1\) These modals are widely recognized as modal auxiliaries; I, however, shall claim that some of them in Mandarin can be seen as modal verbs which may take direct objects (see chapter4).

\(^2\) They are considered as modal adverbs in that they alone cannot express the corresponding English modal auxiliaries; other modal verbs or modal auxiliaries have to co-occur. And in some cases, they can be eliminated without affecting the grammaticality of the whole sentence.
authorization; the notions related to keyi/MAY are possibility, probability and certainty.

The mood particle, ba in Chinese, which is considered as a unique device of modality in non Indo-European languages (Cheng, 1983) is briefly discussed. English modal particles, such as THEN, I THINK (Aijmer, 1997), will only be discussed when necessary in comparison with their Chinese counterparts.

Aside from a comparative clarity between Chinese and English modalities, the current study is inspired by the interaction of modality and negation (De Haan, 1997). It is to provide an analysis of negative modal auxiliaries in Mandarin based on the theory of scopes of the negation. A corpus containing articles from Taiwan and Beijing newspapers is utilized for this research.

1.2 Structure of the Dissertation

Modality (or modal expressions) is one of a number of semantic-grammatical phenomenon. Despite that the concept of modality falls into two major worlds, epistemic and deontic, it is, yet rather ambiguous because it lacks of simple, clearly definable, semantic category. The second chapter, first, gives all different definitions based on the references from English prospectives. It is to provide a general idea on what modality is. Second, types of modality as well as background researches and studies on the subject matter are included.

The third chapter concerns with different types of modals in both English and Mandarin. These include epistemic – “renzhi qingtai”, deontic – “yiwu qingtai”, dynamic – “dongli qingtai” uses of modals (Tsang, 1981). The English modal
auxiliary WILL which indicates future and its relationship with BE GOING TO is to be discussed with Mandarin modals hui and yao.

The forth chapter deals with those modals which possess multifunction and polysemy in nature. In Mandarin these include keyi, neng, and hui. In English, it is the modal verb CAN which is normally hard to define its exact function and meaning without sufficient information in an utterance. Since the meanings of keyi, neng and hui in some cases overlap, this study will provide a clear distinction among keyi, hui and neng in their uses. The English CAN is discussed in comparison with similar expressions in Mandarin. The syntactic relationship among these modals is explicated by two directions: theoretical and pragmatic.

The fifth chapter discusses modality and negation. Although the scope of the negation in Mandarin was discussed in early years (Li & Thompson, 1981), the discussion was quite general. In addition, the terms "wide" and "narrow" were not in use. This chapter of the study, thus, provides an extended discussion of the "wide" and the "narrow" scopes of the negation (De Haan, 1997) in Mandarin. An attempt to apply Klima tests\(^3\) (Klima, 1964) to Mandarin modality and negation is expected.

The sixth chapter parses the interaction of modality and negation in different regional texts. The corpus used is collected from Taiwan Central Daily News and Beijing People's Daily newspaper articles in 2000 (Gammon, 2002).

The methodology of the computational analysis is mainly done with two

---

\(^3\) According to De Haan's (1997) framework, the Klima tests are widely used for Indo-European languages.
concordance programs “Dos Tir” (CIPOL), and “Sentence Searcher” (Gammon, 1998). A small portion of the search is done with a search service provided by AEG, Inc., Honolulu (Gammon, 2002). Further issues and relevance of the study to other fields are considered in the concluding chapter, the seventh chapter that concerns with how the present investigation on texts may be improved.

1.3 Typographical Conventions

The presentation of English and Chinese modals within the text follows these conventions:

All English modals are written with small capitals. All Chinese modals are shown with italics. In the wide scope of the negation, since the negative marker “bu” ‘no, not’ in Mandarin is seen as part of the modal, it is written in italics.

The Chinese examples will be given with three features: Pin Yin, A literal English gloss and a free English translation.
CHAPTER 2
MODALS AND MODALITY

In this chapter, the concept of modality or modal expressions generally known as “Qingtai Ci” in Mandarin is mostly adopted from English references. Since previous scholars on the subject of English modality have provided sufficient description on the concept of modality in natural languages, reference materials on Mandarin modality are brought into the picture when the English description is not applicable to Mandarin modal expressions.

According to Stalnaker (1979), the explicit and implicit assumptions in a conversation are the “common ground”, which means that participants in a conversation assume a set of propositions about the way the world is. These propositions may be explicitly expressed and mutually agreed upon in the course of the conversation, or it is assumed that all participants in the conversation share the implicit presuppositions. The larger the common ground in a given conversation, the closer we are able to fully characterize the actual world. “Context set” is the set of possible worlds compatible with the common ground of a conversation. Stalnaker uses this framework to characterize assertions.

Assertion, according to him, is made by reducing the context set in “a particular way”, provided that there are no objections from other participants in the conversation. “The particular way” that he mentioned is to eliminate all the possible situations incompatible with what is said. In other words, the essential effect of an assertion is to add the content of what is asserted to what is presupposed in order to change the presuppositions in the conversation.
Roberts (1990) gives a good example of the relation between "common" ground" and "context set". Suppose two people (A) & (B) are discussing the poet Lorine Niedecker. (A) mentions that Niedecker was born near Lake Koshkonong in southern Wisconsin in 1903, a fact that (B) has already known. This fact is thus in the "common ground" of (A) & (B) and the “context set” is determined by the fact that no worlds in which Lorine Niedecker was not a poet, or in which she was born in Tulsa, Oklahoma. But if this is all the information that (A) & (B) share about Lorine Niedecker, there will still be worlds in the “context set” where she never left Lake Koshkonong, worlds where she had children or not, worlds where she left there at age 20 and rarely returned, etc. If (A) then tells (B) and (B) accepts that Niedecker left her birthplace for only a few years in the late forties and that she never had children, they can add these propositions to their "common ground" and eliminate from the "context set" all worlds incompatible with the information.

However when pragmatics and/or second language acquisition are concerned, things can be far more complicated than this. There may be as many versions of "common ground" of a given conversation as there are participants. This is because, as Roberts (1990) points out, we typically have different ideas about what propositions are implicitly presupposed, as well as having difficulty to communicate or failing to understand properly those propositions which are explicitly presupposed or asserted. That is to say, what constitutes felicitous discourse is restrictly designed to make sure that in crucial respect our "common
grounds" do match. Some of these restrictions are integrated into linguistic rule systems while others seem to be more rhetorical in nature. "Modality", for instance, seems to possess both features, and modals are the key to the determination of the match of "common ground" and the elimination in the "context set" (Roberts, 1990).

White (1975) proposes an interesting distinction of the notion of possibility in two constructions. One is expressed in English by "possible to" and the other by "possible that" with the indicative:

2. It is possible for him to play the violin.
3. It is possible that he plays the violin.

According to White, the former which he calls "existential" possibility is to stress the actual existence of a possibility and the latter which he calls "problematic" possibility is to stress the possible existence of an actuality. Despite their similar relation to actuality, they are very different in that "if it is possible that he plays the violin, then it follows that it is possible for him to play the violin" but not vice versa; i.e., "it can be possible for him to play the violin" without "its being possible that he plays the violin". The fact that it is possible for him to play or have played the violin does not entail "it is possible that he plays the violin." What White is trying to inspire us here is the modals, one of the fundamental notions we use in our thinking.

Then, what are modal expressions? What is modality in a natural language?
This chapter defines the notion of modality with reference to previous studies. To begin, it is to provide a literature review of linguists' definitions of modality and then to illustrate different types of modality.

In addition to the modal verbs recognized as auxiliary verbs and/or adverbs by most linguists, a special device of modality, which is low in frequency of borrowing from another language and appears frequently in most Asian languages (Cheng, 1983), such as “sentential final particle” ba in Mandarin, is also introduced.

2.1 Definitions and Qualification of Modality

The notion of modality is vague and leaves open a number of possible definitions. The basic concern is, as White (1975) says, what and how the modals qualify. Traditionally, there have been two views often called in Latin ‘de dicto’ and ‘de re’. The names suggest that the nature of modals has emphasized on the question of whether they are subjective or objective; i.e., whether they are used to express something about the user or they are used to state something about the features of that to which they refer. von Wright’s (1951) formulation is “modalities are said to be de dicto when they are about the mode or way in which a proposition is or is not true,... de re when they are about the way in which an individual thing has or has not a certain property.”

Lyons’ (1977) suggestion of modality as “opinion or attitude of the speaker” seems a promising and helpful preliminary definition. Fleischman (1982) regards modality as something “to do with the speaker’s attitude toward
the propositional content of his utterance." Similarly, Saeed (1997) treats modality as "a cover term for devices which allow speakers to express varying degrees of commitment to, or belief in, a proposition." Palmer (1986) suggests that modality could be defined as the "grammaticalization of speaker's (subjective) attitudes and opinions." Bybee *et al* (1994) follows Palmer's definition of "grammaticalization of speaker's (subjective) attitudes and opinions," but they also argue that "modality notions range far beyond what is included in this definition."

Hoye (1997) claims that modality is concerned with the concepts of probability, necessity, possibility and the related notions of permission, obligation and volition. Papafragou (2000) points out that modal expressions allow us to talk (and modal concepts allow us to think) about states of affairs, which are not present in the current situation and may never occur in the actual world. Quirk *et al* (1985) propose that modality is defined as "the manner in which the meaning of a clause is qualified so as to reflect speaker's judgment of the likelihood of the proposition it expresses being true." Their definition of modality is an epistemic one, which is extrinsic in nature (see 2.2.1).

Grammarians designate modal verbs as a sub-class of auxiliary verbs and except for the VERBS-TO-BE, HAVE and DO, all auxiliary verbs in English are called modals (White, 1975). Logicians, however, confine modality to the notions of possibility and necessity. William of Shyreswood, one medieval logician,
characterized a modal statement as one, which "says how the predicate inheres in the subject "(White, 1975).

Despite the various definitions of modality, it is concluded that without modality, one cannot get his/her intention/meaning across; the message cannot be clearly conveyed and the reaction to an utterance cannot be gauged.

2.2. Modal Expressions

Bybee et al (1994), in their cross-linguistic studies, have sustained the fact that all languages allow speakers a range of means in expressing modality. They (1995) claim that most modality is expressed in morphological, lexical, syntactic ways and some are expressed through intonation.

In Mandarin, according to Tang & Tang (1997), modal expressions have been divided into three categories:

I. Mood particles, such as ba, ne, de, a, etc. They often appear at the end of a sentence, showing some of the emotions of the speaker.

II. Modal adverbs, such as yiding ‘must’, dagai ‘probably’.

iii. Modal verbs and modal adjectives⁴, such as hui ‘can’, neng ‘can, may’, keyi ‘may’, yinggai ‘should’.

Modality in English is expressed by three different strategies:

I. By a higher clause with an adjective or adverb of modality, like sentences (2) and (3) mentioned above, "It is possible that he plays the violin."

II. By a higher clause with a verb:

⁴ these two types of modality are “auxiliaries" in traditional syntax (Tang & Tang, 1997).
4. It is believed/known that S. V.

III. By modal auxiliaries:

5. We SHALL move now.


Despite that modal expressions are categorized via three different strategies both in Mandarin and in English according to previous studies, modal meanings are far more complicated than they appear. What makes it difficult to account for the use of modals is that their meaning has both a logical element and a pragmatic element. We can talk about them in terms of such logical notions as “permission” and “necessity”, but this done, as Leech (1971) points out, we still have to consider ways in which these notions become remolded by the psychological pressures which influence everyday communication between human beings. These factors include condescension, politeness, tact and irony. For instance, what does English CAN really denote in a sentence like “She CAN speak French?” Does it promote the idea of ability, possibility or a logical term meaning permission but intervened into something approaching a command as called, by Leech, “condescension?” Does it mean hui, keyi or neng in Mandarin? Similarly, what does keyi denote in a sentence like “Ta keyi shuohua le.” Does it epistemically mean “S/He has become able to speak?” or does it denote a deontic permission “S/He is allow to speak (now)?”

In the next section, we will examine different types of modality and determine which type a modal expression belongs to.
2.3 Types of Modality

2.3.1 Epistemic vs. Deontic

The domain of modality has been focusing on the basic distinction between speaker-oriented, subjective, hypothetical, or epistemic modality and agent-oriented, objective, root, or deontic modality. What are the differences between epistemic and deontic modal expressions?

Syntacticians assert that epistemic modals function as control verbs and deontic modals function as raising verbs (Lin & Tang, 1995). From the viewpoint of its semantic function, in his earlier book, Palmer (1974) divides modality into three types: “epistemic,” “discourse-oriented,” “subject-oriented.” In a later work, Palmer (1987) says that modal verbs express three major functions, which include “epistemic,” “deontic” and “dynamic.” For Palmer, “deontic” indicates that the speaker has influence on the listener’s acts. It is discourse-oriented. And “dynamic” denotes the ability of the subject; i.e., it is subject-oriented. Palmer (1990) again claims that the meanings expressed by modal verbs in most world languages are to be included in the two most semantically fundamental kinds of modality-epistemic and deontic. Epistemic modality is used to express “the truth of the speaker's proposition” or by von Wright's (1951) terms “epistemic modality is concerned with matters of knowledge, belief ... opinion rather than fact” whereas “deontic modality is concerned with the necessity or possibility of acts performed by morally responsible agents.” Huddleston (1997), Leech (1969) and Joos (1964) have used the term “logical” to refer to epistemic modality.
“Epistemic” and “deontic” are two of the four “modes” of modal logic. von Wright calls “epistemic” modes, “modes of knowing” and “deontic” modes, “modes of obligation.” A clear distinction of the two types of modality is found in Papafragou (2000):

*Epistemic* modal meanings deal with the possibility or necessity of an inference drawn from available evidence, and *deontic* modal meanings are concerned with the necessity or possibility of acts performed by morally responsible agents, e.g. obligation and permission (p.3).

Coats (1983) argues that the term “deontic” only refers to obligation and permission, which does not include concepts as ability and volition. Therefore, she uses the term *root modality*, which includes the notion of ability, volition and prediction. Cook (1978) also claims that epistemic modality modifies the entire sentence, dealing with the true value in a sentence. It includes modal verbs denoting “possibility” and “necessity.” Root modality, including “permission,” “obligation” and “ability,” is associated with the agent.

Similar to Cook, Quirk et al (1985) calls epistemic modality an “extrinsic modality” which deals with human judgment of what is or is not likely to happen; i.e., the function of epistemic modals is to make judgments about the possibility that something is or is not the case. It is the modality of propositions. Epistemic modals are subjective and the epistemic judgment rests with the speaker.

Deontic modality, on the contrary, is “intrinsic modality” which is concerned with “intrinsic human control over events,” including modal verbs.
which denote “permission,” “obligation,” and “volition.” Based on its semantic function, Huang (1999) categorizes Chinese modality as “epistemic,” “deontic,” “capacity,” “volition” and “generic.” However her epistemic modality only includes hui and yinggai in Chinese. She categorizes epistemic possibility as “capacity” which includes “ability,” “circumstance” and “capability.” In other words, the meaning of her “capacity” consists of both Cook’s “epistemic” and “root modals” (Chen, 2000).

In short, epistemic modal expressions usually include those, which denote the meaning of possibility, necessity and prediction. Epistemic possibility is indicated by English MAY and Chinese keneng, which do not have the meaning of permission.

Epistemic necessity is indicated by MUST in English, which has the meaning of yiding shi in Chinese⁵. Coates (1983) comments that epistemic MUST conveys the speaker’s confidence in the truth of what he is saying, based on a deduction from facts known to him (which may or may not be specified). Deontic modality, on the other hand, is essentially performative. A speaker may actually give permission⁶, or lay an obligation⁷. They are expressions relating to social, moral or ethical constraints dependent on some authority (Matthews, 1991).

---

⁵ Further discussion on this matter can be found in chapter three
⁶ MAY or CAN in English which corresponds to keyi in Chinese
⁷ MUST in English and Yi Ding Dei in Mandarin
Bybee et al. (1994) divide modality into four conclusive types:

A. Agent-oriented: includes notions of obligation, necessity, ability and desire.
   This type of modality is concerned with the existence of external and internal
   conditions on an agent with respect to the completion of the action expressed
   in the main predicate.

B. Speaker-oriented: includes permissive, imperative, prohibitive, optative,
   hortative, and admonitive.

C. Epistemic: which does not have much difference from others' definitions, they
   claim that this type of modality indicates the extent to which the speaker is
   committed to the truth of the proposition. Commonly expressed epistemic
   notions are possibility and probability. They substitute the term "epistemic
   necessity" for "inferred certainty" which is mentioned above such as the MUST
   in English that denotes the meaning of yiding shi/dei in Chinese.

D. Subordinating modality: as they explain that "the same forms that are used to
   express speaker-oriented and epistemic modalities are often used to mark
   the verbs in certain types of subordinating clauses." For instance:

7. The adviser suggested that we (SHOULD) take the exam as soon as possible.

8. Although the defendant MAY be guilty, the jury is giving him the benefit of the
   doubt.

However in modern standard English grammar, the modal SHOULD can be
omitted. It also explains why when taking the third person singular as the subject

---

8 See also A Preliminary Study of Modal Verbs in Southern Min (Zhang, 1999)

9 In daily conversation, this modal auxiliary is usually omitted.
in the subordinating clause, the verb in the subordinating clause is actually the plural form:

7’. The advisor suggest that s/he take the exam as soon as possible.

In Mandarin, the modal in sentence (7) is also expressed after the main clause “Laoshi jianyi”:

7”. Laoshi jianyi women yinggai jin zao kaoshi.

“Teacher suggest we SHOULD very early exam

The teacher suggested that we (SHOULD) take the exam as soon as possible.”

Sentence (8) in Mandarin, the modal as well occurs in the clause where the subordinate conjunction suiran ‘although’ is:

8’. Suiran beigao keneng youzui, keshi peishentuan zanshi jiashe ta shi although defendant maybe guilty but jury temporary assume s/he be-wugu de.

“Although the defendant MAY be guilty, the jury is giving her/him the benefit of the doubt.”

Heine et al (1991) claims that epistemic modality chiefly evolves from deontic modality. They state that deontic modality is said to describe real world events or real world forces imposed by the speaker to act. Epistemic modality is concerned with reasoning processes, beliefs and conclusions reached by the speaker. They use the term “non-epistemic”11 to refer to “deontic.” The relation between epistemic and non-epistemic modality is metaphorical in nature, involving a transfer between two domains of conceptualization; i.e., a “dynamic”

---

10 Adj. is adjectival marker.
11 Their term of “non-epistemic” includes “dynamic” modalities (see 2.3.2 below) in order to make a distinction with “deontic”.
world that non-epistemic modality implies and a “static” world that epistemic modality implies.

The evolution from deontic modality to epistemic modality appears to be a process from a dynamic world to an essentially static world. To illustrate this, Heine et al give the following sentences:

9. a John MAY go.
   a' That MAY be true.

10. a John OUGHT TO go.
    a' That OUGHT TO be the right answer.

11. a John NEEDS to go home.
    a' He NEEDN'T be German; he could be Irish.

12. a John MUST leave immediately.
    a' John MUST be crazy.

Now let’s see how these sentences are expressed in Mandarin:

9'. a. Zhang San keyi qu/zou le.
Zhang San-MAY-go/leave-asp.
"Zhang San MAY go/leave."

a'. Keneng shi zhengde.
maybe-be-real
"It MAY be true."

Zhang San-SHOULD-go/leave
"Zhang San OUGHT TO go/leave."

a' Na yinggai shi zhengque de da an.
that-SHOULD-be-correct-attr.12-answer
"That OUGHT TO be the right answer.

12 Attr. represents "attributive."
   Zhang San—MUST—return home  
   “Zhang San MUST/NEEDS to go home.”

   a’. Ta bu yiding shi Deguoren, ta keneng shi Aierlanren.  
   s/he—not—definitely—be—German—s/he—maybe—be—Irish  
   “S/He is not necessarily to/NEEDN’T be German; s/he MIGHT/COULD be Irish.”

   Zhang San—definitely—MUST—immediately—leave  
   “Zhang San MUST leave immediately.”

   a’. Zhang San yiding shi feng le.  
   Zhang San—definitely—be—mad—asp.  
   “Zhang San MUST be crazy.”

As we can see here, all the (a) sentences in both English and Mandarin examples imply processes, potential actions. The subject of (a) sentences is human while the (a’) sentences indicate states, conclusions about potential actions or states, and their subjects may be either human or non-human.

It may be concluded that the difference between epistemic and non-epistemic (be it called deontic or root modals) is based on the fact that root modals can often be interpreted as the epistemic modals with an added causative or affective sense (Newmeyer, 1970).

So, epistemic MUST implies obvious truth — what is predicted happens by its very nature. It can, thus, be similar to yiding shi ‘definitely be’ in Mandarin. Root MUST means to insure the truth or happening of a predicate or to “require.” Its Chinese counterpart can be yiding dei ‘definitely have to’. Epistemic MAY denotes “possibility,” like keneng ‘maybe’ in Mandarin while root MAY means to
cause to be possible in a characteristic way or to “allow,” like keyi which denotes deontic permission in Mandarin.

Some linguists categorize the following notions as dynamic modalities (see 2.3.2):

a. The epistemic WILL which is similar to the epistemic hui in Mandarin indicating futurity.

b. The epistemic CAN which may have a similar notion to keyi in Mandarin denotes possibility.

c. The root WILL when negated indicating ‘refusing’ that can be expressed as bu hui in Mandarin.

d. The root CAN indicating ‘to enable’ or to cause to be possible is similar to hui and neng in Mandarin.

These will be discussed in the next section.

Heine (1995:17) generalizes the nature of epistemic modality as opposed to agent-oriented modality as follows:

A. In many languages, agent-oriented and epistemic meanings are expressed by means of one and the same expression.

B. Wherever there is adequate historical evidence available on the evolution of a language, agent-oriented meanings have been shown to be older than epistemic ones (Shepherd 1982, Bybee and Pagliuca 1985, Traugott 1989).

C. Epistemic meanings are said to be more strongly subjective than agent
oriented ones, and the transition from agent-oriented to epistemic uses of

given linguistic expression has been described as involving

subjectification (cf. Langacker 1985), whereby meanings tend to become

increasingly based in the speaker's subjective belief state/attitude toward

the proposition (Traugott 1989).

D. In the ontogenesis of language, agent-oriented modality develops prior to

epistemic modality as in child language (but see Soonja Choi, this volume

for different observations).

E. Similarly, in second language acquisition, agent-oriented uses of modal

elements tend to appear earlier than epistemic ones (Ramat, 1992).

Whereas the claim above might mainly focus on Indo-European

languages, the phenomenon that the agent-oriented modality appears earlier

than the epistemic modal uses in Mandarin is an interesting one. In a well-known

textbook series Intergrated Chinese (Yao et al., 1997), consisting of two levels-

Level one with twenty-three lessons and Level two with twenty lessons, the

deontic uses of modals are also introduced earlier. For example, *keyi* with the

meaning of deontic "command" appears in Lesson 5 of Level one when one of

the characters in the dialogue is asking the possibility of having a glass of coke:

13. Wo yao yi bei kele, *keyi* ma?

   I-want-one-cup-coke-CAN-qm.

   "CAN I have a glass of coke?"

The modal *dei* 'must; have to' denoting a deontic necessity is introduced

in Lesson 6 when the character in the dialogue is imposing an obligation to the

listener:
   “You MUST treat me.”

   And as early as in Lesson 8, neng denoting the epistemic capacity is
   introduced:

15. Wo neng he shi bei pijiu.
   “I can drink ten glasses of beer.”

The speaker is expressing her/his capacity of being able to drink ten glasses of
beer at one time. The deontic “ability” hui is also introduced in Lesson 8:

   “Wo hui youyong. — I CAN swim.” However it is not until Lesson 15 that the
deontic necessity yinggai is introduced:

16. Tangmu shouzhi name chang ... yinggai rang ta xue gangqin
   “Tom has long fingers; he SHOULD be imposed to learn the piano.”

   The reason for second language learners feel more comfortable with the
use of deontic modals may lie on the fact that they get more input with the
deontic uses of these modals. That is to say, the students are most of the time
told by their teachers not to do this, not to do that in a classroom setting. So
these L2 Mandarin learners may hear in the beginning of a class that

17. Zai jiaoshi bu key/neng shuo Yingwen, bu key/neng chi dongxi.
   “You CAN’T (are not allowed to) speak English or eat in the classroom.”

   Since the input of the deontic uses of the modals is far more frequent than
the epistemic uses, the L2 learners acquire the deontic uses of modals earlier.
This also explains why L2 learners tend to confuse epistemic modals with
deontic ones, such as *keyi* and *neng* in Mandarin. This will be further discussed in chapter four.

In addition to these two major modalities, epistemic and deontic, in natural languages, there are some other factors which make an expression neither epistemic nor agent-oriented. Some linguists call it dynamic modality.

### 2.3.2 Dynamic Possibility and Dynamic Necessity

The term “dynamic modality” is taken originally from von Wright (1951) and has been adopted by Perkins (1983) and Palmer (1990), etc., to cover what is non-epistemic and non-deontic and what has to do with the inherent dynamic of situations.

Matthews (1979, 1991) adopts the term “dispositional” modality by which he means that it is modality not relating to truth or probability, or social or moral constraints, but to states of being, mind, etc., of an individual (or a group of individuals). Dispositions may be “external” or “internal.” For instance, in the sentence “I WANT him to go,” the disposition of “I” operates over the external event or state of affair “he go.” In “I want to go,” we have a case of “internal” disposition in that the disposition is ascribed to the potential participant “I” in “I go” (Matthews, 1991).

Some modal auxiliaries such as the use of CAN or WILL referring to ability or volition and future do not seem to be matters of modality at all. The reason for this is that ability and volition refer to characteristics of the subject of the sentence rather than the speaker, while future is a matter of tense. This main
area of modal meaning is recognized as dynamic modality, including the notional categories of real-world ability, possibility and intention/willingness (von Wright, 1951; Palmer, 1990, Matthews, 1991).

2.3.3 Alethic Modality

Logicians assume that modal operators qualify propositions in that they look in modal logic for parallels to the propositional calculus, where the operators are true and false, whose arguments are propositional variables. von Wright (1951) says that alethic modality has been the traditional concern of logicians and philosophers and deals with absolute or logical necessity or possibility:

18. It MUST be true that two plus two is four.

In his seminal treatise on modal logic, von Wright (1951) distinguishes the alethic “modes” or “modes of truth.” Rescher (1968), in his extended view and detailed account of the conceptual domain of modality, refers to “alethic modalities” in terms of the notion of truth of itself that are expressed as “It is possible that p.” Alethic modality belongs to the conceptual family of epistemic notions and can therefore be distinguished from deontic and dynamic modality (Papafragou, 2000). It is a feature of epistemic modality in everyday language.

Lyons (1977) states that there is an intuitively closer relationship between alethic and epistemic necessity than between either and deontic necessity.

An adapted example of his is found in Hoye (1997):

19. Alfred is a bachelor, so he MUST be unmarried.
The meaning of **MUST** to express necessity is interpreted in three ways by Lyons:

A. Alfred is obliged to be unmarried (command-deontic).

B. I (confidently) infer that Alfred is unmarried (prediction-epistemic).

C. In the light of what is known, it is necessarily the case that Alfred is unmarried (logic-alethic).

In Mandarin, sentence (19) can be expressed with a stronger modal **yiding dei** denoting deontic necessity and a weaker modal **yiding shi** denoting epistemic necessity:

19.a. Deontic – Ruguo shuo Zhang San shi danshenhan, ta jiu **yiding dei** 
   if-Zhang San-be-bachelor-he-MUST-
   weihun.
   unmarried
   “Zhang San is a bachelor. He has to be unmarried.”

   if-Zhang San-be-bachelor-he-definitely-be-unmarried
   “Zhang San is a bachelor. He is definitely unmarried.”

19.c. Alethic (logic) – Ruguo Zhang San shi danshenhan, ta **jiushi** weihun.
   if-Zhang San-be-bachelor-he-exactly-unmarried
   “If Zhang San is a bachelor, he is unmarried.”

Clearly, based on both Mandarin and English examples, the last two conform to rational laws of deduction and inference, although, as Hoye says (1997), the alethic interpretation involves what is logically necessary while the epistemic interpretation involves what the speaker believes to be true. Alethic interpretation is the matter of logical argument, whereas epistemic interpretation is an expression of human opinion.
Although epistemic and alethic modalities are similar in some senses, some linguists argue that the alethic interpretation of sentence (19) involves "no reference to the speaker or to the actual drawing of inferences, but only to the evidence which determines the epistemic necessity of the proposition in question, and in this evidence would be treated as something objective. The subjectivity of epistemic modality is not represented at all in standard systems of epistemic logic" (Hoye, 1997). Pragmatically, objectivity is usually referred to in terms of epistemic rather than alethic modality. The two modal expressions yiding deï and yiding shi in Mandarin will be further discussed in chapter 4.

2.3.4 Speech Event and Act

Derived from the work of Austin (1962) and developed by Searle (1979, 1983), Speech Act Theory's underlying tenet, as Hoye (1997) recalls, is that language is a practical means of communication whose purpose is to cause an effect on our audience, and this definitely involves more than just the transmission of descriptive statements.

Speech Act Theory has been cited by many linguists as a basic framework for the discussion of modality. It is concerned with meaning and functions of utterances. Lyons (1977) notes the relevance of Speech Act Theory by stating that:

To produce an utterance is to engage in a certain kind of social interaction...One of the most attractive features of the theory of speech-acts...is that it gives explicit recognition to the social or interpersonal dimension of language behavior and provides a general framework...for the discussion of the syntactic and semantic distinctions that linguists have traditionally described in terms of mood and modality (725).
Cheng (1997) claims that modality is understood to be the expression of the speaker's attitude toward an event, which is denoted by what is called the principal or lower verb. Cheng's (1997) three devices of modality are "Regular Sentential Topic," "Necessary Condition as Topic," and "Sufficient Condition as Topic." Modality can be expressed by what he calls "the higher sentence-Wo zhun 'I allow'" and the event is, on the other hand, expressed in "the lower sentence-ni qu 'you go'."

In view of the agent-(deontic) or speaker-(epistemic) oriented grouping, in Cheng's devices, only the higher sentence construction shows the agent exercising authority. And the higher sentence is postulated in the deep structure to incorporate notions such as "I think it is possible that ..." in the contingency modals.
In general, there is a correspondence between syntactic and semantic classes of utterances, but as Hoye (1997) points out, a syntactic “declarative” can semantically be a “question.” Let’s consider the following example he provides:

20. You CAN’T possibly do it?

He interprets this declarative statement as: “What do you mean you CAN’T do it?” Similarly, a syntactic interrogative:

21. Why the bloody hell should I pay the fine?

is semantically a statement: “I have no intention of paying the fine.”

A good example of this syntactic-semantic contradictory situation in Mandarin is the use of `nandao` which is defined as a rhetorical question marker by Chinese linguists. Consider the following utterance:

22. A. Zheme rongyi de shi, ni `nandao bu hui zuo ma`?

   such-easy-adj.-thing-you-nandao-not-CAN-do-qm.
   “CAN’t you even do such an easy thing?”

Syntactically, it is a question, but semantically it is:

22 A’. Zheme rongyi de shi, ni yinggai hui zuo.

   such-easy-adj.-thing-you-SHOULD-CAN-do
   “You SHOULD know how to do such an easy thing.”

Concerning social interactions, Speech Act Theory aims at how actual utterances are used in practice and how the classification of discourse functions can be refined. Let’s consider another example in Chinese:

23. Zhe ge fan zhen `nan chi`.

   This-class.-rice-really-difficult-eat
   “This food tastes awful!”
On first reading, this sentence would be interpreted as: “This (food, rice, etc.) tastes awful.” But a native Mandarin speaker knows that “fan” ‘rice’ in Mandarin is generalized as a ‘meal’, and nan in this case also means kun nan ‘difficult’. Thus, given the situation where there is no free lunch, (23) can be interpreted as “Zhege fan zhen nan chi dao kou. - This meal was not easy to get.” It is this refinement of discourse functions that makes second language acquisition difficult.

One of the problems that Speech Act Theory has is the question of how many speech acts there are. Austin suggests that they may approach several thousand, but Searle proposes, by comparison, only five basic categories, which are cited in Palmer (1986) as illocutionary speech acts – assertives, directives, commissives, declarations and expressives. They are, as Palmer (1986) stresses, the most valuable semantic framework for the discussion of modality.

Declarations are the utterances which themselves bring about a new state of affairs in the world and rarely involve modal expressions. Expressives involve the conveyance of feelings such as apology, sympathy, and regret. Some mood or modal particles, like ba in Mandarin and I THINK (Aijmer, 1997) can be considered as expressives, but, as Hoye (1997) claims, “the category is vague and of dubious status.” They are not thoroughly discussed here.

Among the five categories of speech acts, ‘assertives’, says Hoye (1997): “not only embrace the whole world of epistemic modality, it also includes statements of fact.” Although assertive does function epistemically, linguists,
such as Lyons (1977), do admit that a categorical assertion is stronger than an epistemic statement:

24. He is Professor Cheng.

25. He must be Professor Cheng.

The speaker of sentence (24) is more strongly committed to the actuality of the utterance than (25), due to the nature of the evidence available to him. For instance, if he has been introduced by others around him to Professor Cheng. Whereas, in (25), the speaker is only drawing a logical conclusion by the description of others about Professor Cheng and may not have ever met Professor Cheng in person.

Similarly, while (24) can be expressed with the verb-to-be shi ‘be’ in Mandarin:

24’. Ta shi Cheng jiaoshou.
   s/he-be-Cheng-professor
   "S/He is Professor Cheng."

in sentence (25) the speaker has to add a modal adverb yiding or kending ‘definitely’ to the verb-to-be shi to express the notion of English MUST:

25’. Ta yiding shi Cheng jiaoshou.
    s/he-definitely-be-Cheng-professor
    "S/He must be Professor Cheng."

However one should note that although syntactically yiding and MUST appear to be similar with verb-to-be, yet, yiding or kending ‘definitely’ in Mandarin are treated as modal adverbs whereas MUST is a modal auxiliary. That is to say, when co-occurring with verbs, yiding alone cannot fully express the notion of
English modal auxiliary. It has to be accompanied with other modal auxiliaries\textsuperscript{13}.

For instance, the \textit{MUST} in sentence (12) above:

12. John \textit{MUST} leave immediately.

has to be expressed as \textit{yiding dei} in Mandarin; otherwise, it would be an unacceptable sentence:

12'• Yuehan \textit{yiding} like likai.
   John-definitely-immediately-leave
   * "John definitely leave immediately."

Directives and commissives are similar to deontic uses. Given the name 'directives', the speaker 'directs' the listener to do things whereas "commissives" involve self-commissions. Searle (1983) explains: Directives, "where we try to get our hearers to do things", and commissives, "where we commit ourselves to do things." The difference is that the former creates an obligation in the person addressed (26), and the latter creates an obligation in the speaker (27). Hoye gives examples of these two cases:

26. \textit{COULD} you possibly find out who really did do it?
27. That I \textit{SHALL} certainly do.

As I shall explain in the third chapter, (26) is considered as a deontic possibility, which involves notions such as requests and permissions. In Mandarin, it is normally expressed with the modal auxiliary \textit{keyi} 'CAN, MAY' denoting requests or permissions:

\footnotesize
\textsuperscript{13} Although when appearing in a completed action, \textit{yiding} is not accompanied with other modal auxiliaries, its nature of being an adverb does not change in that if it is taken off, grammatically the whole sentence is not affected: Ta (\textit{yiding}) yijing zou le.

26. Ke bu keyi qing ni chachu shei zhende zuo le (na jian shi)?
   “Could you please find out who really did do it?”

(27), rather than a deontic necessity, is “a case of ‘internal’ disposition” (Matthews, 1991) where the disposition is ascribed to the potential participant ‘I’ in ‘I do.’ So, it is considered as a dynamic necessity in which the subject of the utterance is the speaker ‘I’, in comparison, whereas in deontic necessity, the subject is either the person being addressed or a third party being obliged:

28. Students MUST be on time for school.

Some Chinese linguists treat (27) as a deontic necessity denoting a personal promise. This will be discussed in later chapters.

One thing should be noted is that unlike assertives, which can involve past tense, directives and commissives refer only to the future. As Palmer (1986) says “at the time of speaking a speaker can get others to act or commit himself to action only in the future.”

2.3.5 Mood Particles

Another device which is characterized as 1) a member of a class of special parts of speech that have very unique syntactic contexts, 2) very few in number, so 3) low in functional load and can afford to be said quickly and without prominence, 4) frequent occurrence and 5) low frequency of borrowing from another language is known as “sentence final particle construction”, such as the mood particle ba in Mandarin (Cheng 1983):

29. Ni zou ba.
   “You (MAY) leave (I let you go).”
In this utterance, the sentence final particle denotes a meaning of permission. The agent is given permission to leave. This mood particle *ba* denoting permission does not have a corresponding English counterpart.

In terms of degree, the voice of using sentential final *ba* for permission is weaker than *keyi* in Mandarin. And *keyi* is used in more formal situations.

There is an epistemic meaning of *ba* in Mandarin which I think is syntactically and semantically close to the use of *I THINK* in English:

30. Ta yijing zou le *ba*.
   He-already-walk-asp.\(^{14}\)-particle
   “He has already left, I THINK.”

Coincidentally, Aijmer (1997) proposes *I THINK* as an English modal particle by stating with the concern of pragmaticalization:

> I shall argue that strings such as *I think* which can be loosely attached to the sentence as in *Bill is at home I think*, are other good examples of pragmaticalization or of emergent pragmatic constructions (cf. Hopper 1991:19 and Section 2.1)… *I think* permits… extensions of meaning involving the speaker’s attitudes to the hearer or to the message. (italics in original).

Biber (1988) had the highest score of ‘private verbs’ such as ‘think’ in the text type “informal conversation” in the London-Lund Corpus. *I THINK* has also been analyzed in terms of the role of the speaker. Several writers (Benveniste 1966, Banfield 1973, Maynard 1993) have suggested that there is an epistemological distinction between two functions of language: indicating facts and expressing the state of the speaker. When *’I THINK’* is expressive, as Aijmer points out, its function is to express the speaker’s emotions. In the fact-indicating or objective style, the

\(^{14}\) asp. represents aspects in Mandarin
speaker refers to himself and to his beliefs as if he referred to a third person. But unlike Mandarin ba which appears at the end of a sentence, 'I THINK' can occur at the beginning of a sentence. As Aijmer suggests, the linguistic indicator that may indicate 'I THINK' to more likely express an objective and informative statement about the speaker:

31. * I mean * I THINK that every single question I did I could have done better. (* in original).

Hsieh (2001) points out that some epistemic modals in Mandarin can coexist with sentential final ba. These modals include those which denote “possibility” or “probability”, such as dagai ‘probably’, yexu ‘maybe’:

32. Yexu wo yinggai duo gei ta yi xiejian chengzhang ba!
   "Maybe more time SHOULD be given to him/her to become mature."

The speaker using ba is not so much asking a question as suggesting a more subjective conjecture:

33. a. Zhe ge jiekou tai lipu le ba?15
    "This excuse is way beyond acceptable."

b. Zhe ge jiekou tai lipu le ma?
    "Is this excuse way beyond acceptable?"

In other words, in contrast with question marker ma which denotes a simple question, ba denotes the speaker’s relative certainty about the matter. And this is why, as Hsieh points out, in some written texts (example 32 above), at the end of a

---

15 (33) is a modified sentence by this study in order to more clearly distinguish ma and ba. The original example by Hsieh is "Zhe ge jiekou weimian tai lipu le ba?"
16 qm. represents “question mark.”
conjecture sentence, an exclamation marker or a full stop is used in stead of a question marker.

Be it mood particles or modal particles, the basic idea of these modal expressions is to express the emotions of the speaker which, in my opinion, is the most abstract situation in natural languages. Since language itself is such a dynamic and fluctuating phenomenon, mood particles in natural languages are dubious and numerous, and because of the scale of this paper, they will therefore, not be further discussed here. But they certainly need to be clarified.
CHAPTER 3
A PRESCRIPTION OR A PREDICTION?

How may these two English utterances\textsuperscript{17} be interpreted in Mandarin Chinese?:

A. There OUGHT TO be a law against it.

B. The teachers OUGHT TO get a raise in the salary.

As mentioned in chapter 2, grammarians' list of sub-class auxiliary verbs (modals) in English comprise WILL, SHALL, CAN, MAY, MUST, HAVE TO, OUGHT, NEED, DARE, and USED. However as White (1975) points out, NEED, DARE are classed as catenative rather than modal. USED is only seen as a quasi-auxiliary. Therefore, NEED, DARE and USED are not discussed here. Nevertheless, when negation is involved, NEED functions as a suppletion of modal in the wide scope of the negation. The notion of NEED will be talked about in chapter five, where the interaction of modal and negation is discussed.

This chapter echoes the distinction between epistemic, deontic and non-epistemic modalities mentioned in chapter two. A close look at both Chinese and English modalities of these types is the major concern. This chapter provides an explanation to the answer that the modal auxiliary OUGHT TO in sentences A and B above can both denote meanings of a prescription and a prediction; i.e., either yinggai with the interpretation of dagai hui or yinggai with the interpretation of yiding yao in Mandarin are considered as similar expressions for the modal auxiliary OUGHT TO in these two sentences.

\textsuperscript{17} These two sentences are from White (1975).
The interpretation of yinggai, be it possibility or necessity, depends on the verb that follows it. The subject in question of this chapter is discussed in the following fashion:

Section 1 is concerned with epistemic modals which consist of epistemic possibility and epistemic necessity in both English and Mandarin.

Section 2 deals with deontic modals. It includes deontic possibility and deontic necessity. Deontic possibility includes those which denote permission and command. Deontic necessity includes notions of imposing responsibilities. A distinction between the uses of epistemic necessity and deontic necessity, mainly focusing on the interpretations in Mandarin of subjunctive-governing and indicative-governing uses of MUST and OUGHT TO/SHOULD is discussed.

For modalities which imply real-world ability and possibility, I shall use the term "dynamic" proposed by von Wright (1951) and Palmer (1990). Dynamic modals including dynamic possibility and dynamic necessity are discussed in section 3.

Section 4 focuses on the modal auxiliaries indicating the future tense: WILL and BE GOING TO. I shall discuss that WILL and BE GOING TO, in some cases, cannot be paraphrased. This is particularly clear when they are compared with their Chinese counterparts hui and yao.

3.1 Epistemic

Palmer (1986) describes English epistemic system primarily involves the modal verbs MAY and MUST. According to Palmer (1979), they were distinguished
in terms of “degrees” of modality compared with the term “kinds” of modality which is reserved for epistemic, deontic and dynamic modalities. In terms of ‘degree’ of modality, OUGHT TO and its variant SHOULD have to be put into consideration when compared with MUST in epistemic and deontic uses. In addition, the auxiliary verb CAN also embraces meanings of MAY and MUST or OUGHT TO.

In Mandarin, the epistemic modal system which involves “degree” is basically the uses of modal auxiliaries keyi ‘may’ and hui ‘will’. However unlike English MAY and MUST, in Mandarin, the modal adverbs can be added to the modal auxiliaries and change the degree of the modal. For instance, keyi in the epistemic world is a weaker modal than hui: keyi qu ‘CAN go’ < hui qu ‘WILL go’ However by adding the modal adverbs yiding ‘definitely’ or yinggai/dagai ‘maybe’, the degrees of the modals can actually change: yiding keyi ‘definitely CAN’ > yinggai hui ‘probably WILL’. This will be discussed in the next section. As for the “kinds” of modality in Mandarin, it is basically agreed that they are also included in epistemic “renzhi (epistemology) qingtai”’, deontic “yiwu (obligation) qingtai” and dynamic “dongli (dynamic) qingtai” modalities (Tsang, 1981). Keyi in Mandarin and CAN in English are rather problematic modal verbs and because of their nature of polysemy and multifunction, they require special treatments. Therefore, keyi which native English speakers have more problem grasping and CAN with other notions such as neng and hui will be further discussed in chapter four.
3.1.1 Possibility

English MAY appears in four forms: MAY, MAY HAVE and MIGHT, MIGHT HAVE.

The paraphrase of MAY in English in terms of 'possible that' is a valid one. The assertion of WILL co-occurring with adverbs denoting uncertainty such as "probably" or "maybe" is very similar to MAY in English. Mandarin modal adverbs keneng, dagai/yinggai or yexu accompanied with other modal auxiliaries such as hui can express the meaning of English MAY:

34. A. I MAY study in the library today. (means 'It is possible that I WILL study in the library today.')

The modal MAY in this sense similar to keneng hui in Mandarin can be substituted with maybe WILL in English without changing the meaning:

34. A' Wo jintian keneng/dagai/yexu/yinggai hui qu tushuguan kanshu. (adv.\textsuperscript{18})
   today-maybe-WILL-go-library-read
   "I, maybe, WILL study in the library today."

35. A. It MAY rain later in the afternoon. (means 'It is possible that it WILL rain later this afternoon."

A' Jintian xiawu keneng/dagai/yexu/yinggai hui xiayu.
   Today-afternoon-maybe-WILL-rain
   "It WILL probably rain this afternoon."

One of the past forms of MAY is MAY HAVE meaning 'It is possible that somebody or something did V.' In Mandarin, the tenses of verbs and/or auxiliaries are indicated with the assistance of time phrases (such as zuotian 'yesterday', dang...de shihou 'when...') or aspects (such as verb suffix -guo 'pass'or le 'completed action marker').

36. A. It MAY HAVE rained this afternoon (It is possible that it rained this afternoon).

\textsuperscript{18} Keneng functions as an adverb.
36. A'. Jintian xiawu keneng xia guo yu le.
   Today-afternoon-maybe-down-asp.-rain-asp.
   “It MAY HAVE rained this afternoon.”

   A game host might tell one of the contestants who just lost the game by saying that:

37. A. You MAY HAVE lost the game but you made the record (Price Is Right, 2000).

   (37) is interpreted as “You somehow did lose the game but you made the record.”

37 A’ Zhe ge youxi ni yexu shi shu le, keshi ni po le jilu.
   This-class.-game-you-maybe-be-lose-asp.-but-you-break-asp.-record
   “You MAY HAVE lost the game but you broke the records.”

   By using MAY HAVE or yexu...le instead of using the verb “lost” directly, the host was implying some kind of comfort to the contestant.

   The past form of MIGHT, be it unconditional, means, “It is possible that somebody or something WOULD V.” It occurs in the habitual past:

38. A. While I was in Hawai‘i, I MIGHT go shopping in Ala Moana every weekend.
   (means ‘While I was in Hawai‘i, it is possible that I WOULD go shopping in Ala Moana every weekend.)

   Since there are no past forms for verbs and auxiliaries in Mandarin, some other elements indicating a past time frame has to occur:

38. A’ Wo zhu zai Xiaweiyi de shihou, meige zhoumuo dou keneng hui qu Ala Moana guangjie.
   I-live-in-Hawai‘i-of-time-every-weekend-all-maybe-CAN-go-Ala Moana-shopping
   “While I was living in Hawai‘i, I MIGHT go shopping every weekend.”

   In this case, the past form of MAY, MIGHT has to be the interpretation of its paraphrase ‘it is possible that S. maybe WOULD...’ in Mandarin.
As mentioned above, maybe \textit{WILL/WOULD} is similar to \textit{keneng hui} in Mandarin.

The \textit{unconditional MIGHT HAVE} signifies remoteness in time, meaning, "It is possible that somebody or something \textit{WOULD HAVE} Vpp."\textsuperscript{19} This occurs in reported speech:

39. A. The teacher said that Victor \textit{MIGHT HAVE} gone home already.

The original words of the teacher were "Victor \textit{MAY HAVE} gone home already." (It is possible that Victor went home already.) If interpreted in Mandarin, again, aspects have to occur to indicate the completion of the action:

39. A'. Laoshi shuo Zhang San \textit{keneng} yijing huijia le.

Teacher-say-Zhang San-maybe-already-return-asp.

"The teacher said that Zhang San \textit{MIGHT HAVE} gone home already."

In sentence (39), the aspect "le", namely the sentential "le" is used to indicate a completed action 'returned home'.

In the present time frame, the use of \textit{MIGHT} instead of \textit{MAY} can be a sign of tentativeness:

40. A. It \textit{MIGHT (MAY)} be true that the global economy is going down.

Whereas there is not much difference in Mandarin:

40. A'. Quanqiu jingji \textit{keneng/yexu/dagai} zheng zai xiahua.

global-economy-maybe-right-on-decrease

"The global economy \textit{MIGHT} be going down."

The \textit{conditional MIGHT} and \textit{MIGHT HAVE} signify remoteness in reality. The use of \textit{MIGHT HAVE} indicates an unreal condition in the past:

\textsuperscript{19} Vpp. stands for past participle of the verb.
41. A. If you hadn’t skipped too many classes last semester, you MIGHT HAVE passed the course. (The truth is “Because you skipped too many classes last semester, you didn’t pass the course.”)

In Mandarin, while sticking with the use of *keneng hui* to interpret the past unreal form of MAY, the past unreal notion has to be indicated by elements such as ruguo ‘if’ with aspects indicating completion, such as “guo” in Mandarin:

41. A’. Ruguo ni mei qiao tai duo ke, zhei men ke ni *keneng hui* guo.

“If you hadn’t skipped too many classes, you MIGHT HAVE passed the course.”

As in the examples shown above, either MAY and its other forms in English or *keneng/dagai/yexu* in Mandarin are used to relate to propositions of various kinds. Unlike English MAY which has different forms in different tenses, Mandarin modal adverbs expressing the notion of MAY, however, require the occurrence of other modal verbs, time phrases and aspect markers.

3.1.2 Necessity

The paraphrase for epistemic necessity is “The only possible conclusion is that…” White (1975) suggests: “epistemic necessity is indicative-governing MUST and OUGHT, contrasted with subjunctive-governing MUST and OUGHT, in the sense of deontic necessity.” In Mandarin, the indicative-governing MUST whether it is followed with a verb-to-be or a regular verb is normally represented as *yiding* with existential verbs such as *shi* ‘be’ or *you* ‘have; there is’. Whereas indicative OUGHT is similar to Mandarin *yinggai* signifying *dagai* ‘probably’ contrasted with deontic, subjunctive use of OUGHT or SHOULD which is authoritative *yinggai* in Mandarin (see 3.2.2).
The indicative use of MUST implies that “what must be is so” and as White says, in the indicative use of ‘A MUST V’, what makes it necessary for it to be the case that ‘A Vs’ will be whatever circumstances make it not logically possible, whether deductively or inductively, to have those circumstances and it not to be the case that ‘A Vs’. Consider the following English examples in White (1975) and their Mandarin counterparts:

42. A. If the escaped prisoner went into the building a few moments ago and has not left, he MUST still be inside.

A’ Roguo taopao de fanren zai ji fenzhong qian pao jin wu qu er hai mei likai, ta yiding (shi) hai zai wuli.
“If the escaped prisoner went into the room a few minutes ago and has not left, he MUST still be inside.”

43. A. He MUST work harder than others, if he always finishes so early.

A’ Ruguo ta zongshi hen zao jiu ba gongzuo zuowan le, ta yiding shi bi qita ren dou null.
“He MUST be more diligent than others, if he always finishes (his work) so early.”

44. A. You MUST be bold, if you did succeed.

A’ Ruguo ni zhende zuo cheng le nei jian shi, ni yiding (shi) hen you danliang.
“You MUST be very bold, if you did succeed (with that matter).”

One can inductively or deductively conclude that “the escaped prisoner is still inside the building” based on the circumstance that “he went into the building a few moments ago and has not left” which makes “he is still inside the house” a necessary logical possibility. Similarly, “He works harder than others” is the
logical conclusion and explanation for the circumstance that “He always finishes so early.” This also applies to the fact that “If you did succeed (with that matter),” then the logical possibility is that “you are bold.”

This will be clarified if we consider the past tense of MUST. With its epistemic meaning or indicative use, the past tense form of MUST is MUST HAVE (sentence 39), while the deontic meaning or subjunctive use is HAD TO (see 3.2.2).

45. He MUST HAVE left.

If it is true that “he MUST HAVE left”, then he did. This should be distinguished with “he MIGHT HAVE left,” the epistemic possibility. Again, in Mandarin the modal adverbs yiding or keneng has to be accompanied with other tense elements “yijing”, “le” to indicate past. With the epistemic necessity, (45) in Mandarin is

45' Ta yiding (shi) yijing zou le.’
   s/he-definitely-be-already-walk-asp.
   “S/He MUST HAVE left.”

compared with the epistemic possibility:

45’ Ta keneng yijing zou le.’
   s/he-maybe-already-walk-asp.
   “S/He MIGHT HAVE left.”

The indicative use of OUGHT TO and its variant SHOULD are very similar to yingai in the sense of possibility not authority in standard Mandarin. Therefore, the sentence:

46. A The stage OUGHT TO be visible from here.

can be compared with:
Similarly, the indicative interpretation of the modal OUGHT TO in the sentence

"There OUGHT TO be a law against it" is

47. Yinggai hui you fandui ci (yi panjue) de falü tiaowen.

"There CAN HAVE against this-(one-verdict)-of-law-regulation"

"There OUGHT TO be a law against it."

The speaker is making a predicted suggestion, rather than a subjunctive prescription. In Chinese, when in the predictive sense, yinggai is usually followed with those modals denoting the meaning of prediction, like hui, or in some situations when the verb is neutral, the use of yinggai is followed with the application of mood particle ba or a. For instance, ‘Yinggai hui you’ and ‘Yinggai you ba’ are indicative whereas, ‘Yinggai yao you’ and ‘Yinggai you’ are subjunctive, namely deontic necessity, delivering an authority. When meaning deontic necessity, a stronger modal adverb yiding is normally a better choice than yinggai. The reason for this involves the “degree” of modal expressions. This will be explained in section 3.2.2 when deontic necessity is introduced.

In English, unlike the subjunctive use of OUGHT TO which can only be followed by task verbs, the indicative OUGHT TO can be followed by any verb. That is to say, “He OUGHT TO discover it” can only have the indicative interpretation—“Ta yinggai kan de chulai,” whereas “He OUGHT TO look for it” has both subjunctive prescription—“Ta yiding dei qu xunzhao”, and indicative prediction—“Ta yinggai qu

\[^{20}\] Yinggai is an auxiliary verb in this sentence
xunzhao,” although the subjunctive meaning works better with the task verb — look for.

3.1.3. Conclusion

The difference between epistemic MAY which is semantically similar to *keneng/dagai/yexu* in Mandarin and MUST similar to *yiding* in Mandarin can be deduced by what Palmer said in 1986: namely, that the meaning of MAY or MUST is simply in terms of the kind of judgment being made, particularly between speculation and deduction. Coats (1983) also comments on the difference by stating:

In its most normal usage, Epistemic MUST conveys the speaker's confidence in the truth of what he is saying, based on a deduction from facts known to him (which may or may not be specified... (p 41).

**MAY** and **MIGHT** are the modals of Epistemic Possibility, expressing the speaker's lack of confidence in the proposition expressed (p131).

The distinction between the Mandarin modal adverbs *keneng/dagai/yexu* and *yiding/kending* is very similar to what Coats says. While the former expresses a lesser degree of confidence of the speaker in the proposition, the latter conveys the speaker's confidence in the truth according to the facts that are available to her/him.

3.2 Deontic

3.2.1 Possibility

Deontic possibility consists of giving permission and command; thus, linguists group this type of modality as *agent-oriented*, denoting authority.
3.2.1.1 Permission

In English, it is widely recognized by linguists that MAY denotes permission. But as Palmer (1990) points out, it is clear that CAN\textsuperscript{21} is frequently used to give permission and in that use differs from MAY only in formality. For that reason it is best to include CAN with MAY as one of the deontic modals. In the deontic possibility, Mandarin uses *keyi* or *neng*\textsuperscript{22}, asking for (48) or giving permission (49):

48. A. MAY I leave now?

\[A'. \text{Wo } keyi/neng \text{ zou le ma?} \]
\[\text{I-MAY-go-asp.-qm.} \]
\[\text{“MAY I leave (go) now?”} \]

49. A. Whoever finished the assignment MAY leave now.

\[A' \text{ Zuo wan gongke de ren keyi zou le. (a.v.)} \]
\[\text{do-finish-homework-attr.-person-allow-go} \]
\[\text{“Those who have finished homework MAY (are allowed to) leave.”} \]

Unlike epistemic possibility, in which a situation is proposed, deontic possibility modals assign the agent authority to receive permission. In this case, the past forms of MAY HAVE and MIGHT HAVE (50) in English do not fit into this category and MIGHT is used in asking for permission (51) or reporting permission (52), but not in giving permission (53):

50. *You MIGHT HAVE left five minutes ago!*

51. MIGHT I go now?

52. I said you MIGHT leave now (reporting the original words of ‘You MAY leave now.’).

\textsuperscript{21} CAN with the notion of deontic possibility will be discussed in Chapter 4.

\textsuperscript{22} A detailed distinction between *keyi* and *neng* is in Chapter 4.
53. "You MIGHT leave!"

Example (53) should be distinguished with the polite form 'MIGHT' of 'MAY' and the past form 'MIGHT' of 'MUST' and 'MAY'. If it indicates an epistemic use, (53) is a valid expression which can be interpreted as "It is possible that you CAN leave." And it is equivalent to Mandarin "Ni keneng keyi zou Ie." But if it is a deontic possibility use, which indicates permission, the past tense simply cannot exist; i.e., the past form of 'MAY' or 'MUST' cannot appear in an utterance denoting permission.

The reason for the past forms of MAY to be invalid when giving permission except in reporting is that it requires a rather immediate reaction as the consequent result. As mentioned in chapter two, Palmer (1986) says "at the time of speaking a speaker can get others to act or commit himself to action only in the future"; or I would say, in the present but definitely not in the past, even if a relative speech time\(^{23}\) happens earlier than the event in the past. In addition, the tone of MIGHT is weak, lacking of certain authority. It is used more often in epistemic possibility. Contemporary English uses it as an alternative, more polite, or less certain form of MAY:

54. You MAY want to check it out.

55. You MIGHT want to check it out.

The speaker of (55) shows a lesser degree of certainty, so instead of giving permission, it is more like asking for a possibility: "It may be possible that you want to check it out."
However the deontic permission modal keyi in Mandarin, unlike MAY in English, can occur in a past form structure:

56. Wu fenzhong qian ni jiu keyi zou le!
   five-minute-ago-you-jiu-may-go-aspc.
   "You were allowed to leave five minutes ago."

It is because "wu fenzhong qian" 'five minutes ago' is not the time frame when the permission was given but the listener was allowed (permitted) to leave as early as five minutes ago. That is to say, the permission has always been there till the present time and the listener could have left five minutes ago in accordance with permission granted by the authority. So basically, when denoting permission, the difference between the English MAY and the Mandarin keyi is syntactic. Whereas keyi can occur in a past form structure in Mandarin, MAY cannot in English.

3.2.1.2 Command

In English, MAY can be used in a context of command, like Palmer (1990) suggests: "You MAY take it from me." CAN also conveys a command. In Chinese, besides denoting permission, keyi also indicates a command, as a professor might tell his/her students:

57. A. I am free now, you CAN/MAY take the exams.
   A’ Wo xianzai youkong le, nimen keyi kaoshi le.
   I-now-available-asp.-you-can-exam-asp.
   "I am free now. You CAN take comprehensive exams."

This use of command (CAN and MAY) is different from the use of MUST, and similar to Chinese, the use of command keyi is not equivalent to yiding dei,

---

23 "Speech time" refers to the time when the speaking is taken place.
because MUST or yiding dei have implications of authority on which the speaker relies. CAN, MAY and keyi, on the contrary, only make confident or, what Palmer calls, "sarcastic" suggestions. This will be further discussed in chapter four.

3.2.2 Necessity

To begin, let's consider a sentence from a work by the famous mystery story author, Agatha Christie, *The Man In The Brown Suit* (1952: p34):

58. There MUST be such a place. (italics in original)

On first reading, it sounds or looks like an epistemic-interpreted sentence. But the situation is that the narrator was trying to figure out a term 'Kilmorden Castle' written in a piece of paper she got out from a dead man's pocket and she couldn't find this place in any books of reference. With annoyance, she was telling herself: "There must be such a place. Why should anyone invent a name like that and write it down in a piece of paper? Absurd!" So, the interpretation of (58) should be: 'There HAS TO be such a place', otherwise, it would be absurd that somebody invented such a name and wrote it down on a piece of paper!

As demonstrated above, deontic necessity conveys a meaning that the speaker clearly takes responsibility for imposing the necessity. In English they include MUST/SHOULD/OUGHT TO. In Chinese, they are the modal adverb yiding or yinggai accompanied with modal auxiliaries such as dei and/or yao which do not denote prediction or possibilities but necessity. So the Mandarin counterpart for "There MUST be such a place" should be:

58' Yiding dei yao you zheme ge difang.
    definitely-have-to-BE-GOING-TO-have-such-class.-place
    "There MUST be such a place."
Epistemic necessity is indicative, denoting prediction; deontic necessity, on the other hand, is subjunctive, denoting prescription. As White (1975) says, subjunctive-governing modals are neutral about whether what must be is already so. In the subjunctive use of 'A MUST VS', the aspects under which the necessity can be considered are legion (White, 1975); i.e., anyone who is qualified to become a professor in a university MUST physically and psychologically have certain abilities, legally have certain powers and morally deal fairly and impartially. So, deontic necessity is agent-oriented. Consider the following English examples with their similar Mandarin equivalents:

59. A. Students MUST be on time for school every day.
   A’ Xuesheng meitian yiding dei zhenshi shangxue.
   Student-every day-definitely-have to-punctual-go to school “Students MUST be on time for school every day.”

60. A. He MUST work harder than others, if he is to finish in time.
   A’ Ruguo ta xiang jishi wangong, ta yiding dei bi bie ren dou nuli.
   If-he-wants-in time-finish work-he-MUST-compare-other-person-all-diligent “If he wants to finish work in time, he MUST work harder than others.”
   (cf. sentences (44 A) and (44A’) above)

It is because of this variety of aspects under which something may be necessary, an alternative expression of MUST is HAVE TO and the past form of subjunctive-governing MUST is, then, HAD TO, not MUST HAVE; whereas in Mandarin, there is no difference:

61. A. Students HAD TO be on time for school last week.
   A’ Xuesheng shang ge xingqi yiding dei zhenshi shangxue.
   student-up-class. -week-definitely-have to-punctual-go to school “Students HAD TO be on time for school last week.”

24 class. represents classifier in Mandarin
62. A. He HAD TO work harder than others to get what he owns today.

A' Wei le yongyou jintian de chengju, ta yiqian yiding dei bi
for-asp.-have-today-of-success-he-before-definitely-have to-compare-
bie ren dou nuli.
other-person-all-diligent
"In order to get what he owns today, he HAD TO work harder (before) than
others."

(62) A' should not be confused with the indicative use or epistemic
meaning which is the use of cai 'asp.' in Mandarin:

63. Ta yiding shi bi bie ren dou nuli cai you jintian de
s/he-definitely-be-compare-other-person-all-diligent-cai-have-today-attr.-
chengju.
success
"S/He MUST HAVE worked harder than others if s/he did succeeded."

The detailed use of cai is not under discussion here. But one should now
realize that the circumstance of "his working harder than others" makes "today's
success" a logical possibility. So it belongs to the category of prediction, namely,
the indicative-governing use, not subjunctive use.

Similar to MUST, the subjunctive use of OUGHT TO includes many aspects,
whether technical, legal or moral, and includes many requirements, whether
becoming successful, keeping healthy, etc. Because of various aspects under
which and requirements from which the circumstances may be thought to have
something owing in the deontic meaning, OUGHT is often qualified by such
phrases as 'in order to' in English and 'wei le' in Mandarin. (Sentences (62 A)
shows this qualification of MUST and (62A') above is an example of yiding dei).
Therefore, the deontic interpretation of the utterance "There OUGHT to/SHOULD be
a law against it” should be “Yiding deiyao you yi tiao falú tiaowen lai tuifan ci yi panjue.” (cf. 3.1.2).

The ought to in the two interpretations, be it epistemic or deontic, of “There ought to be a law against it” can also be replaced by must. For instance, “There must be a law against it” as said, on the one hand, by a lawyer looking for an alternative solution for his client, and, on the other, by a victim who just recently lost the trial; i.e., a prescription. As mentioned above, the epistemic use of ought to and must is expressed by modals which denote some kind of prediction in Mandarin, such as shi, hui, keneng, whereas, the deontic use is featured by those modals showing certainty and prescription, such as yiding, yao, dei. So the former is equivalent to “Yinggai hui you yi tiao falú tiaowen lai fandui ta.” Whereas the latter is similar to “Yiding yao you yi tiao falú tiaowen lai fandui ta.”

Despite that ought to or its variant should can most of the time be replaced with must, yet there are circumstances when ought to is in the situation of appropriateness, but must is the only choice. Consider the following sentence found in White (1975):

64. A. If wet emery paper is more effective than dry as a rust remover, then it ought to be used for that purpose, but if it is the only effective means, then it must be used.

In other cases, using must is too strong for the purpose of ought to and using ought to can be too weak for expressing must. In the case of deontic, subjunctive use, ought to is normally too weak. For instance, according to law,
anybody who purchases alcohol MUST be 21 years old or older; that is, there is no room for other choices. On the contrary, in epistemic use, MUST can be too strong: “He left two days ago. He OUGHT TO be there by now.” vs. “He left two days ago. He MUST be there by now.” Unless there is other evidence, one should agree that OUGHT TO is more appropriate in this utterance.

The preceding discussion also explains why yiding and yinggai in Mandarin are not really interchangeable. So the counterpart for English sentence (64) in Mandarin would be:

65. Shide shazhi dui chu xiu bi gande youxiao, name jiu yinggai wet-tery-paper-for-remove-rust-compare-dry-effective-then-jiu-SHOULD yong shide, keshi, ruguo shide shi wei yi youxiao de fangfa, name jiu yiding use-wet-but-if-wet-be-only-effective-attr.-method-then-jiu-MUST- yao yong shide.

want use-wet
“If the wet emery paper is more effective in removing the rust than the dry one, then it OUGHT TO be used for it. But if it is the only method, then it MUST be used for that purpose.”

It would sound queer if yiding and yinggai were switched in the sentence:

66. * Shide shazhi dui chu xiu bi gande youxiao, name jiu yidingi wet-tery paper-for-remove-rust-compare-dry-effective-then-jiu-MUST- yong shide, keshi, ruguo shide shi wei yi youxiao de fangfa, name jiu yinggai use-wet-but-if-wet-be-only-effective- attr.-method-then-jiu-SHOULD- yao yong shide.

want use-wet
“If the wet emery paper is more effective in removing the rust than the dry one, then it MUST be used for it. But if it is the only method, then it OUGHT TO be used for that purpose.”

Similarly, in the deontic use, yinggai is too weak and in the epistemic use, yiding is too strong in Mandarin:

67. A. Falü guiding, goumai jiu de ren yiding dei man 21 sui. (deontic)

law-regulate-buy-alcohol-attr.-person-MUST-HAVE TO-full-twenty one-age

“According to law, anyone who purchases alcohol MUST be 21.”
B. Falù guiding, goumai jiu de ren yinggai dei man 21 sui. (deontic)
    law-regulate-buy-alcohol-attr.-person-SHOU/SHOULD-HAVE TO-full-twenty one-age
    “According to law, anyone who purchases alcohol OUGHT TO be 21.”

68. A. Ta shi liang tian qian likai de, xianzai yinggai dao le. (epistemic)
    s/he-be-two-days-before-leave-de-now-OUGHT TO-arrive-asp.
    “S/He left two days ago, s/he OUGHT TO be ther by now.”

B. Ta shi liang tian qian likai de, xianzai yiding dao le. (epistemic)
    s/he-be-two-days-before-leave-de-now-MUST -arrive-asp.
    “S/He left two days ago, s/he MUST be there by now.”

It is concluded that epistemic necessity MUST/OUGHT TO/SHOULD which
draw possible conclusions are equivalent to yinggai in Mandarin. Deontic
necessity MUST/OUGHT TO/SHOULD, on the other hand, impose responsibilities are
closer to a more determined term yiding in Mandarin.

3.3 Dynamic Possibility

3.3.1 WILL, CAN vs. Hui

As mentioned in section 2, dynamic modality indicates the notional
categories of real-world ability, possibility/intention/willingness and future. Some
linguists distinguish possibility from future in that the former normally indicates
presuppositions whereas the latter is simply a temporal future. The auxiliary CAN
denoting ability and the future tense auxiliary WILL denoting intention/prediction in
English can be regarded as the modal auxiliary verb hui in Chinese:

69. Wo hui shuo wu zhong yuyan. (ability)
    I-CAN-speak-five-class.-languages
    “I CAN speak five languages.”

70. You yi tian, wo hui chengwei zui shou huanying de yuyan laoshi.
    Have-one-day-I-will-become-most-popular-attr.-language-teacher
    “One day, I WILL become the most popular language teacher.”
    (possibility/intention)
71. Wo mingnian hui qu Faguo. (future)
I-next year-WILL-go-France
“I WILL go to France next year.”

The hui in (69) denotes the ability of the speaker and hui in (70) denotes
the intention of the speaker. (70) and (71) are different in the fact that the
speaker in (70) presupposes a possibility of an event, whereas (71) is a decided
and planned simple future occurrence that is going to happen next year. Wu
(1996) calls the former “prediction” and the latter “future-temporal.”

A detailed use and comparison of CAN and WILL with hui will be further
discussed in Chapter four.

3.4 Dynamic necessity

3.4.1 MUST vs. Yiding

The difference between deontic MUST and dynamic MUST in English and
between those of yiding/yinggai in Mandarin lies in the subject of the utterance.
The subject of the deontic MUST and yiding gives an authoritative command to the
other party:

72. A. You MUST do what you can to pass the exam.

A’ Ni yiding dei jin ni suo neng tongguo kaoshi.
You- definitely-HAVE To-exhaust-you-whatever-ability-pass-exam
“You MUST do whatever you can to pass the exam.”

The subject of the dynamic MUST and yiding, either I ‘wo’ or we ‘women’, makes a
self-necessitating command, meaning “It is necessary for me/us to…”:

73. A. I MUST do what I can to pass the exam.

A’ Wo yiding dei jin wo suo neng tongguo kaoshi.
I-definitely-HAVE To-exhaust-I-whatever-ability-pass-exam
“I MUST do whatever I can to pass the exam.”
It can be concluded that an alternative name for the deontic necessity with the first person subject is dynamic necessity. And it is not logical that subjects ‘I’ or ‘we’ are used in epistemic necessity modal expressions:

74. ?A I MUST work harder than others, if I always finish so early.

?A' Ruguo wo zongshi hen zao jiu ba shi zuo wan, wo yiding shi bi bie ren nuli.
other-person-diligent
“I MUST be more diligent than others if I always finish work so early.”

This sentence is not quite acceptable because it will lead to a question (confusion)-You don’t know if you (are more diligent) work harder than others? Unlike deontic necessity, in which the speaker is imposing a necessity to the addressee, in the sense of “epistemic necessity”, the speaker is leaving a bit of doubt of the fact. So: “You MUST work harder than others if you are to finish early” is deontic; “You MUST work harder than others if you always finish so early” is epistemic. (74 A’) is not as correct in epistemic necessity because the first person subject which is the speaker himself should know if he works harder than others or not. He should not have any doubt of this fact. On the contrary, it is perfectly all right, however, in the sense of dynamic necessity (self-necessitating command), to say:

75. A. I MUST work harder than others, if I want to finish early.

A' Ruguo wo xiang jinzao ba shi zuo wan, I yiding de bi bie ren nuli.
If-I-want-soon-ba-thing-do-finish-I-MUST-HAVE-TO-compare-other-person-diligent
“If I want to finish it as soon as possible, I MUST work harder than others.”
3.4.2 Mandarin Yao and Hui vs. English Future-WILL and BE GOING TO

When yao in Mandarin functions as an auxiliary verb, it can either imply 'BE GOING TO', a future or 'to want to', a regular verb. When it functions as a transitive verb, it means 'to want' which can only take a noun as an object. In most cases, when yao functions as an auxiliary verb, it can signal either 'BE GOING TO' or 'to want to', depending on the context and situation:

76. A: Ni yao zuo shemme?
   You-aux. verb-do-what
   "What ARE you GOING TO do? / What do you want to do?"

   B: Wo yao qu tushuguan kanshu.
   I-aux. verb-go-Ilibrary-read
   "I AM GOING TO study in the library. / I want to study in the library."

However one should note that the position of yao in a sentence can affect its meaning, especially when it occurs with time phrases. Let's consider the following examples:

77. Wo jintian wanshang yao kanshu.
   I-today-night-want-read
   "I AM GOING TO read tonight / I want to read tonight."

78. Wo yao jintian wanshang kanshu.
   I-want-today-night-read
   "I WANT to read tonight."

In sentence (77), yao denotes a meaning of an event happening in the future. It also means that the verb phrase kanshu 'to read' right after the modal yao is the action desired. In other words, the speaker is not going to or doesn't want to watch TV, or do any other things but read tonight. In sentence (78), the focus is on the time phrase jintian 'today' or phrases jintian wanshang 'tonight'. The time
frame, jiantian or jintian wanshang is the desired time when the event kanshu is to take place. Hui, on the other hand, as mentioned above, is also an auxiliary verb, denoting a future potential or possible event:

79. Ni jintian wanshang hui zuo shemme?
   You-today-night-WILL-do-what
   “What WILL you do tonight?”

80. Wo jintian wanshang hui kanshu.
   I-today-night-WILL-read
   “I SHALL/WILL read tonight?”

But a lesser degree of certainty in this utterance comes into being if a mood particle ba is attached to the end of the sentence:

81. Wo jintian wanshang hui kanshu ba.
   I-today-night-WILL-read-particle
   “I THINK, I SHALL/WILL read tonight.”

With the mood particle ba, it seems that example (81) is best started with the mood particle “I THINK” in English.

Despite the fact that hui and yao share similar semantic features, when used as future markers, like ‘BE GOING TO’ in English, yao cannot be used to respond a positive imperative, while hui ‘WILL’ can. Consider the following English sentences (82A, B & B’) and their Chinese counterparts (82A’, B’ & B”):

82. A: Take care! Or Have fun!
   B: I WILL.
   B’: *I AM GOING TO.

   A’: ‘Bao zhong!’ Or ‘Warde yukuai!’
   Keep-care   play-happy
   “Take care!”   “Have fun!”
B': Wo hui de!
   I-will-asp.
   "I WILL."

B'': *Wo yao de.
    I-be going to-asp.
    **"I AM GOING TO."
CHAPTER 4
Keyi, Neng, Hui in Mandarin and English CAN

The distinction between dynamic and epistemic modality of hui (CAN/know how to & WILL) does not seem to be problematic to L1 English Mandarin learners, because regardless what they want to express, either "CAN/know how to" or "WILL," the chance for them to get the right production of hui is 100%. The problematic issue with native English speakers learning Chinese is the distinction among hui, neng and keyi and the decision of when to use which. This involves the distinction between dynamic and deontic modality.

Most textbooks that I have used introduce the auxiliary verb keyi 'CAN, to be allowed to' precedes neng 'CAN', and as shown here, they are normally glossed as English CAN in the textbooks. As a result, students, not knowing the exact difference, tend to generalize all the uses of keyi and neng as keyi. The following is an example of frequent misplaced of neng with keyi:

.83. *Laoshi, wo zuotian bu shufu, suoyi bu keyi lai shangxue.
   Teacher-I-yesterday-not-comfortable-so-not-permit-come-school
   "Teacher, I didn't feel well yesterday, so I was not permitted to come to school."

In this chapter, before I discuss English CAN with its multi-interpretation of Mandarin hui, neng or keyi, I shall, first, discuss keyi, neng and hui in Mandarin respectively. The overlapping meanings of these modals is the main concern. The framework of this discussion relies on the epistemic and deontic uses of these modals. Then, the modal verb CAN in English is discussed individually. Finally, I

25 Although Chinese linguists may use different terms to refer to the nature of the modality, yet they are confined in these two major categories.
shall analyze CAN with \textit{hui, neng, keyi} in the semantic and syntactic relationships. Their syntactic relationship is discussed in terms of theoretical, grammatical and pragmatic aspects.

4.1 The Meaning of \textit{Keyi} in Mandarin

In addition to the deontic possibility use, which denotes permission, \textit{keyi} in Mandarin, according to Huang (1999), indicates three other meanings: epistemic possibility denoting capacity (circumstances), capability and deontic (personal-promise). Deontic possibility (permission) is categorized by Huang as personal-authority. \textit{Lü} (1980) also distinguishes the meanings of \textit{keyi} in Mandarin into four kinds: epistemic possibility, capability, personal authority and personal promise. His category of personal authority and promise belongs to deontic notion. And according to \textit{Lü}, the negation of epistemic possibility and capability of \textit{keyi} is \textit{bu neng}, not \textit{bu keyi}. The negation for deontic use, which is permission, (personal-authority) is \textit{bu keyi}, and personal-promise is negated with \textit{bu zhide} 'not worthwhile'. In the discussion, I shall refer to \textit{Lü}'s definition of negation for \textit{keyi}.

4.1.1 Epistemic Possibility

The epistemic \textit{keyi} indicates capability, which Chinese linguists distinguish from \textit{neng} indicating some kind of ability\textsuperscript{26}. Huang (1999), \textit{Lü} (1980) and \textit{Lu} (1996) claim that the major meaning of \textit{keyi} is 'probability, possibility'. When used as epistemic possibility, if the condition/possibility involves human ability, it is equivalent to \textit{keneng} 'maybe, MAY or MIGHT'. But if this possibility is not

\textsuperscript{26} See (4.2).
associated with human ability or capability, it cannot be substituted by *keneng*,
even though it has the meaning of 'probability'.

Let's revisit the sentence (34.A) in section (3.1.1) above: "I MAY study in the
library today," meaning "It is possible that I WILL study in the library today." Its
Mandarin equivalent is:

34. A' Wo jintian *keyi* qu tushuguan kanshu. (adv.²⁷)
    I-today-maybe-go-library-read
    "I, maybe, CAN study in the library today."

This utterance indicates the speaker's possibility of going to read in the library, if
circumstances permit. Similarly, *keneng* in sentence (42 a') above can be
replaced with *keyi* (42 a'):

42a'. Ruguo ni mei qiao tai duo ke, zhei men ke ni *keneng hui* guo.
    If-you-not-skip-too-many-class-this-course-you-maybe-CAN-pass
    "If you hadn't skipped too many classes, you MIGHT HAVE passed the
course."

42a". Ruguo ni mei qiao tai duo ke, zhei men ke ni shi *keyi* guo de.
    If-you-not-skip-too-many-class-this-course-you-be-CAN-pass-asp.
    "If you hadn't skipped too many classes, you MIGHT HAVE BEEN ABLE TO pass
    the course."

This utterance indicates the epistemic possibility of the speaker's ability to pass
the course. The speaker in both (42 a') and (42a") is making an unreal
assumption of a past event which is called "past unreal" in English. The truth or
the fact of these utterances is "You didn't pass the course because you skipped
too many classes." A slight difference between (42 a') and (42a") hinges on the
fact that (42a") more directly addresses about the agent's ability, whereas (42a')

²⁷ *Keneng* functions as an adverb
simply indicates a possibility. As mentioned above, Mandarin modal adverbs have to co-occur with other modal auxiliaries in past structures. So, *keneng hui* in (42a') is similar to English “MIGHT HAVE + Vpp,” indicating a possibility. And *keyi* in (42a") indicates the addressee’s capability of passing the course. In English, the modal *BE ABLE TO* denotes some kind of ability or capability; therefore “*shi keyi guo de*” in (42a") is like “MIGHT HAVE BEEN ABLE TO pass” in English.

However, sentence (35A) in section (3.1.1): “It MAY rain later in the afternoon”, meaning “It is possible that it WILL rain later this afternoon,” cannot be interpreted with *keyi* in Mandarin because this possibility does not involve human ability:

35. A' *Jintian xiawu keyi xiayu.*
   Today-afternoon-maybe-rain
   “It MAY rain this afternoon.”

Chen (2000) claims that if the subject of the utterance is non-human and it does not involve “possibility” but simply expresses the ability or the capacity of the non-human subject, *keyi* is acceptable:

84. Zhe zhang zhuozi *keyi* zuo shi ge ren
   This-class.-table-CAN-sit-ten-class.-people
   “Ten people CAN sit at this table (This table CAN seat ten people).”

Chen further argues that the claim of Huang's (1999) treating *keyi* as an indication of instrumental case is not fully valid. She uses examples of changing the surface non-human subject (85) into a human subject (86) and finds (86) unacceptable in Mandarin:

85. Zhe jian wuzi *keyi* zhu si ge ren.
   This-class.-room-CAN-live-four-class.-people
   “This room has the capacity of four people.”

64
So sentence (86) does not indicate the instrumental purpose of the room but the possibility of being able to accommodate four people. In this case, I would argue that if we change the fixed number “four” into a generic number “ji,” or change the whole statement into an interrogative, which may indicate the uncertain possibility of a room’s capacity, it would be acceptable. Consider the following example when a big family is thinking about assigning rooms for individuals:

87. Women keyi yong zhe jian wuzi zhu ji ge ren?
   We-CAN-use-this-class.-room-live-how-many-class.-people
   “How many people CAN we put in this room?”

88. Women keyi yong zhe jian wuzi zhu si ge ren ma?
   We-CAN-use-this-class.-room-live-four-class.-people-qm.
   “CAN we put four people in this room?”

The indication of possibility in keyi is even more clarified if we use a verb complement “dexia” to indicate the capacity of an object, we find that both human and non-human subjects are acceptable:

84’. Zhe zhang zhuozi keyi zuo dexia shi ge ren
   This-class.-table-CAN-sit-complement-ten-class.-people
   “This table CAN seat ten people.”

85.’ Zhe jian wuzi keyi zhu dexia si ge ren.
   This-class.-room-CAN-live-complement-four-class.-people
   “This room has the capacity of four people.”

86’ Women si ge ren keyi zhu dexia zhe jian wuzi,
   We-four-class.-people-can-live-complement-this-class.-room
   “This room has the capacity of holding four of us.”

In short, one of the functions of keyi in Mandarin is to denote a meaning of possible capacity of an object.
4.1.2 The Indication of Capability

Both Lü (1980) and Huang (1999) agree that *keyi* in Mandarin denotes the capability of an object. The examples from Lü are as follows:

89. Feng *keyi* fa dian.
   Wind-CAN-generate-electricity
   "Wind CAN generate electricity."

90. Mianhua *keyi* zhi bu...
   Cotton-CAN-weave-cloth
   "Cotton CAN be used to weave cloth."

91. Dabaicai *keyi* sheng chi...
   Cabbage-CAN-raw-eat
   "Raw cabbages are edible."

However does it mean that *keyi* in these three sentences indicate instrumental purposes because the subject of the sentences are non-human?

What if we change the subjects into humans?

89'. Women *keyi* yong feng fa dian.
   we-CAN-use-wind-generate-electricity
   "We CAN use wind to generate electricity."

90'. Women *keyi* yong mianhua zhi bu...
   we-CAN-use-cotton-weave-cloth
   "We CAN use cotton to weave cloth."

91'. Women *keyi* sheng chi dabaicai...
   we-CAN-raw-eat-cabbage
   "We CAN eat uncooked cabbages."

What if we keep the non-human subjects and apply the verb + complement "yong + lai" 'to use'?:

89" Feng *keyi* yong lai fa dian.
   wind-CAN-use-come-generate-electricity
   "Wind CAN be used to generate electricity."
90°. Mianhua keyi yong lai zhi bu...
cotton-CAN-use-come-weave-cloth
"Cotton CAN be used to weave cloth,"

91°.* Dabaicai keyi yong lai sheng chi...
cabbage-CAN-use-come-raw-eat
"Cabbages CAN be used to eat raw."

As the result shows, (89'), (90'), (91") and (90") do retain the meaning of instrumental purposes with the verb yong 'to use'. Lü (1980) claims that the verb yong plus a noun (yong +noun) indicates the means, instrument or method of the action. Therefore, keyi in sentences (89'), (90'), (89") and (90") denotes the instrumental uses of the wind and the cotton. Keyi in (91'), however, does not indicate the use of the cabbage; i.e., “cabbages” in (91’) does not bear any functions of means, instrument or method, but it is the direct object of the verb chi ‘to eat’ (Chen, 2000). So keyi in (91) and (91’) indicates the possibility of eating uncooked cabbages. It is a use of epistemic possibility, but not epistemic capability. In other words, (91) may be interpreted with the meaning that “It is possible (for us) to eat uncooked cabbages/Cabbages CAN be eaten raw,” but not “Cabbages CAN be used to eat raw” in English. Nevertheless, the reason for “Dabaicai keyi yong lai sheng chi” to be unacceptable is because of the nature of the predicate. If we change “shengchi” into “zhibing,” then the whole sentence becomes an instrumental use and is acceptable:

91°. Dabaicai keyi yong lai zhbing.
cabbage-CAN-use-come-cure-illness
"Cabbages CAN be used to cure illness."

The fact shows that despite of some similarities between the uses of keyi in epistemic possibility and epistemic capability; there is, to some extent, a
difference between these two epistemic notions in Mandarin when different subjects or predicates are applied.

4.1.3. Deontic: Personal-Promise: the Indication of Worthiness

In some deontic uses, there are times when the speaker is not really imposing a responsible necessity; rather s/he is suggesting the worthiness of an action. 

Keyi in these utterances is not so much deontic necessity as the indication of worthiness. Let's revisit sentences (60 A and A'):

60. A. He must work harder than others, if he is to finish in time.

A' Ruguo ta xiang jishi wangong, ta yiding dei bie ren dou nuli.
"If he wants to finish work in time, he must work harder than others."

There is an indication of worthiness in these statements, namely: "If he is to finish in time, it is worthwhile for him to work harder than others." So (60 A') can be revised by using keyi as in sentence (92):

92. Ruguo ta xiang jishi wangong, ta shi keyi bie ren dou nuli.
"If he wants to finish work in time, it is worthwhile for him to work harder than others."

Let's consider the examples found in Lü (1980):

93. Zhe ge wenti hen keyi yanjiu yi fan.
"This issue is worth discussing."

94. Meishu zhanlan dao keyi kan kan
"It is actually worthwhile for us to take a look at the exhibition of fine arts."

95. Ta juede lu yuan, bu zhide qu, wo dao juede hai keyi qu kan kan.
"He doesn't think it worth going because it's too far, but I think it actually worth paying a visit."
As we can see, all these sentences above denote some extent of worthiness. We may conclude that if a “deontic necessity” does not indicate worthiness, keyi cannot be used:

96. Yuangong yiding dei zhunshi shangban.  
   employee-definitely-HAVe TO-punctual-go work  
   “Employees MUST be on time for work.”

96’? Yuangong keyi zhunshi shangban.  
   employee-CAN-punctual-go work  
   “Employees CAN be on time for work.”

When keyi is used in a sentence such as (96) above which does not indicate some kind of worthiness, the resulting formulation, (96’) no longer denotes “deontic necessity” but rather “epistemic or deontic possibility,” the possibility or permission for employees to be on time for work.

As mentioned earlier, the negation for this personal-promise indication is bu zhide, not bu keyi, which shows that (92’-95’) are incorrect:

92’. Ruguo ta bu xiang jishi wangong, ta bu keyi bi bie ren nuli.  
   If he not wants in time finish he not CAN compare other person diligent  
   “If he does not want to finish work in time, he is not allowed to work harder than others.”

93’. Zhe ge wenti bu keyi yanjiu yi fan.  
   This class question not CAN study one turn  
   “This issue CANNOT be discussed long.”

94’. Meishu zhanlan bu keyi kan kan.  
   fine arts-exhibition not CAN see see  
   “We CANNOT take a look at the exhibition of fine arts.”

95’. Ta juede lu yuan, bu keyi qu, wo dao juede hai keyi qu kan kan.  
   He feel road far not CAN go I actually feel still CAN go see see  
   * “He thinks it’s too far and we are not allowed to go, but I think it actually worth paying a visit.”
For an original deontic necessity statement, such as (92') above, the correct negation is *bu bi* or *bu xuyao* 'not necessary'. Because such a sentence also indicates a degree of worthiness, *bu zhide* is more acceptable, but definitely not *bu keyi*. Further discussion of negation is included in the next chapter, when I discuss modality and negation.

To show that *bu zhide* is the correct form of negation in the personal-promise use, let's negate (92-94) by using *bu zhide*:

92". Ruguo ta *bu xiang jishi wangong*, ta jiu *bu zhide/bu xuyao* bi
   If-he-not-want-in-time-finish-he-asp.-not-worth/not-necessary-compare-
   bie ren nuli.
   other-person-diligent
   "If he does not want to finish work in time, it is not worth for him/he doesn’t
   HAVE TO work harder than others."

93". Zhe ge wenti *bu zhide yanjiu*.
   This-class.-question-not-worth-study
   "This issue is not worth discussing."

94". Meishu zhanlan *bu zhide yi kan*
   fine arts-exhibition-not-worth-one-see
   "The fine arts exhibition is not worth seeing."

4.1.4. Deontic: Personal-Authority: Indication of Permission

Among all the uses of *keyi* in Mandarin, the notion of deontic possibility is the most straightforward and the clearest. However examples showing permission, as Palmer (1990) points out, are few. When denoting “permission,” *keyi* is similar to the use of deontic possibility *MAY*, which also denotes permission in English:

97. A. You *MAY* come in now.
   A'. *Ni keyi jinlai le.*
   You-MAY-enter-asp.
   "You MAY come in now."
In some cases, *keyi* in Mandarin, like *MAY* in English, appears in very formal environments, denoting permission. Consider the following English example found in Lebrun (1965):

98. She requested permission to leave at three... He said drily 'You MAY go at that hour if your work is done.'

“You MAY go at that hour if your work is done” in Mandarin can be

98.' “Ruguo ni ba gongzuo zuowan, ni nei ge shihou jiuj *keyi* zou.”

if-you-handle-work-finish-you-that-class.-time-asp.-may-walk

Nevertheless, there is a less strong voice called “command” by Palmer (1990) and “democratic imperative” by Leech (1987), in which the speaker is making a suggestion rather than an authoritative order. *MAY* and *CAN* in English may denote the meaning of a command. *Keyi* used in a command provided by Lü (1980) shows that the speaker is not giving permission but is performing democratic authority/request:


“Color-too-light-asp.-CAN-more-dark-one-some

The color is too light, you *CAN/MAY* make it darker.”

The speaker is not performing his/her authority but is making a democratic command or request. Both *MAY* and *CAN* can be the English counterparts of *keyi* in this case. They should be distinguished with deontic necessity *MUST*:

99’. The color is too light, you *MUST* make it darker.

Similarly, in the case of a democratic command, *yiding dei* in Mandarin is not a good choice:

---

28 Palmer (1990) suggests that *CAN* is less polite than *MAY* and the speaker normally makes “sarcastic” suggestions (cf. 4.6.1.4 of this study).
The speaker is imposing a deontic authority, not a “democratic imperative” here.

In a nutshell, in the use of deontic possibility, keyi in Mandarin similar to may or can in English can be used in strong permission or a polite request called “command.”

4.2 The Meaning of Neng

Huang (1999) modifies Lü’s analysis of keyi and neng and categorizes six meanings of neng in Mandarin:

I. It denotes ability and capacity based on circumstances:

100. Women jintian neng zuo de shi, you xuduo shi guoqu zuo bu dao de.
    We-today-can-do-attr.-thing-have-many-be-past-do-not-reach-attr.
    “Many things that we can do today couldn’t be achieved in the past.”

II. It denotes special talent or ability of someone:

101. Ta neng yan shan dao.
    He-can-speak-good-at-tell
    “He is articulate.”

102. Zhe ge ren zhen neng chi.
    This-class.-person-real-can-eat
    “This guy really eats a lot.”

(101) expresses the special talent of the agent and (102) indicates the ability of the agent to eat a lot.

III. It denotes capability (instrumental use):

103. Feng neng fa dian.
    Wind-can-generate-electricity
    “Wind can generate electricity.”
IV. It denotes epistemic possibility/capacity based on circumstances:

104. Zhe zhang zhuozi neng zuo shi ge ren.
This-class.-table-CAN-sit-ten-class.-person
“Ten people CAN sit at this table.”

105. Ta mingtian neng qu kan zhanlan.
He-tomorrow-CAN-go-see-exhibition
“He WILL BE ABLE TO see the exhibition tomorrow.”

V. It denotes (reasonable) personal deontic authority:

106. Wo xianzai neng zou le ma?
I-now-CAN-leave-asp.-qm.
“CAN I leave now?”

VI. It denotes (situational, environmental) personal deontic authority:

107. Zhe ge gongyuan li neng liu gour ma?
this-class.-park-inside-CAN-stroll-dog-qm.
“CAN we walk the dog in this park?”

Whether based on a situation or personal reasons, (V) & (VI) denoting personal deontic authority can be treated as one category “permission.”

Summing up the meanings of keyi and neng, it is found that neng does not have the meaning of “worthwhile” and keyi cannot be used to indicate someone’s special talent or ability. Therefore, keyi and neng are semantically overlapped in the uses of epistemic possibility/capacity, epistemic capability (instrumental use) and deontic possibility-(personal or conditional) permission. Because of semantic overlaps, in the following sections, I shall examine the interchangeability of neng and keyi based on Huang’s (1999) and Lü’s (1980) categorizations of keyi and neng.
4.2.1. Indication of Capacity

One of the shared epistemic uses of keyi and neng is the epistemic possibility or capacity based on the circumstances or situations. Normally, in this type of usage, keyi and neng are interchangeable. The use of epistemic capacity is very similar to English can. Lü (1980) further claims that neng is used in the negative form for epistemic possibility/capacity and capability of keyi. Therefore, it can be assumed that keyi and neng are interchangeable in the positive form of this use. Let us revisit the examples of epistemic possibility (108-109') and capacity (109-110') given above:

108. Wo jintian keyi qu tushuguan kanshu.
   I-today-maybe-go-library-read
   “I, maybe, CAN study in the library today.”

108' Wo jintian neng qu tushuguan kanshu.
   I-today-CAN-go-library-read
   “I, maybe, WILL BE ABLE TO/CAN study in the library today.”

109. Women jintian neng zuo de shi, you xuduo shi guoqu zuo bu dao de.
    We-today-CAN-do-attr.-thing-have-many-be-past-do-not-reach-attr.
    “Many things we CAN DO today COULDN’T be achieved in the past.”

109' Women jintian keyi zuo de shi, you xuduo shi guoqu zuo bu dao de.
    We-today-CAN-do-attr.-thing-have-many-be-past-do-not-reach-attr.
    “Many things we MAY BE ABLE TO/CAN do today couldn’t be achieved in the past.”

110. Zhe zhang zhuozi keyi zuo shi ge ren
    This-class.-table-CAN-sit-ten-class.-people
    “Ten people CAN sit at this table (This table CAN seat ten people.).”

110' Zhe zhang zhuozi neng zuo shi ge ren
    This-class.-table-CAN-sit-ten-class.-people
    “Ten people CAN sit at this table (This table CAN seat ten people.).”

In order to show that (110) and (110') are concerned with the possible capacity of the non-human subject, the table, we can use the structure “Verb +
de xia” which indicates the capacity of an entity in Mandarin. (110) and (110') can be rewritten as:

110° Zhe zhang zhuozi keyi/neng zuo dexia shi ge ren.
this-class.-table-CAN-sit-complement-ten-class.-person
“This table CAN seat ten people.”

So be it epistemic possibility or capacity of a non-human subject, keyi and neng are interchangeable. However on first reading, it is hard to determine if keyi in (109') denotes possibility or permission. Chen (2000) suggests that both meanings are acceptable depending on the circumstances provided in the statement. (111) is the use of deontic possibility-permission whereas (111') can be treated as the negation of epistemic possibility of keyi:

111. Women jintian keyi zuo de shi, you xuduo shi guoqu bu neng/keyi zuo de.
We-today-CAN-do-atr.-thing-have-many-be-past-not-can-do-atr.
“Many things we CAN do today were not allowed in the past.”

111'. Women jintian zuo de dao de shi, you xuduo shi guoqu bu neng zuo de.
“Many things we MAY BE ABLE TO do today COULDN'T be achieved in the past.”

In the negation of epistemic possibility, only bu neng is acceptable. This is because the meaning of bu keyi is closer to the indication of permission, not possible ability. This explains why the following utterance is not acceptable but many L2 Mandarin learners often make such a mistake:

112. * Wo zuotian shengbing le, suoyi bu keyi lai shangke.
I-yesterday-ill-asp.-so-not-CAN-come-attend class
“I was sick yesterday so I COULDN'T come to class.”

In this circumstance, the speaker’s physical condition made her/his presence to class not possible. Therefore, the acceptable expression should be:
112'. Wo zuotian shengbing le, bu neng lai shangke.
I-yesterday-sick-asp.-not-CAN-come-attend class
"I was sick yesterday so I COULDN'T come to school."

However if the illness is widely recognized and prohibits the bearer's appearance in public, it becomes an entirely different situation:

113. Ta you TB, bu keyi lai shangxue/rujing.
s/he-have-TB-not-CAN-come-attend school-enter the territory
"S/He has TB. S/He is not allowed to come to school/enter the country."

He is not allowed (does not have the permission) to come to school or to enter the country because TB is contagious!

4.2.2 Indication of Epistemic Capability (Instrumental Usage)

We shall be able to use the same method to check if neng and keyi are interchangeable in the meaning of epistemic capability. Let's consider the examples again found in Lü (1980) and Chen (2000):

114. Dabaicai keyi sheng chi, xiaobaicai jiu bu neng sheng chi.
"Uncooked cabbage is editable but uncooked rape is not editable."

114' Dabaicai neng sheng chi, xiaobaicai jiu bu neng sheng chi.
"Uncooked cabbage is edible but uncooked rape is not edible."

115. Feng keyi/heng fa dian.
Wind-CAN-generate-electricity
"Wind CAN generate electricity."

116. Mianhua keyi/heng (yong lai) zhi bu...
Cotton-CAN-weave-cloth
"Cotton CAN be used to weave cloth..."

117. Dasuan neng/keyi zhibing
Garlic-CAN-cure-illness
"Garlic CAN cure illness."
As the results show above, it can be concluded that in this type of use, *neng* and *keyi* can be alternated without affecting the meaning of a sentence. And the negation of epistemic capability is also *bu neng*, not *bu keyi* (114).

4.2.3 Indication of Deontic Possibility-Permission

When indicating permission, whether based on personal reasons or environmental conditions, *neng* and *keyi* are interchangeable:

118. Wo *neng/keyi* jinlai ma?
   I-CAN-enter-qm.
   “CAN/MAY I come in?”

119. Ni *keyi/neng* jinlai le.
   You-MAY/CAN-enter-asp.
   “You MAY/CAN come in.”

120. Zhe ge gongyuan li *neng/keyi* liu gour ma?
   this-class.-park-inside-CAN-stroll-dog-qm.
   “CAN we walk the dog in this park?”

   *Keyi* and *neng* are also interchangeable in a situation of a polite command/democratic imperative, such as the example (99) given above:

99. *Yanse tai qian le, keyi zai shen yi xie.*
   Color-too-light-asp.-CAN-more-dark-one-some
   “The color is too light, you CAN/MAY make it darker.”

99‘. *Yanse tai qian le, neng zai shen yi xie.*
   Color-too-light-asp.-CAN-more-dark-one-some
   “The color is too light, you CAN/MAY make it darker.”

   However one may find that the voice of *neng* is weaker than *keyi*, especially in sentence (119) when the speaker is giving permission, rather than asking for permission (118). Most linguists agree that the major meaning of *neng* is to denote ability, whereas the meaning of *keyi* is closer to possibility or
permission. This is also true for the differences between CAN and MAY in English, about which I shall talk in the section on CAN.

4.2.4 Indication of Special Talent and Ability

Both Liu (1996) and Lü (1980) suggest that neng can indicate someone's special ability in doing something such as (121) and the example (101) given above:

121. Women ji ge ren li, ta zui neng chi neng shui.
    We-several-class.-person-in-he-most-CAN-eat- CAN-sleep
    "Among all of us, he eats and sleeps the most."

101. Ta neng yan shan dao.
    He-CAN-speak-good at-tell
    "He is articulate."

We can now check if keyi has the quality of denoting special talent or ability of someone:

121' * Women ji ge ren li, ta zui keyi chi keyi shui.
    We-several-class.-person-in-he-most-CAN-eat- CAN-sleep
    "Among all of us, he eats and sleeps the most."

The results show that (121) becomes unacceptable when keyi is used. As mentioned above, neng and keyi are not semantically overlapped in indicating one's special ability. It also proves Lü and Lu's claim (1996) that the meaning of neng is closer to "ability" and keyi is more likely to indicate "possibility." It seems reasonable to state that if the special ability contains a probability to some extent; i.e., following Gao's (1981) device of grouping Chinese verbs: activity, accomplishment and achievement, keyi can be used with verbs denoting possible capability such as "accomplishment."
Consider the following modified example from Gao:

122. Ta yi fenzhong *neng/keyi* da liu shi ge zi.
"He CAN hit six-ten-class.-words
"He CAN type sixty words per minute."

On the one hand, when *neng* is used, this utterance can be interpreted as “S/He has the special ability of typing as fast as sixty words per minute.” On the other hand, *keyi* is acceptable because the interpretation has now become “It is possible that s/he types sixty words per minute.” Despite of the restriction of using *keyi* to denote special ability, current youths often use *keyi* to substitute for *neng* to indicate someone’s capability in making a wisecrack:

123. Ni zhen *neng*!
"You-real-able
"You are really capable.”

123* Ni hai zhen *keyi*!
"You-still-real-able
"You are really capable.”

This type of use occurs randomly and infrequently; therefore, it should not be considered as a regular use of *keyi*.

**4.2.5 Indication of Deontic Personal Promise-Worthiness**

Most linguists claim that in this type of utterance, *neng* cannot be used to substitute *keyi*. Let us reconsider the examples given above:

93. Zhe ge wenti hen *keyi* yanjiu yi fan.
"This-class.-question-very-CAN-study-one-turn
"This issue is worth discussing.”

93*. Zhe ge wenti hen *neng* yanjiu yi fan.
"This-class.-question-very-CAN-study-one-turn
"This issue is worth discussing.”

---

29 Gao uses this example to show the unacceptability of *hui*, which I think is in accordance with my assumption that *keyi* and *neng*, on the contrary, are acceptable.
94. Meishu zhanlan dao keyi kan kan
fine arts-exhibition-actually-CAN-see-see
“It is actually worthwhile for us to take a look at the exhibition of fine arts.”

94′. Meishu zhanlan dao neng kan kan
fine arts-exhibition-actually-CAN-see-see
“It is actually worthwhile for us to take a look at the exhibition of fine arts.”

95. Ta juede lu yuan, bu zhide qu, wo dao juede hai keyi qu kan kan.
He-feel-road-far-not-worth-go-I-actually-feel-still-CAN-go-see-see
“He doesn’t think it worth going because it’s too far, but I think it actually worth paying a visit.”

95′. Ta juede lu yuan, bu zhide qu, wo dao juede hai neng qu kan kan.
He-feel-road-far-not-worth-go-I-actually-feel-still-CAN-go-see-see
“He doesn’t think it worth going because it’s too far, but I think it actually worth paying a visit.”

However I would suggest that if neng no longer denotes worthiness but epistemic possibility/capacity under certain circumstances, it is acceptable:

93′. Zhe ge wenti shi you keneng de.
This-class.-question-be-have-possible-attr.
“It is possible to discuss this issue.”

94′. Meishu zhanlan dao neng qu kankan
fine arts-exhibition-actually-CAN-go-see-see
“We ARE ABLE TO go to the exhibition of fine arts.”

95′. Ta juede lu yuan, bu neng qu, wo dao juede hai neng qu kan kan.
s/He-feel-road-far-not-CAN-go-I-actually-feel-still-CAN-go-see-see
“S/He thinks we WON’T BE ABLE TO go because it’s too far, but I think we ARE ABLE TO pay a visit.”

As shown above, neng in (93′–95′) does not indicate worthiness possibility. The sentences can be interpreted as:

93′″ Yanjiu zhe ge wenti shi you keneng de.
Study-this-class.-question-be-have-possible-attr.
“It is possible to discuss this issue.”

94′″ Qu kan meishu zhanlan shi you keneng de.
Go-see-fine arts-exhibition-be-have-possible-attr.
“It is possible to go to the fine art exhibition.”

95′″ Suiran lu yuan, dan qu kan kan shi you keneng de.
Although-road-far-but-go-see-see-be-have-possible-attr.
“Although it is far, it is possible to take a look.”
4.3 Conclusion For Neng and Keyi

Except for the "command" in deontic possibility use, keyi and neng in Mandarin share much semantic overlapping in epistemic capacity and capability.

It is generally agreed that the meaning of keyi is closer to the notion of possibility both in epistemic and deontic uses. Neng is closer to the notion of capability that someone possesses. This explains why in the use of deontic permission, the voice of keyi is stronger than neng. In addition, when indicating worthiness, keyi cannot be replaced by neng. When indicating someone's special talent or ability, keyi is unacceptable, except in some uses of wisecracks.

The negative expression "bu keyi" can only occur in deontic permission. The negative expressions for epistemic possibility, capability and deontic worthiness are bu neng for the first two and bu zhide for the latter. The following table shows a clear distinction between keyi and neng (cf. Chen, 2000):

Table 4.3. The Distinction of Keyi and Neng

<table>
<thead>
<tr>
<th>Indications</th>
<th>Keyi</th>
<th>Neng</th>
<th>Negative expressions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epistemic</td>
<td>O</td>
<td>O</td>
<td>bu neng</td>
</tr>
<tr>
<td>Possibility/capacity</td>
<td>O</td>
<td>O</td>
<td>bu neng</td>
</tr>
<tr>
<td>Epistemic capability</td>
<td>O</td>
<td>O</td>
<td>bu neng</td>
</tr>
<tr>
<td>Deontic Permission</td>
<td>O</td>
<td>X</td>
<td>bu keyi/bu neng</td>
</tr>
<tr>
<td>Deontic Worthiness</td>
<td>X</td>
<td>O</td>
<td>bu zhide</td>
</tr>
<tr>
<td>Special Ability</td>
<td>X</td>
<td>O</td>
<td>bu neng</td>
</tr>
</tbody>
</table>
4.4 **Hui in Mandarin**

In this section, the functions and meanings of *hui* in Mandarin are discussed with a literature review and comments. In addition, I shall also discuss the distinctions and the semantic overlapping of *hui* versus *keyi* and *neng* based on epistemic, deontic and dynamic perspectives.

4.4.1 **Functions and Meanings of Hui**

Tang (1979) claims that *hui* in Mandarin denotes, first, "ability," be it learned or physical, and second, "assertive," expressing the speaker’s judgment toward the "possibility" of the occurrence of an event. The "assertive" discussed here echoes the "assertives" mentioned in chapter two, where they are seen as one of the speech acts, although Tang does not relate his "assertive" to speech act theory.

Gao (1981) proposes four functions of *hui*: "ability," "probability," "contrary to expectation" and "tendency".

Wu (1996) categorizes *hui* as

A. "**Epistemic**" *hui* including "future potential" and "dubitative."

B. "**Epistemological**" *hui* including "exclamative" and "generic." The "generic" *hui* is further subdivided into "a kind," "an individual" and "a place."

C. "**Deontic**" ability.

Chang (2000) basically follows Tang’s (1979) framework dividing *hui* into "ability" *hui* and "assertive" *hui* but he further subdivides "assertive" *hui* into three subcategories: "predictive," "inferring" and "generic."
Summing up the categorization of *hui*, one will agree that one of the most common functions of *hui* is to denote “ability,” which is similar to the modal auxiliary *can* analyzed as ‘know how to’ in English. Some linguists often refer to ability *hui* in Chinese and *can* in English as “dynamic” possibility, indicating real world ability.

Another function of *hui* is “epistemic.” Tang and Chang include it as “assertive” (Chang subgroups it as “predictive” or “inferring” with restrictions on the predicates that follow *hui*). Gao names it as “probability” distinguished from “contrary to expectation.” Wu divides it into “future potential,” including “future-temporal,” and “dubitative” which often occurs in questions showing some uncertainty of the speaker. This type of use is closer to epistemic possibility, willingness or intention, like *should* or *will*, *shall*, in English.

The third function of *hui* is “epistemological” distinguished from “epistemic.” “Epistemological” *hui* includes two functions: first, “exclamative” and second, “generic.” “Exclamative” is called “contrary to expectation” by Gao, and “exclamative” by Wu. “Generic” shows the tendency of an object and denotes the high frequency of the occurrence of an event. Tang does not have a name for it but he groups it in the “assertive” *hui* when occurring with intensifiers. Gao names it as “tendency.” Wu and Chang categorize it as “generic” *hui*.

Huang (1999) proposes another function of *hui*, which was not mentioned in the previous studies. It is “deontic-personal promise” of *hui*, which I shall
suggest to be similar to the use of dynamic necessity and close to "epistemic"-"future-potential." I, thus, question the necessity of this separation.

In the following sections, I shall discuss the functions of hui with examples based on the categorizations mentioned above.

4.4.1.1 The Ability Hui

It is widely agreed by linguists that one of the most dominant functions of hui is to denote “ability” similar to the dynamic possibility CAN in English according to some linguists. It is normally interpreted as ‘know how to do something’.

Tang (1979) distinguishes “ability” hui and other functions of hui (he groups them as “assertive” hui) on a syntactic ground, which includes restrictions in taking lexical subcategories and intensifiers, the position of negative marker bu ‘not’, the concurrence with temporal adverbials, and the representation of sentence level, etc. It can be concluded that Tang’s differentiation between “ability” hui and “assertive” hui pivot on the complement that follows the modal hui. I shall now give examples of Tang’s “ability” hui as follows:

I. Restrictions in Taking Lexical Subcategories
A. Subject

The subject of “ability” hui must be animate:

124. Ren hui sikao.
     person-CAN-think
     “Human beings CAN (know how to) think.”

125. Nei zhi yingwu hui shuohua
     that-class.-parrot-CAN-speak
     “That parrot CAN (knows how to) talk.”
As we may see here, *hui* denotes ability. Its English counterpart is dynamic CAN 'know how to'.

B. Verb-taking

According to Tang, when denoting ability, *hui* is followed by only action verbs. Here is the example he provides:

126. Ta yiding *hui* kanxiang de.
    he-definitely-CAN-physiognomy-attr.
    "He definitely knows how to tell fortune."

"Kanxiang" 'practice physiognomy', according to Tang, is an action verb which can coexist with "ability" *hui*.

C. Intensifiers

Intensifiers or degree word, such as "hen" 'very' or "feichang/chang chang" 'quite', according to Tang, are used with "ability" *hui* to indicate the positive evaluation toward the agent's ability:

127. Ta hen *hui* shuohua.
    S/He-very-CAN-speak
    "S/He really knows how to talk. (He is articulate)."

128. Ta hen *hui* tiaowu.
    He-very-CAN-dance
    "He dances very well (He really knows how to dance)."

However Tang does not consider that the "ability" *hui* can also denote the negative quality of the agent; e.g., "Ta hen *hui* qifu ren." '(S/He is such a bully) S/He knows how to hurt people.' or "Ta hen *hui* zhao mafan." 'S/He knows how to look for troubles.'

II. The Position of Negative Maker "bu"
When negating the "ability" hui, according to Tang, the negative marker "bu" 'not' must appear before hui:

129. Ta bu hui shuo yingyu.
He-not-cAN-speak-English
"He CANNOT (does not know how to) speak English."

130. * Ta hui bu shuo yingyu.
He-wILL-not-speak-English
"He WILL not speak English."

Although sentence (130) is not acceptable in negating the "ability" hui, one should note that in modern Mandarin, (130) denotes an epistemic possibility. This will be further discussed in chapter five, when the interaction of modality and negation is discussed.

III. Coexistence With Temporal Adverbials

The "ability" hui can co-occur with any temporal adverbials indicating different time aspects:

131. Zhe ge xuesheng (xianzai, yiqian,jiang lai, yijing) hui shuo wu zhong yuyan.
This-class.-student-(now, before, in the future, already)- cAN-say-five-class. language
"This student (now, in the future) CAN/(before) COULD/has (already) known how to speak five languages."

IV. Representation of Sentence Level

According to Tang, the "ability" hui can only follow another modal, but not precede it:

132. Ta yinggai hui shuo fawen.
He-should-CAN-say-French
"He maybe CAN (knows how to) speak French."
Sentence (132) may have a different meaning if the modal particle *ba* appears at the end of the sentence:

133. *Ta hui (shuo Fawen) ba.*
   He-CAN-(speak-French)-modal particle  
   “He probably CAN (knows how to) speak French.”

Although *hui* in (133) denotes the ability of the agent’s being able to speak French, it can also be interpreted as “He probably will speak French (not English there)” as a response to the question:

133’.A. *Zai nar, ta hui shuo na yi zhong yuyan?*
   At-there-s/he-WILL-speak-which-one-kind-language  
   “What language WILL s/he speak there?”

   B. *Ta hui (shuo Fawen) ba.*
   He-CAN-(speak-French)-modal particle  
   “He probably CAN (knows how to) speak French.”

In general, *hui* indicating ability is widely recognized. However as for the qualification of the verb that follows it, Gao (1981) has a different opinion. Gao argues that Tang neglects the nature and features of Chinese verbs. He, then, revises Chinese verb classes into three subtypes, which include “accomplishment,” “achievement” and “activity.” The “ability” *hui* can only coexist with activity verbs, not the other two.

Gao gives an example to show that the “ability” *hui* cannot coexist with the “accomplishment” verbs:

134.* Ta yi fenzhong *hui* da liu shi ge zi.
   He-one-minute-CAN-hit-six-ten-class.-words  
   *"He knows how to type sixty words a minute.”

Gao argues that the verb “da” ‘hit’ is an action verb but the complement “liu shi
ge zi" 'sixty words' makes the verb phrase an accomplishment. As I mentioned in the section of *neng* and *keyi* above, in this case, the speaker does not simply state the action of the subject "ta" 's/he' but suggests or indicates the subject's special ability/capacity or the possibility to accomplish a task within the time given. Therefore, both *neng* and *keyi* are acceptable, but not *hui*:

134'. Ta yi fenzhong *neng/keyi* da liu shi ge zi. 
*s/he-one-minute-CAN-hit-six-ten-class.-words* 
"S/He CAN type sixty words a minute."

### 4.4.1.2 Epistemic *Hui*-Indication of Possibility

To begin, I shall still use Tang's distinctions between "ability" *hui* and "assertive" *hui*. Tang generalizes all the other functions of *hui* as "assertive" *hui* in comparison with the "ability" *hui*. As mentioned above, Tang takes syntactic approach in distinguishing the two functions of *hui*.

Except for the cooccurrence with intensifiers, which is considered as "tendency" by others, Tang's rules for "assertive" *hui* show epistemic possibility. Let's recapitulate Tang's regulations (except for the restriction in taking intensifiers) mentioned in the previous section:

I. Restrictions in Taking Lexical Subcategories

A. Subject

According to Tang, the subject of "assertive" *hui* can be either animate or inanimate depending on the situation:

135. Ta yinggai *hui* lai. 
*He-OUGHT TO-WILL-come* 
"He SHOULD be coming."
136. Xiawu keneng *hui* xiayu.
   afternoon-maybe-WILL-rain
   “It MAY rain this afternoon.”

   The “assertive” *hui* expresses the speaker’s judgment toward the
   “possibility” of the occurrence of an event. If so, either SHOULD or WILL in English
   can be used. As mentioned earlier, *keneng hui* in Mandarin is equivalent to
   MAYBE WILL and is equivalent to MAY in English, in which the speaker states an
   epistemic possibility about the event that is going to happen.

B. Verb-taking

   Unlike “ability” *hui* which can only be followed with activity (action) verbs,
   the “assertive” *hui* can be followed with both stative verbs and action verbs.

137. Ta yiding *hui* kandao ni.
   He-definite-WILL-see-you
   “He definitely WILL see you.”

   According to Tang, perceptive verbs, such as “tingjian” ‘to hear’, “kandao”
   ‘to see’ are classified as stative verbs, thus cannot coexist with “ability” *hui* but
   “assertive” *hui*. However one can claim that if “assertive” *hui* can coexist with
   both stative and action verbs, it seems reasonable for sentence (126) above “Ta
   yiding *hui* kanxiang de” to be interpreted as “He WILL definitely tell (your) fortune”

II. The Position of Negative Maker “bu” ‘not’

   The negative marker, according to Tang, can negate both the “assertive”
   *hui* and the main verb that follows it:

138. Ta *bu hui* bu qu.
   He-not-WILL-not-go
   “He WILL go.”
III. The Coexistence With Temporal Adverbials

Tang forbids the cooccurrence of “assertive” hui with temporal adverbials which indicate past or completion:

139. * Congqian (yijing) zher hui xiayu.
    before-(already)-here-WILL-rain
    “It WILL (already) rain here before.”

The reason for this is that the “assertive” hui when denoting an epistemic possibility functions somewhat like a future aspect marker indicating the possibility of an event that is going to happen, so it cannot co-occur with temporal adverbials which indicate past or completion.

IV. The Representation of Sentence Level

Tang claims that only “assertive” hui can appear before another modal, like “ken” ‘be willing to’ but not “ability” hui:

140. Ta hui ken qu.
    He-WILL-willing-go
    “He WILL be willing to go.”

But Tang’s classification of modals is not a good one. Hui, be it ability or assertive, cannot appear before a modal adverb (such as “yinggai” ‘probably’). It should be more logical to say that the “assertive” hui appears before any modal verbs (such as “ken” ‘be willing to’) but not modal adverbs:

141. Ta yinggai hui ken (shuo Fawen).
    He-probably-WILL-BE WILLING TO-(speak-French)
    “He probably WILL BE WILLING TO speak French.”

Gao (1981) terms epistemic possibility hui which denotes potentiality or the possibility of an occurrence as “probability” hui.
142. Xia ge xingqi hui xiaxue.
   Down-class.-week-WILL-snow
   "We SHALL expect snow next week."

Gao claims that an important feature of the "probability" hui is that it can never be deleted:

143 * Xia ge xingqi xiaxue.
   Down-class.-week-snow
   ? "We expect snow next week."

I, however, shall suggest that the possibility of deleting this type of hui depends on the nature of the verb that follows it. It also depends on whether or not the future time frame is in the "common ground" of the interlocutors; i.e., if the future time phrase is not clearly indicated in a sentence, it is still understood by the speaker and the listener. If the verb that follows it is associated with motion which themselves, similar to English, can indicate future action, then hui can be omitted:

144. Wo mingnian (hui) qu Faguo
   I-next year-(WILL)-go-France
   "I AM GOING TO France next year."

If the future time phrase is indicated (145), or the future time frame is shared in the "common ground" of the interlocutors (146), hui can be omitted:

145. Ni mingtian (hui) lai/youkong ma?
     you-tomorrow-(WILL)-come/available-qm.
     "Are you coming/free tomorrow?"

146. A Ta shemme shihou (hui) zou/qingke?
     s/he-what-time-(WILL)-leave/invite?
     "When is s/he leaving/having the party?"

B. Ta houtian (hui) zou/qingke.
   He-after day-(WILL)-leave/invite
   "He is leaving/having the party the day after tomorrow."
As we can see here, the motion verbs “qu,” “lai” and “zou” in Mandarin, like “go,” “come” and “leave” in English, can indicate future without future temporal modals. Coincidentally, Sanders’ (1992) study comparing the frequencies of the appearances of modality in Beijing and Taipei Mandarin shows that Beijing speakers tend to eliminate the use of modal verbs (147) as compared with Taipei speakers (148). The examples of this tendency are:

147. Ta lai ma? (Beijing)
   He-come-qm.
   “Is he coming?”

148. Ta hui bu hui lai? (Taipei)
   He-WILL-not-will-come
   “WILL he come?”

I assume that the difference in preferences may be based on the influence of indigenous dialects, since in Taiwan, one of the major languages besides Mandarin is Taiwanese. In Taiwanese, the future event may be expressed with the modal auxiliary “e”. Here is an example provided by Li (2002) who is a native speaker of Taiwanese:

149. Li e lai boe (similar to “Ni hui lai bu hui”)?
   you-CAN-come-not CAN
   “Are you coming?”

Wu (1996) divides epistemic possibility into two types: “future potential” and “dubitative.” “Future potential” has two subtypes: “future temporal” and “prediction.” The major difference between Wu’s “future potential” and “dubitative,” according to Wu, relies on the structure of the sentence. “Future potential,” like others mentioned earlier, represents future events (150), and
"dubitative" indicates an uncertain occurrence of an event, and always occurs in interrogatives (151). Examples of the two different cases are as follows:

150. Wo xiawu hui dao tushuguan qu.
    I-afternoon-WILL-reach-library-go
    "I AM GOING TO the library this afternoon."

151. Ta mingnian hui qu Faguo ma?
    s/he-next year-WILL-go-France
    "IS s/he GOING TO France next year?"

In other words, she gives a fine distinction between modals in statements and modals in interrogatives.

Wu further differentiates "future temporal" and "prediction" in her category of "future potential." Sentence (150) is an example of "future temporal" which indicates a planned and decided future event. Sentence (152) below, however, shows a predictive, an unknown future possibility:

152. Laotianye hui chengfa ta.
    Lord-WILL-punish-s/he
    "God WILL punish her/him."

Since one’s destiny cannot be determined, it can only be predicted based on present evidence; i.e., sentence (152) suggests: based on what we know about this person, "we can predict that he WILL be punished by God." This type of use, I shall claim, is discourse-oriented and similar to the "dynamic" use of modality, in which the speaker is the first person "Wo" ‘I’.

Chang (2000) does not make a fine distinction between "future temporal" and "prediction". His epistemic possibility hui is included in "assertive" hui. Nevertheless, objecting to Tang’s (1979) claim that “assertive” hui takes any kind
of stative verbs, he divides “assertive” *hui* into three types: “predictive,” “inferring” and “generic” *huis*, mainly based on different predicates that *hui* can take, and the appearance of *hui* in different sentence structures.

Chang’s device shows that stative verbs have two different bearings: changeable [+changeable] and unchangeable [-changeable]. This device is derived originally from Carlson’s (1977) two different levels of predicates: stage-level and individual-level. The [+changeable] or stage-level predicates indicate the transient, temporary manifestation of an object in time and space whereas the [-changeable] and individual-level predicates refer to the nature of an object. For instance, according to Chang, the phrase “shengqi” ‘angry’ is a changeable, stage-level predicate while “badao” ‘tyrannous’ is an unchangeable, individual-level predicate:

153. Zheyang ta yiding *hui* hen shengqi de.
   This-kind-s/he-definitely-WILL-very-angry-attrib.
   “S/he WILL definitely get very angry by this.”

154. * Zhe yang ta yiding *hui* hen badao de.
    This-kind-s/he-definitely-WILL-very-tyrannous-attrib.
    “S/he WILL be very tyrannous by this.”

However in my opinion, in a different context, the individual-level predicate “badao” can be acceptable:

154’. Ni zai bu tinghua, ta ke shi *hui* hen badao de yo!
    you-again-not-listen-s/he-definitely-be-CAN-very-tyrannous-de-excl.30
    “If you still don’t obey her/him, s/he definitely CAN become very tyrannous!”

______________________________
30. Excl. represents exclamation mark.
In sentence (154'), the speaker is warning the agent to obey somebody, otherwise, this person might become tyrannous.

Chang’s “predictive” *hui*, which can only take stage-level predicates resembles other “epistemic” *huis* mentioned above, indicating a future event:

155. Ni ba zhe ge gei ta, ta yiding *hui* hen gaoxing de.
You-handle-this-class.-give-s/he-s/he-definitely-WILL-very-happy-attr.
“S/he **will** definitely be very happy if you give her/him this.”

The *huis* that can appear in interrogatives and negatives can bear both [-changeable]/individual-level predicates and [+changeable]/stage-level predicates. Chang divides this type of *hui* into two kinds: “*inferring*” and “*generic*.” “*Inferring*” *hui*, similar to Wu’s (1996) “dubitative” *hui*, which indicates uncertain occurrence of an event, appears in an interrogative:

156. Ta *hui* hen badao ma?
    s/he-CAN-very-tyrannous-qm.
    “Is s/he very tyrannous?”

157. Ta *hui* hen xi nu wu chang ma?
    s/he-CAN-very-happy-angry-not-regular-qm.
    “Does s/he have a very unpredictable temper?”

The speaker in sentences (156) and (157) is simply questioning the personality of the subject

Chang’s “*generic*” *hui*, on the other hand, conveys an objective evaluation of a fact, not a possible judgment based on a presupposition. Therefore, *hui* is not equivalent to the future **WILL** in English. This type of use is similar to the “*tendency*” *hui*, which will be discussed in the next section. It should be noted that since the concept of an epistemic meaning of *hui* indicates a “predicted”

95
future event, the “speech time” of the speaker is an important element in the utterance. If the event happens before the speech time, hui cannot be used.

Let’s consider the examples found in Hsieh (2001):

158. Ta gangcai hui mai na ben shu. 
S/he-just now-WILL-buy-that-class.-book
“S/He just now WILL buy that book.”

However if the utterance contains appropriate relative time which indicates that the speech time happens before the event, the sentence is acceptable:

159. Ta gangcai hui mai na ben shu, qishi shi wo jianyi de. 
“Actually I suggested that s/he WOULD buy that book.”

As Hsieh points out, even though both occurrences happened in the past, yet relative to the speech time “I suggested”, “s/he buys the book” is a later event. Therefore, gangcai hui in this case is reflected by past future “WOULD” in English.

4.4.1.3 Epistemological Hui·Exclamative and Generic

4.4.1.3.1 Exclamative

Some linguists distinguish “epistemological” hui from “epistemic” hui, the former expresses that an event is “contrary to expectation” (Gao, 1981) while the latter indicates a predicted future event:

160. Mei xiangdao ta juran hui zuo zhe yang de shi. 
Not-think-s/he-incredibly-WILL-do-this-kind-attr.-thing 
“To my surprise/Incredibly, s/he WOULD do such a thing.”

161. Mei xiangdao ta hui qu. 
Not-think-s/he-WILL-go 
“I didn’t expect that s/he WOULD go.”
Wu (1996) calls it an "exclamative" hui, which the speaker expresses surprise that things did not turn out as s/he expected!

This type of use is similar to the tense agreement "I thought/I didn't expect that s/he WOULD..." in English in which the event in the subclause may happen in the future but the tense of "WILL" must be in the past form in order to be in accordance with the tense in the main clause "I thought." Such a sentence is generally interpreted as "Wo yiwei/mei xiangdao ta (bu) hui..." in Mandarin.

4.4.1.3.2 Generic: Tendency-Indication of Frequency

The hui that shows frequency of occurrence of an event is classified as the "assertive" hui by Tang (1979). He claims that this type of hui can coexist with an intensifier (degree word) such as "hen" 'very', or "changchang" 'often'. The intensifier precedes hui:

162. Ta hen hui fa piqi.
   S/He-very-CAN-show-temper
   "S/He often loses his temper; S/He gets angry very often."

Chang (2000) categorizes it as a "generic" use of hui which often appears in interrogative form. This type of modal is not seen in English. English uses simple present tense to indicate the frequency of an event:

163. Daxiang de bizi hui hen chang ma?
    elephant-attr.-nose-CAN-very-long-qm.
    "Do elephants have long noses/Is it true that elephants have long noses?"

164. Xiaweiyi yi nian si ji dou hui hen re ma?
    Hawai'i-one-year-four-season-all-CAN-very-hot-qm.
    "Is (Is it true that) Hawai'i (is) very hot all year round?"

165. Nian guo shu de ren zhende hui hen congming ma?
    read-asp.-book-attr.-person-reallly-hui-very-smart-qm
    "Is it true that educated people are smart?"
The speaker in these questions is expressing some doubt about conventional opinions. This type of use should not be confused with Chang’s “inferring” hui mentioned above. And unlike Tang, the intensifiers in Chang’s “tendency” hui appears after hui and modifies the adjectival.

Gao (1981) suggests that accomplishment and achievement verbs cannot coexist with “tendency” hui:

166. * Zhe ge xuesheng yi fenzhong hen hui da liu shi ge zi.
   This-class.-student-one-minute-very-CAN-hit-six-ten-class.-word.
   * “This student CAN type sixty words per minute very well.”

167. * Zhe ge laoshi hen hui kandao xuesheng de cuowu.
   This-class.-teacher-very-CAN-see-student-attr.-mistak
   * “This teacher CAN pretty much see students’ mistakes.”

Wu’s (1996) “generic” hui shows a tendency towards three types: a kind, an individual and a place. The hui in a kind indicates that features and/or characteristics of a kind are generally true and are often related to natural law:

168. Ren jie hui si.
   Person-all-WILL-die
   “All humans WILL die.”

The tendency of an individual is similar to Tang’s hui with intensifiers, which depicts high frequency of activity (169) or the sentence might indicate the routine of an individual (170):

169. Ta hen hui luan jianghua.
   S/he-very-CAN-mess-talk
   “Her/His words seldom make sense.”

170. Women mei ge zhoumo dou hui qu pashan.
   We-every-class.-weekend-all-WILL-go-climb mountains
   “We go mountain-climbing every weekend.”
Both Gao and Wu mention the tendency of “a place.” It shows the frequency of an occurrence in a place, either indicating a tendency or a regular occurrence:

171. Taipei hen hui xiayu.
Taipei-very-CAN-rain
“Taipei rains a lot.”

171’. Taipei chang chang hui xiayu.
Taipei-often-often-CAN-rain
“It rains a lot in Taipei.”

172. Riben chang chang hui dizhen.
Japan-often-often-CAN-earthquake
“They often have earthquakes in Japan.”

This type of use of the modal hui does not occur in English; i.e., hui does not have an equivalent English counterpart. English, thus, uses simple present tense to indicate the frequency of an occurrence.

In addition, the locative phrase can also represent a group of people in Mandarin, and co-occurs with the modal hui to indicate a high frequency of occurrence of a certain human characteristic:

173. Taipei hen hui zhuanquuo.
Taipei-very-CAN-pretend-rich
“People in Taipei often play rich.”

I would further suggest that while “intensifier + ability hui” indicates a positive evaluation of the agent’s ability, “intensifier+ assertive hui” (known as “tendency” hui) normally denotes a negative quality of the agent. In addition, the phrase following it is usually considered as an idiom or slang, called “shu yu” ‘idiomatic phrase’ in Mainland China. Consider again the examples above recapitulated in (174-176):
174. Ta hen *hui* fa piqu.
*S/He-*very*-CAN-show-temper
"S/He often loses his temper; S/He gets angry very often."

175. Ta hen *hui* luan jianghua.
*S/He-*very*-CAN-mess-talk
"Her/His words seldom make sense."

176. Taipei hen *hui* zhuang kuo.
Taipei-*very*-can-pretend-rich
"(It seems) People in Taipei often play rich."

The phrases "fa piqu", "luan jianghua" and "zhuang quo" are considered negative qualities of individuals. To further demonstrate the difference between "intensifier + ability *hui*" and "intensifier + assertive *hui*", I shall use the phrase "*hui* chi" in the following examples:

177. Ta hen *hui* chi.
*S/He-*very*-CAN-eat
"S/He knows how to eat."

178. Ta hen *hui* chi.
*S/He-*very*-CAN-eat
"S/He eats a lot."

*Hui* in (177) is an "ability" *hui*, denoting the special eating skill of the agent; i.e., "He always knows when to eat what and what with what," whereas *hui* in (178) is a "tendency" *hui*, denoting the capacity of one's frequency in eating. However in this latter case, *neng* would be a better choice than *hui*: "Ta hen *neng* chi," because the meaning of *hui* is closer to the skill of a person, whereas the meaning of *neng* is closer to capacity. Another example is:

179. Ta hen *hui* jiao pengyou.
*s/he-*very*-CAN-make-friend
"S/He knows how to make friends/S/He makes many friends."
This sentence can have two interpretations. With the "ability" hui, it means 'This person knows how to make friends.' whereas with the "assertive" hui, it denotes that 'This person often makes a lot of friends.'

If we change "chi" 'to eat' or "jiao pengyou" 'make friends' into an idiom as in (180), such as "zhao mafan" 'look for troubles', or a verb like "ku" 'cry', the qualification of "intensifier + assertive hui," denoting a negative quality of the agent is even more clarified:

180. Ta hen hui zhao mafan.
   S/He-very-WILL-find-trouble
   "S/He often makes trouble."

181. Ta hen hui ku.
   S/He-very-WILL-cry
   "S/He cries a lot."

Still, it is possible to interpret (180) as the "ability" hui with the meaning of "He is good at looking for trouble." / "He knows how to look for troubles."

And it is also possible for the "assertive" hui to denote a positive quality of the agent:

182. Ta hen hui wei ren zhaoxiang.
   S/he-very-can-for-person-considerate
   "S/He is very considerate."

In other words, the claim that the "ability" hui normally denotes a positive quality of the agent whereas the "assertive" hui denotes a negative quality of the agent is relative rather than absolute.

4.4.1.4 Deontic-Personal promise

Huang (1999) proposes a different function of hui which was not mentioned in earlier studies. This type of hui, according to Huang, is discourse-
oriented. The speaker is making a personal promise to the hearer, and the assertion thus should be differentiated from “epistemic” hui.

183. (Wo baozheng) Ni zhe yang hui ganmao de.
     (I-guarantee)-you-this-kind-WILL-cold-asp.
     “(I guarantee) You WILL catch cold this way.”

Nevertheless, I question the necessity of separating this type of hui with the “dynamic” use of hui, such as the “predictive” hui proposed by Wu (1996). Let’s recapitulate the example (152) above in (184):

184. Laotianye hui chengfa ta.
     Lord-WILL-punish-s/he
     “God WILL punish her/him.”

The speaker in both (183) and (184) suggests a prediction. At first, the speaker in (183) seems to show a stronger belief than (184). However it is questionable if the addressee “you” in (183) will catch cold. The speaker only predicts a “possible” result but not a “definite” result. A different predicate in (183) shows that it is more logical to treat this deontic-personal promise as Wu’s “prediction”:

185. (Wo baozheng) Ni zhe yang shi bu hui you hao jieguo de.
     (I-guarantee)-you-this-kind-be-not-WILL-have-good-result-asp.
     “(I can guarantee) It won’t lead you to good results if you behave like this.”

Again, the speaker predicts a “possible” but not “definite” result; i.e., maybe, the agent might be lucky and get away with the behavior in question!

4.4.2 Conclusion on the Functions and Meanings of Hui

From the discussion of hui to this point, it is concluded that hui functions in four major different aspects and denotes four different meanings:

A. Ability: denotes a special skill of an object.
B. Epistemic: denotes a presupposed future event.

C. Epistemological: Exclamative (Contrary to expectation) and Generic (Tendency).

D. Dynamic: Prediction/Personal promise.

The following table summarizes the four functions of *hui*.

**Table 4.4. Functions of Modal Verb *Hui* in Mandarin**

<table>
<thead>
<tr>
<th>Functions</th>
<th>Denotation</th>
<th>Features</th>
</tr>
</thead>
</table>
| Dynamic            | Ability                                                                     | ➢ takes activity verbs  
 ➢ appears only after but not before the negative marker "bu" |
| Epistemic          | ➢ Assertive/Future potential-future temporal/probability/predictive (Chang) | ➢ takes stage-level [+change] predicates  
 ➢ appears either before or after the negative marker "bu"  
 ➢ normally indicates a planned future event  
 ➢ can be omitted if the main verb following it is associated with motions  
 ➢ can appear before another modal verb, such as "ken", "yao" etc.  
 ➢ appears after a modal adverb, such as "vinggar" |
|                    | ➢ Dubitative/Inferring                                                      | ➢ takes both stage-level and individual-level [-change] predicates  
 ➢ occurs in interrogatives expressing simple uncertainty |
| Epistemological    | ➢ Exclamative/Contrary to Expectation                                       | ➢ appears in an utterance in which the speaker is surprised with the outcome of his/her original expectation |
|                    | ➢ Generic (Tendency; Routine of an occurrence)                             | ➢ takes activity verbs  
 ➢ cannot take accomplishment or achievement verbs  
 ➢ when indicating a high frequency of an occurrence, appears right after an intensifier  
 ➢ when questioning a widely recognized norm, the intensifier appears right after *hui* |
Table 4.4. (Continued) Functions of Modal Verb Hui in Mandarin

| Dynamic (deontic) | Future potential-prediction (Wu)/personal promise | ➢ indicates unknown/ unplanned/uncertain future
|                  |                                                 | ➢ predicates that shows an unknown future normally follows clauses such as “I guarantee”, “I promise”, etc. |

4.5 Comparison of Hui with Neng and Keyi in Mandarin

So far, we have talked about the similarities and differences between neng and keyi as well as the functions and meanings of hui in Mandarin. It is necessary to examine overlapping functions and meanings between hui and neng as well as between hui and keyi.

Since the basic meaning of neng is “capability,” and a basic meaning of keyi is closer to the notion of epistemic “possibility,” one shall assume that the “ability” hui is an alternative of neng. The epistemic “assertive” hui can alternate with neng and keyi in epistemic possibilities under special conditions. However as I shall discuss later, hui, neng and keyi differ in “degree” of modality.

4.5.1 Hui and Neng

As mentioned earlier in this study, the primary meaning of neng in Mandarin is capability or capacity (i.e., contain or tolerate the greatest quantity of something). The “ability” hui denotes the skill of the agent. What confuses a L2 Mandarin learner is that if both neng and hui denote some kind of ability or capability, they should be interchangeable. When both indicate the ability that the agent possesses, they are interchangeable. The difference is very similar to the difference between “know how to” and “be able to/in capable of” in English:
186. *Nei ge haizi neng shuo ba zhong yuyan.*
    That-class-child-CAN-speak-eight-kind-language
    “That child IS ABLE TO/is CAPABLE OF speak(ing) eight languages.”

187. *Nei ge haizi hui shuo ba zhong yuyan.*
    That-class-child-CAN-speak-eight-kind-language
    “That child KNOWS HOW TO speak eight languages.”

    However if this special ability is associated with some kind of capacity, *hui*
    is not acceptable. *Hui* denotes a person’s skill more than *neng* does. For
    instance,

188. *Ta hen neng shui.*
    s/he-very-CAN-sleep
    “S/He sleeps a lot.”

189. *Ta hen hui shui.*
    s/he-very-CAN-sleep
    “S/He knows how to sleep.”

Or like examples given above:

177. *Ta hen hui chi.*
    S/He-very-CAN-eat
    “S/He knows how to eat.”

    Sentence (188) denotes the agent’s capacity of being able to sleep a lot
    whereas sentences (189) and (177) denote the agent’s special skill of knowing
    how to sleep (as far as the health is concerned) and how to eat (as far as
    gourmet food is concerned).

    Another example found in Yang et al (1996) clearly shows that *hui*
    describes an object’s skill of doing something and *neng* emphasizes on the
    capability/capacity of an object:

190. *Neng xie bu yiding hui xie.*
    CAN-write-not-definite-CAN-write
    “You MAY BE ABLE TO write but it is not necessary that you know how to write.”
A fixed idiom such as:

191. Ta *neng* wen *neng* wu  
   s/he-CAN-literature-CAN-martial art  
   “S/He is efficient in both brainy and brawny activities.”

describes the agent’s capacity of “brainy and brawny” activities but does not further indicate the skill of the agent. So when the agent’s skill is further described, *hui* is applied:

192. *Bifang shuo,* ta *hen* hui *xie* wenzhang, *ye* *hen* hui *da* lanqiu.  
   For instance-s/he-very-CAN-write-article-also-very-CAN-hit-basketball  
   “For instance, s/he is both a very good writer (is skilful in writing articles) and a basketball player (is skilful in playing basketball).”

the *hui* in (192) describes the skills of the agent. In addition, *neng* more closely describes an object’s physical ability, especially a recovered ability:

193. Ta *neng* shuohua le.  
   s/he-CAN-talk-asp.  
   “S/He CAN speak now.”

The agent in (193) may have lost speech ability and now regained it.

194. Ta *hui* shuohua le.  
   s/he-CAN-talk-asp.  
   S/He knows how to speak now.”

Whereas the agent in (194) either has come to know the skill of conversing or reached the stage of talking as a baby.

4.5.2 *Hui* and *Keyi*

*Hui* and *keyi* are often confused by learners in epistemic (future) possibility. Liu (1996) explains that *keyi* denotes the meaning of “under (subjective or objective) circumstances, something is (permitted) to be done.” Lü (1980) and others mentioned above categorize one of *hui*’s functions as to
indicate the possibility of an occurrence of an event that is going to happen (under certain circumstances). Huang (1999) suggests that the degree of modality in *hui* is higher than that of *keyi*.

Summing up these claims, one may conclude that in the epistemic possibility use (in the sense of future potential), *keyi* can alternate with *keneng/yinngai/dagai* 'probably' *hui*, and *hui* can be seen as an alternate for *yiding keyi*. In other words, *hui* alone is too strong when substituting for *keyi*, and *keyi* alone is too weak for *hui* in future potential. So the statement “Wo jintian *keyi* qu tushuguan kanshu (if certain circumstances permit)” may alternate with “Wo jintian *keneng/yinngai/dagai hui* qu tushuguan kanshu (if certain circumstances permit). Similarly, “You yi tian, wo *hui* chengwei yi ming wuzhe” ‘I WILL become a dancer one day.’ may very well be “You yi tian, wo *yiding keyi* chengwei yi ming wuzhe.” ‘I surely CAN become a dancer one day.’

In general, *hui* is often used in cases when the result shown in a sentence closely depends on the situation or condition:

195. Ni zai bu qi chuang, jiu *hui* chidao le.
   you-still-not-get up-bed-jiu-WILL-late-asp.
   “If you do not get up now, you WILL be late.

196.* Ni zai bu qi chuang, jiu *keyi* chidao le.
   you-still-not-get up-bed-jiu-CAN-late-asp.
   “If you do not get up now, you CAN be late.”

In (195), the cause of tardiness is directly from the condition given in the first clause “if you do not get up now.” Similarly, in (197) below, the cause for tourists coming to Canada is when the maple leaves turn red:
197. Jianada de fengye bian hong de shihou, jiu hui xiyin hen duo
tourist
"In Canada, it attracts many tourists when maple leaves turn red."

One possibility to explain that hui is preferable to keyi in sentence (197) is
to see hui as a high frequency of an occurrence of an event (tendency). The
other is the explanation of "cause and effect relationship." The reason for
Canada to have many tourists is the beautiful red maple leaves.

4.5.3 Conclusion

Hui, neng and keyi in Mandarin are semantically overlapped frequently.
However one may find it easier to distinguish them by the degree of modality
they indicate. When compared with neng in the use of ability, hui shows an
object's skill stronger than neng. Neng, on the other hand, more closely indicates
an object's recovered physical ability. In addition, neng or keyi can coexist with
accomplishment verbs with which they indicate some kind of efficiency of an
object, but hui cannot co-occur with accomplishment verbs, such as the
sentence (134) mentioned above:

134.* Ta yi fenzhong hui da liu shi ge zi.
He-one-minute-CAN-hit-six-ten-class.-words
* "He knows how to type sixty words a minute."

134' Ta yi fenzhong neng/keyi da liu shi ge zi.
He-one-minute-CAN-hit-six-ten-class.-words
"He CAN type sixty words a minute."

When in the epistemic future potential, hui is stronger than keyi especially
in cases where a clear "cause and effect" relationship is indicated. Whereas keyi,
in general, denotes a permitted action under certain circumstances.
4.6 CAN in English

If, on the one hand, *hui* in Mandarin causes confusion to L2 Mandarin learners because of its nature of polysemy, CAN in English, on the other hand, is the modal auxiliary which confuses most L2 English learners due to its multi-meanings and multi-functions.

A professor in the department of Second Language Studies at the University of Hawai‘i at Manoa once, being puzzled, questioned why most of his native Chinese students often say: “I live very far away from school, so I *CAN be* late for the meeting tomorrow.” (Bley-Vroman, ESL 750, 1999) when they meant to say: “I live very far from school, so I *WILL be* late for the meeting tomorrow.” The reason for this is what Palmer (1990) claimed: “one possible approach to the systematic meaning multiplicity of the English modals is to assume massive lexical ambiguity.” Having first learned the dynamic ability meaning of CAN which is *hui* in Mandarin, L2 English Mandarin speakers directly translate “epistemic” *hui* into CAN in English. On this point, they lack the knowledge that each modal verb encodes a particular cluster of distinct modality.

There is considerable semantic overlap among postulated senses for the modals. Another example in English shows a semantic distinction between subject-oriented CAN (198) and dynamic modality CAN (199). Consider the following English examples:

198. The student CAN speak French here because everybody WILL understand.

199. The student CAN speak French.
In (198), CAN denotes a deontic possibility; i.e., the subject is given permission to speak French here. Whereas in sentence (199), CAN is interpreted as “know how to,” describing the ability of the student. When denoting “permission,” the CAN in (198) can be seen as equivalent to keyi in Mandarin. WILL in (198) indicates a neutral dynamic future possibility; thus, as mentioned in chapter three, it can be equivalent to hui in Mandarin. It is noted that because of the nature of this neutral future possibility, the present tense form CAN may be used to refer to future events (Palmer 1990). So the WILL in (198) can alternate with CAN:

200. The student CAN speak French here because everybody CAN understand.

In many other cases, CAN in English may be used to communicate more than its proposed semantics would suggest (Walton, 1988, p.103):

201. CAN you pass the salt?
202. CAN I get you a drink?

The use of CAN in sentence (201) in English does not denote ability. It contextually conveys the idea of requesting which falls into the category of imperative or a polite command mentioned earlier. The Chinese equivalent of this sentence may be an imperative or with keyi denoting a polite command:

201’ Qing ni ba yan di guolai, keyi ma?
Please-you-ba-salt-diliver-come over-CAN-qm
“Please pass the salt.”

201” Ni keyi ba yan di guolai ma?
you-CAN-ba-salt-diliver-come over-qm
“CAN you pass the salt?”
Similarly, in sentence (202), the speaker is not showing the ability of a
performance but promoting or requesting permission for an offer. Therefore, the
native Mandarin expression is to ask what the listener would like to drink:

202’ Xiang he diar shemme?
Feel like-drink-little-what
“What WOULD you like to drink?”

202” Wo keyi gei ni na diar he de ma?
I-CAN-give-you-take-little-drink-adj.-qm
“CAN I get you a drink?”

Cook (1978) suggests that the key to determine modality in its semantic
domain is to distinguish the type of sentences that contains modality. The criteria of
this distinction concern with:

I. Verb type: whether the main verb is a “state verb” (be, have, own, etc.), a “process
verb” (fall, change, grow, etc.) or “action verb” (eat, drink, write, etc.).

II. Subject type: whether the subject is “agentive” or “non-agentive.”

III. Verb Inflection: whether the main verb that coexists with modals can appear in
passive, progressive or perfective forms.

According to Cook, epistemic modals can co-occur with state verbs, process
verbs and action verbs in English. And non-epistemic (root) modals can merely
coexist with action verbs. Now the question is whether the modal that coexists with
action verbs is an epistemic or a root (non-epistemic) modal:

203. Peter CAN write the letter.

“Write the letter” based on the category is an action verb phrase. (203) can thus
have three different interpretations:
A. Peter knows how to (is able to) write the letter. (root-dynamic-ability)

B. Peter is permitted to write the letter. (root-deontic-permission)

C. It is possible for Peter to write the letter. (epistemic-prediction)

That is to say, sentence (203) may have three different Chinese counterparts with different modal auxiliaries:

203. A’ Bide hui xie xin. (“ability,” hui)
    Bide-CAN-write-letter
    “Peter CAN /knows how to write letters.”

B’ Bide keyiheng xie xin.
    Bide-CAN-write-letter
    “Peter CAN /is permitted to write letters.”

C’ Bide keneng hui xie xin.
    Bide-maybe-WILL-write-letter
    “Peter probably WILL write letters.”

In addition, the subjects of an epistemic modal can be both “agentive” and “non-agentive.” Whereas the subject of a root modal can only be “agentive” subject because the nature of the main verb (action verbs) it coexists with. In other words, an “agentive” subject, be it animate or inanimate, indicates both epistemic and root modalities:

204. This copier CAN make color copies.

    This inanimate agentive subject denotes, first, an epistemic possibility: “It is possible that the copier makes color copies,” and second a root (dynamic) possibility: “This copier IS ABLE TO make color copies.” Similarly,

205. The employees CAN take a two-week vacation next year.

    the animate subject denotes both “It is possible that the employees will take a two-
“week vacation next year.” (epistemic possibility) and “The employees are allowed to take two-week vacation next year.” (deontic possibility).

When denoting epistemic possibility and deontic possibility-permission, the CAN in both sentences (204) and (205) is equivalent to keyi in Mandarin (see 4.1.1):

204'. Zhe tai fuyinji keyi yin caise de. (epistemic possibility)
   “This copier CAN make color copies.”
   
205'. Yuangong mingnian keyi xiu liang ge xingqi de jia. (epistemic and deontic possibilities)
   “The employees CAN take a two-week vacation next year.
   Employee-next year-CAN-take-two-class.-week-adj.-vacation
   (epistemic and deontic possibilities)

The difference is that English CAN may be able to denote dynamic ability with a non-human subject, the “ability” hui in Mandarin cannot take non-human subject:

204"  Zhe tai fuyinji hui yin caise de. (dynamic ability)
   “This copier CAN make color copies.”

Furthermore, according to Cook, in a passive sentence, the ability CAN is changed into epistemic possibility:

206. He CAN read the book.

207. The book CAN be read.

Nevertheless, as I mentioned earlier, (206) can denote three possible meanings: ability, future possibility and permission. And since both ability CAN and epistemic CAN can take action verbs, it is hard to determine if (206) denotes the ability of the subject to read the book or the possibility for the subject to read the book; let alone, it can also mean the subject is allowed to read the book. Therefore, it does not seem logical to generalize that the ability CAN is changed into epistemic
possibility in passive structures. It would be more logical to say that the ability *can* does not occur in passive structures. This is very similar to Mandarin. The "ability" *hui* simply does not exist in passive forms:

207". * Zhe ben shu *hui* bei kan.
    this-class.-book-CAN-passive-see
* "This book knows how to be read."

Now let's consider the progressive form of *can*:

208. He *can* be swimming.

Any listener of this utterance would agree that it neither indicates the ability of the agent nor the agent's being permitted to swim. It is because it is not usual to indicate someone's in progress ability and/or for the speaker to give the listener permission for an ongoing activity. The only possible interpretation of this sentence is: "It is possible that he is swimming." In other words, only epistemic *can* can appear in progressive sentences. In Mandarin, a modal adverb that denotes probability is used:

208' Ta *keneng/dagei/yexu* zai youyong.
    s/he-maybe-at-swim
    "S/He *MAY/CAN* be swimming."

Finally, the perfective *can*, like *may* mentioned in section (3.2), does not appear in perfective forms with the denotation of permission. And it does not have perfective form to indicate ability. When denoting epistemic meaning, it may appear in the perfective form but *may* is normally in more favor with the interpretation of "It is possible that S. Ved":

209. They *can/may* have eaten the food. (It is possible that they ate the food.)
Again, since in Mandarin aspects have to be used to indicate time, an aspect marker indicating a specific time of sentence (209) comes along with the modal adverb:

209'. Tamen keneng yijing chiguo le.
    they-maybe-already-eat-pass-asp.
    “They MAY have already eaten.”

It should be noted that the past form COULD, when used in the epistemic context, is like MIGHT to MAY, expressing tentativeness:

210. She COULD be swimming.

Since there is no one to one Mandarin counterpart for English COULD in this sense, I suggest that other elements such as the existential verb you ‘have’ has to be attached to the modal adverb to denote and/or emphasize the tentativeness of COULD:

210' Ta you keneng zai youyong.
    s/he-have-maybe-at-swim
    “It’s likely that s/he is swimming.”

When indicating the ability, COULD may deliver such a message as when there was a point in time, someone was able to do something. It is similar to the “ability” hui in a past time frame:

211. He COULD play the piano.

211' Ta yiqian hui tan gangqin.
    s/he-before-CAN-play-piano
    “S/He COULD play the piano (before).”

However there is no doubt that (211) can as well be interpreted as: “He was allowed to play the piano (at that time).”
In order to demonstrate CAN more systematically, in the following sections, the attention will be focused on a listing of the meanings and uses of CAN with the account of its contrasts and similarities to other modal auxiliaries both in Mandarin and English based on the criteria mentioned above.

4.6.1 Non-Epistemic: Dynamic Possibility

4.6.1.1 Ability

It is often said that CAN may refer to the ability of the subject (Ehrman, 1966, Palmer, 1974). When denoting a permanent learned accomplishment, like hui in Mandarin, CAN is more or less equivalent to 'know how to' (Leech, 1971) followed with action verbs. The sentence (187) above “The student CAN speak French” can, thus, be interpreted as “The student knows how to speak French.” ‘Zhe ge xuesheng hui shuo Fawen.’ In other cases, when the ability is based on a permitting condition or circumstance, CAN means ‘is capable of’ or ‘is able to’:

212. Our team CAN easily beat your team.
213. I CAN resist everything except temptation.

According to Leech (1971), the CAN in (212) and (213) is interpreted as “be capable of” and BE ABLE TO:

212’. Our team IS CAPABLE OF/IS ABLE TO easily beat(ing) your team.
213’. I AM CAPABLE OF/AM ABLE TO resist(ing) everything except temptation.

In these cases, CAN does not merely denote a learned ability (accomplishment) but a possibility of being able to do something (under some permitting
conditions), it also denotes an epistemic possibility. This type of \textit{can} is very similar to \textit{keyi} or \textit{neng} in Mandarin rather than \textit{hui}:

214. Women \textit{keyi/neng} qingyide jibai nimen.
\hspace{1em} We\text{-\underline{CAN-}\text{-easily}\text{-\underline{attr.-\text{-defeat-\text{-you (pl.)}}}^{31}}
\hspace{1em} "We CAN easily beat you."

215. Wo shemme dou \textit{keyi/neng} kangju, jiushi dikang buliao youhuo.
\hspace{1em} I\text{-what-all\text{-\underline{CAN-}\text{-resist-but\text{-resist-not\text{-bear-\text{-temptation}}}}
\hspace{1em} "I CAN resist everything except for temptation."

Palmer (1990) uses the material\textsuperscript{32} collected in the Survey of English Usage located in the Department of English at University College London to show that there are examples where \textit{BE ABLE TO} clearly indicates ability:

216. Yet at the same time, when it comes to personal things, to family things, you \textit{ARE ABLE TO} be very detached. (S. 6. 4a. 75)

217. And yet you\textit{RE ABLE TO} look at the future of it in this very objective way without making a value judgment. (S. 6. 4a.73).

\textit{BE ABLE TO} in these two sentences is concerned with the ability of the subject to behave in a certain way, not with the mere possibility of such behavior. Therefore, \textit{BE ABLE TO} in (216) \& (217) can be alternated with \textit{CAN} without changing their meanings:

216' Yet at the same time, when it comes to personal things, to family things, you \textit{CAN} be very detached.

217' And yet you \textit{CAN} look at the future of it in this very objective way without making a value judgment.

However according to Palmer (1990), \textit{BE ABLE TO} seems to be more formal than \textit{CAN}. In written texts, the occurrences of \textit{BE ABLE TO} are much greater than

\textsuperscript{31} pl. stands for plural.
\textsuperscript{32} This material has been collected under the supervision of Randolph Quirk and Sidney Greenbaum. It consists of both spoken and written material.
that of CAN. CAN would probably have occurred in a written text where BE ABLE TO occurs if the text had been a spoken one:

218. I tell you that this is so, that you may make arrangements elsewhere if you ARE ABLE TO. (W. 7.9. 37)

   It can be concluded that when referring to an accomplished ability, CAN is similar to hui in Mandarin. If the ability is achieved under conditions and when a possibility is involved, it is best interpreted as BE ABLE TO in English and keyi or neng in Mandarin. This proves the claim by Cook that when followed with action verbs, the modal auxiliary CAN may denote both epistemic and root (dynamic) meanings:

219. They CAN dance. (= Tamen keyi (zaizher)/hui tiaowu.) (epistemic)/(ability)

   Recapitulating (217) above, keyi in Mandarin works well for BE ABLE TO:

217. And yet you’RE ABLE TO look at the future of it in this very objective way without making a value judgment. (S. 6. 4a. 73).

217’ Ran’er, ni keyi/neng yong zhe zhong feichang keguan er bu dai jiazhi however-you-CAN-use-this-class.-very-objective-and-not-bring-value-panduan de taidu lai miandui zhe jian shi de zhaoluo. judge-attr.-attitude-come-face-this-class.-thing-attr.-whereabouts “However you CAN use this very objective and nonjudgmental attitude to face the result (future) of this matter.”

4.6.1.2. Permission

   It is widely recognized that linguistic lawmakers have considered MAY as the “correct” auxiliary of permission. School children have been rebuked if they say “CAN I ...” instead of “MAY I ...” However as I mentioned in chapter three, CAN in the use of permission is more widely accepted than MAY in informal colloquial English and the meaning is ‘be allowed to’ keyi in Mandarin:
220. **CAN** I pinch a ciggie? – **Course you CAN.** Would you like a menthol or a plain? (S.2.11b.15).

One interesting example of using **CAN** as the permission I heard in English was when one of my girlfriends' three year old baby rejecting her mom to put on the coat (he did not acquire the main verb "chuan" yet and he generalized "coat" as clothes):

Baby: Ma bu yao (chuan) yifu.
   Mother-not-want-(wear) clothes
   "Don't put on clothes (the coat), mother."

And my friend turned around and told us: "I **CAN'T** even be warm," which she told us that she meant in that situation "she was not even allowed to be warm."

Ehrman (1966) also points out that most of the occurrences of **CAN** for permission are in dialogue:

221. Even though this is my rock you **CAN** use it sometimes.

The speaker in (221) is giving permission to the agent to use her/his rock.

**MAY**, on the other hand, is far more formal than **CAN**:

222. If you want to recall the doctor, you **MAY** do so. (S.11.1.119)

Palmer says that (in the example (222) above) **MAY** is used in a situation of a trial. In cases where the speaker-oriented, not the agent, is clearly indicated, **MAY** is in more favor than **CAN**:

223. You **MAY** come with pleasure.

---

33 My friend is native Chinese married to an American. Most of her American friends agree that her English is native like. She has been talking to her baby in Mandarin ever since he was born.
Huddleston (1974) explains that the pleasure in this utterance is the speaker's, not the addressee's. "With pleasure" is not semantically associated with 'come' but with the giving of permission. The performative nature of MAY is made quite clear and thus cannot really be alternated with CAN.

With the meaning of permission, CAN may be followed by state verbs, action verbs and process verbs. The subjects can be both animate and inanimate. The main verb can merely have passive forms:

224. You CAN (are allowed to) have it. (animate subject, state verb)
225. You CAN (are allowed to) eat it. (action verb)
226. You CAN (are allowed to) grow it (here). (process verb)
227. The book CAN (is allowed to) be written by you. (inanimate subject, passive)

If we look for counterparts for all these sentences in Mandarin, we find that keyi with the meaning of permission fits perfectly in (224-227):

224' Ni keyi yongyou ta. (Ni keyi ba ta na qu).
225'. Ni keyi ba ta chi le.
226'. Ni keyi zai zher zhong zhe ge.
227'. Nei ben shu, keyi you ni lai xie.

4.6.1.3. Implication

CAN, in some cases, is not used to indicate what one is capable of doing or what is possible, but to suggest what possibly will, or should be implemented. The example shown earlier "CAN you please pass the salt?" is such a request.

Including the request, Palmer (1990) points out four different types of implications:
I. It is used with "I" or "we" to make an offer by the speaker(s):

228. Yes, we CAN send you the map, if you wish. (S.8.3.i.2)
229. CAN I get you something to eat?

II. It may be used with the third person pronoun(s) where the speaker speaks on the behalf of someone else:

230. I'll send Lewis down tonight to see what he CAN pick up in... and then he CAN call to see you. (W.5.3.6.6)

But in this utterance, it is not quite clear if the initiative comes from him or the speaker.

III. If "we" is used inclusively which means you and I or you and we, it combines offer and suggestion:

231. Do come early and we CAN have a drink. (S.7. 3d.3)

With a second person pronoun it suggests that the action be taken by the person addressed:

232. You CAN certainly give me a ring back this afternoon -- there might be something. (S. 8. 1a.23)

Another example of this type is like the request mentioned above: "CAN you please pass the salt?" The difference from using WILL in these sentences is that WILL provides a stronger and more definite future possibility. Whereas CAN is suggesting a moderate request or an offer.

The basic Chinese equivalent of "implication" CAN may be keyi because the concept of "implication" contains "permission" whether the permission is from the speaker or under some permitting conditions:
233. Ruguo ni xuyao, women keyi ba ditu ji gei ni.  
   “If you need it, we CAN send you the map.”

234. Jintian xiawu ni yiding keyi gei wo hui ge dianhua.  
   “You CAN certainly give me a ring back this afternoon.”

235. Zaodi lai women jiu keyi yi qi he yi bei.  
   “Come early so we CAN have a drink together.”

In making offers where CAN is used with first person subjects, keyi is also used in Mandarin as mentioned earlier in this chapter. For instance, the CAN in example (229) above may be seen as similar to keyi in Mandarin:

229’ (Wo) Keyi gei ni na diar shemme chi de ma?  
   “CAN I get you something to eat? Would you care for something to eat?”

4.6.1.4 Command

Despite the syntactic similarity (both structures take first person subjects), “command” and the fourth criterion of “implication” mentioned above should not be confused. The semantic focus of “implication” is on making offers, moderate suggestions, whereas “command” CAN is a variation of “command” MAY, which Palmer (1990) describes as “an extended or implied meaning from the permission use”. Consider the examples he provided from the Survey:

236. You CAN say that again. (S. 4.2.40, W. 5.2.95)

237. Oh, you CAN leave me out, thank you very much. (S. 6.2.60)

238. I’m Dr. Edgton now, so you CAN observe my new status. (S. 8. 3b.2)
Other examples are found in Erhman (1966):

239. 'I don't know what you are up to, but when Brenner -.'

‘You CAN forget Brenner, too’ Curt said.

240. You CAN tell Kayabashi-san that the back road is in very good condition and will be quite safe.

In these cases, CAN, unlike MAY, as Palmer says, merely makes very confidant, impolite, and sarcastic suggestions.

Since "command" CAN is treated as “an extended or implied meaning from the permission use”, it can be concluded that keyi in Mandarin is a proper equivalent for "command" CAN (cf. 3.2.1.2 & 4.1.4).

4.6.2 Epistemic

In this section, I discuss and examine CAN’s epistemicality based on Cook’s (1978) criteria of epistemic modality.

According to Cook, the features of epistemic modals are a) they can take all kinds of verbs (state verbs, process verbs and action verbs); b) they can occur with animate, inanimate, non-agentive (patient) and agentive subjects; c) they can have passive, progressive and perfective forms.

In general, if pragmatism is not being concerned, state verbs are those which describe the state of an event or an object. They cannot have progressive forms and do not appear in imperatives. These verbs include “be”, “have”, “own”, consist of”, etc. Process verbs include “grow,” “change,” “slow down,” “die” etc. that they describe “non-agentive” events as in “The business is growing.” They can have

---

Pragmatically, "verb-to-be" can occur in imperatives: “Be patient!” It can have progressive forms: “He is being good.” And “have” can occur in utterances like “Don’t worry! Go ahead and have it!”
progressive forms but they cannot appear in imperatives. Action verbs include agentive verbs. They include “play,” “work,” “eat,” “drink” etc. They can have both progressive and imperative forms.

Next, I shall check if CAN fits the features mentioned by Cook and if it does, what meaning it is close to.

I. Animate agentive subjects with state verbs

241. She CAN be bold if she wants to.

242. They CAN have it by next Tuesday.

Both utterances can be interpreted as "It is possible that S. WILL."

241’ It is possible that she WILL be bold if she wants to.

242’ It is possible that they WILL have it by next Tuesday.

If based on my analysis in section 4.5.2, these two CANS are similar to keyi or yinggai/keneng hui:

241’ "Ta ruoshi xiang dehua, ta shi keyi/yinggai hui hen dadan de.
   s/he-if-want-suffix-s/he-be-CAN/MAY-WILL-very-bold-de
   “If s/he wants to, s/he CAN be very bold.”

242’ Tamen xia ge Xingqi'er yinggai hui/keyi nadao.
   they-down-class.-Tuesday-SHOULD-WILL/CAN-get
   “They CAN get it by next week Tuesday.”

II. Animate non-agentive subjects with process verbs

243. People CAN die by taking this (medicine).

This also denotes the meaning that “it is possible that people WILL die by taking this (medicine).” The speaker presupposes the occurrence of an event. Thus, Mandarin keneng hui or keyei may both apply:
III. Animate agentive subjects with action verbs

244. Elizabeth can take the role.

Despite that the meaning of can when occurring with an animate agentive subject and an action verb is close to "be able to" which is a deontic (dynamic) use, it cannot be denied that sentence (244) can indicate: "There is a possibility for Elizabeth to take the role." So in Mandarin it can be equated with:

244' Elizabeth keneng hui yan nei ge juese.

IV. Inanimate agentive subjects with state verbs

245. Annual seminars can be interesting.

Unquestionably, sentence (245) means: It is possible that annual seminars are interesting."'Niandu taolunhui keneng hui/shi keyi hen youqu de." Another example shows the "capacity" of the object:

246. This room can contain 100 people.

In the case of indicating capacity, as I mentioned earlier, keyi can be used as the Chinese counterpart of can:

246' Zhe jian wuzi keyi rongna yibai ge ren.

"This room can contain 100 people."

V. Inanimate non-agentive subjects with process verbs

247. Things can change over time.
The speaker tells the possibility for things to change when time passes. In Mandarin we may say: “Shijian hui keyi gaibian yiqie.” By using hui, there is a stronger epistemic possibility whereas there is a stronger deontic possibility by using keyi.

VI. Inanimate agentive subjects with action verbs

This type of use is similar to “epistemic capacity” mentioned earlier in this study:

248. This table CAN seat ten people.

249. This washer CAN wash ten loads at a time.

When indicating possible "capacity", keyi is more suitable:

248’ Zhe zhang zhuozi keyi zuo dexia shi ge ren.
   this-class.-table-CAN-sit-complement-ten-class.-person
   “This table CAN seat ten people.”

249’ Zhe tai xiyiji yi ci keyi xi shi lan de yifu.
   this-class.-washer-one-time-CAN-Wash-ten-basKet-adj.-clothes
   “This washer CAN wash ten loads at one time.”

As for "verb inflections", i.e., whether CAN can appear in passive, progressive or perfective structures, I have already discussed in the beginning of this section. It will not be repeated here. But as a reminder: CAN denotes epistemic meanings in all passive, progressive and perfective constructions. And it denotes as keneng ‘possible’ in Mandarin. The only thing is that when used in perfective structures, MAY is normally in more favor with the interpretation of “It is possible that S. Ved”:

250. They CAN / MAY have seen the movie. (It is possible that they saw the movie.)

Whereas there is no difference in Mandarin:

250’. Tamen keneng yijing kanguo na bu dianying le.
     they-maybe-already-see asp.-that-class.-movie-asp.
     “They MAY have seen the movie.”
In addition, CAN's past form COULD, when used in the epistemic context, is like MIGHT to MAY, expressing tentativeness:

251. They COULD be studying now.

Its Chinese counterpart is keneng which indicates the uncertain possibility:

251'. Tamen xianzai keneng zai xuexi.
   "They COULD be studying now."

4.7 Some Further Notes about Mandarin and English Modalities

As Hsieh (2001) points out, “modality” is the common concept of natural language and it belongs to the domain of semantics. "Verb," on the other hand, appears in different features in different languages and it is confined in syntactic domain. And “modal verbs” or “modal auxiliaries” are the products of “modality” appearing in different formats of syntactic construction. So far we have been mainly concerned with semantic interactions between English modals and Chinese modals. Now the attention and some efforts should turn to the discussion of Chinese and English modals on a syntactic ground. This will be done by two accounts: theoretical and pragmatic

4.7.1 Theoretical Accounts

Li & Thompson (1981) suggests that modals in Chinese are modal auxiliaries and they possess following features:

1. They do not take aspect markers, especially when they are followed by another verb:

252 *Ta hui/neng/keyi/yao le changger.
   S/he-CAN-asp.-sing
   "S/he has become ABLE to sing."
2. They cannot occur before the subject as English modals do in questions:

253. *Hui/Neng/Keyi/Yao ni tan gangqin?
   CAN-/BE ABLE TO-/be allowed to-be going to-you-play-piano'
   "CAN you play the piano?"

3. They cannot be nominalized:

   S/he-be-CAN-BE ABLE TO-MAY-BE GOING TO-de
   "S/He is of capability."

4. They cannot be modified by intensifiers, such as hen 'very' or geng 'even,' more':

255. *Ta hen neng/hui/keyi/yao qu.
   S/he-very-BE ABLE TO-WILL-MAY-BE GOING TO-go
   * "She very WILL go."

Huang (1997) assigns eight features of Chinese modals based on the criteria suggested by Li & Thompson. According to Huang, they are modal auxiliaries and should be differentiated with other verbs.

1. They should co-occur with other verbs (except for omission in a dialogue).
2. They cannot be suffixed by “le”, “zhe”, “guo” aspects.
3. Most of these auxiliaries cannot be modified by intensifiers.
4. They cannot be nominalized by “shi...de” construction.
5. They cannot appear before subjects.
6. They cannot be directly followed by objects.
7. With the appearance of the subject, they can occur in an answer alone.
8. They can have A-not-A question forms.
Tang & Tang (1997) point out that in traditional syntactic analyses, modal verbs and modal adjectives are "auxiliaries." They list seven syntactic characteristics of modal verbs and adjectives in order to differentiate them with modal adverbs in Chinese. These include:

1. They can appear alone in an answer or a predicate.
2. They can have A-not-A question forms and can be negated.
3. They can be the focus\(^{35}\) in a cleft sentence\(^{36}\) and appear after "shi".
4. When they are predicates, they can appear in "shi...de" construction and be the focus when nominalized.
5. Modal adjectives can be modified by intensifiers and they can appear in comparative structures.
6. They can appear either before or after a negative adverb.
7. They can coexist with other same or different kinds of modal verbs or modal adjectives.

Summing up the categories above, we find that some of the features of Chinese modal auxiliaries are agreed by different scholars while some are actually in conflict. The dispute is in the issues that first, if modals can be the focus in cleft sentences and nominalized with "shi...de" construction. Second, if they can

---

\(^{35}\) "Focus", in the field of linguistics, represents the most emphasized part in a sentence and can appear anywhere in a sentence. The difference between "emphasis" and "focus" lies on the range of the part that is emphasized. Chu (1983) points out that when the "emphasis" in a sentence concentrates on a small part, it becomes "focus". So "focus" is comprised in "emphasis". Xu & Li (1993), Rochemon (1986), Selkirk (1984), Cheng (1983) have discussed detailed "focus" in phonetics and syntax.

\(^{36}\) A "cleft" sentence is normally used to show the "focus" in a sentence. In English, it often appears in a structure as "It is last year that he went to Paris." The underlined phrase is the part that is being emphasized. In Chinese, it is often the part that appears after "shi" as in "Ta shi qu pian qu Faguo de."
appear with intensifiers. Third, Tang and Tang (1997) do not mention the situation with aspects. Does it mean that they think modals can actually take aspects? These issues will be discussed respectively in next section.

As for English modals, as Hoye (1997) points out, linguists normally take as the basic notions expressed by "modal auxiliary verbs," such as MAY, MIGHT, CAN, COULD, WILL, WOULD, SHALL, SHOULD, and MUST. Variants of some of these modal auxiliary verbs are "modal verbs," such as OUGHT TO, BE ABLE TO, HAVE TO, NEED, etc. The criteria used by Palmer and Blandford (1939) for their "anomalous finites" and by Chomsky (1957) for four basic transformation in Syntactic Structure place the modals among the auxiliary verbs together with the "primary" auxiliaries "be" and "have" (Palmer 1987). The criteria are:

I. Inversion with the subject
   e.g., : MUST he come?    Is he coming?

II. Negative form with -n't
   e.g., : He CAN'T come.    He isn't coming.

III. "Code"
   e.g., : He WILL come and so WILL she.    He has come and so has she.

IV. Emphatic affirmation
   e.g., : He may come.    He has come.

Huddleson (1976) refers to these four criteria as the "NICE" properties, an acronym from "negation," "inversion," "code" and "emphatic." The other three

---

37 These refer to verbs such as "am", "is", "are", "was", "were" and "do", "does", etc. In comparison with "anomalous verbs" which include "be", "have", "do", "may", "shall", etc.

---

130
criteria that distinguish the modals from the primary auxiliaries and all other verbs are:

V. No -s form of the third person singular, e.g., no *MAYS or *CANS etc.

VI. No non-finite forms (infinitives, past and present participles)

VII. No co-occurrence. (No *He MAY WILL come etc.)

Palmer (1990) points out that WILL, SHALL, MAY, CAN, MUST and OUGHT TO fit all the criteria with the exception that MAY has no -n't form in the present. MUST and OUGHT TO differ from the others in having no past-tense forms and OUGHT TO is the only one that requires “to.”

In the following section, I shall merely discuss and compare the “modal auxiliaries” in English and Chinese with the account of pragmatic concerns.

4.7.2 Pragmatic Accounts

First, I would like to clarify the most disputable issues mentioned above regarding Chinese modal auxiliaries.

1. Appear in cleft sentences and nominalized by “shi...de” construction

It might be a hasty generalization by saying that modal auxiliaries cannot be nominalized with “shi...de” construction. The truth is based on different situations such as used as predicates like Tang and Tang (1997) suggest, some modal auxiliaries can be nominalized with “shi...de” pattern (underlined):

256. Ta zheyang zuo ye shi keyi de.
S/he-this-kind-do-also-be-CAN-de
“It is also fine for her/him to do so/S/he is allowed to do so.”

257. A. Ta zhen hui da ren ma?
S/he-really-WILL-hit-person-qm.
“Does S/he really hit people?/WILL S/he really hit people?”
B. Ni zai bu zou, ta ke shi hui de yo!
You-still-not-go-s/he-really-be-WILL-de-excl.
"If you don’t leave right away, s/he really WILL!"

They can be the focus in cleft sentences, appearing after “shi” to emphasize the true value of the fact:

258. Nei ge xuesheng shi hui shuo Fawen.
That-class.-student-shi-CAN-speak-French
“That student really CAN speak French.”

259. Nei ge ren shi neng chi ku.
That-class.-person-shi-CAN-eat-bitterness
“That person really CAN bear ordeals.”

2. Co-occurrence with intensifiers:

Again, it may not be appropriate to generalize that “modal auxiliaries” cannot take Intensifiers as Li and Thompson (1981) suggest. Li & Thompson only see part of the meanings that Chinese modal auxiliaries convey. That’s why Huang (1999) modifies the criteria and says, “most of (bold not in original) these auxiliaries cannot be modified by intensifiers.” Tang and Tang (1997) further refine the idea by stating that “modal adjectives (bold not in original) can be modified by intensifiers and they can appear in comparative structures.” The modal adjectives mentioned by Tang and Tang are those modals which denote “ability” functioning as modal auxiliaries followed by action verbs. When they are modified by intensifiers, the sentence denotes the “tendency” of an occurrence discussed above by other linguists:

260. Ta hen/feichang hui zuo fan (changge, huahuar)
   s/he-very-CAN-do-rice (sing-paint)
   “S/He knows how to cook (sing, paint) very well.”
261. Nei ge ren *hen feichang neng* chi ku
   that ~class.-person-very-ABLE TO-eat-bitterness
   “That man is capable of taking hardship.”

Modal adjectives can appear in comparative structures and are modified by the
intensifier “geng” 'more':

262. Xiao Wang bi Xiao Bai *geng hui* changger.
   Little-Wang-compare-little-Bai-more-CAN-sing
   “Wang CAN sing better than Bai.”

Contrary to modal adjectives, epistemic modal auxiliaries in general
cannot be modified by intensifiers:

263. *Tamen mingtian *hen feichang hui likai.
    They-tomorrow-very-WILL-leave
   *They very WILL leave tomorrow.*

However when they appear in comparative structures, they can be modified by
the intensifier “geng”. Consider the following conversation concerning the
possibility for the third person to come here:

264. A: Ta mingtian *neng/keyi* lai yi tang ma?
   s/he-tomorrow-CAN-come-one-round-qm.
   “CAN s/he make a trip here tomorrow?”

   B: Bu zhidao. Dagai *keyi/neng* ba.
      Not-know-maybe-CAN-ba
      “I am not sure. Maybe, s/he CAN.”

   A: Na houtian ne?
      Then-after day-qm.
      “What about the day after tomorrow, then?”

   B: Houtian, ta *geng keyi/neng* lai le.
      After day-s/he-more-CAN-come-asp.
      “It is even more likely that s/he CAN come the day after tomorrow.”
3. Co-occurrence with aspects

Li & Thomsson and Huang all suggest that modal auxiliaries cannot be suffixed by aspect markers, such as “le,” “guo,” “zhe.” In general, it is true; especially when they are followed with another verb (see 252 above). However if the “common ground” is big enough and the unwanted worlds in the “context set” have been eliminated\(^\text{38}\), these modals can be suffixed with the aspect marker “le” to indicate a changed status without being followed by another verb:

265. Keyi le, jinlai ba.
    MAY-asp.-enter-ba
    “OK. You MAY come in now.”

266. Ta hui le.
    s/he-CAN-asp.
    “S/He got it.”

267. A. Ta neng shuohua le ma?
    s/he-CAN-speak-asp.-qm.
    “CAN s/he talk now?”

    B. Zhen bu gan xiangxin, ta jing neng le.
    Really-not-dare-believe-s/he-turn-CAN-asp.
    “I really CAN’T believe it! S/He now CAN.”

The qualities of Chinese modal auxiliaries that are seen to be most agreed upon by linguists are: they can appear in A-not-A forms and they can appear alone in an answer with or without the appearance of the subject. English modal auxiliaries, however, cannot appear in an answer alone without the appearance of the subject:

268. A. Ni mingnian ke (yi)/neng bu keyi/neng biye?
    You-next year-CAN-not-CAN-graduate
    “CAN you graduate next year?”

\(^{38}\) It means when the participants in a conversation share enough common information.
B. Keyi/Neng.

*"CAN"

Chinese modal auxiliaries cannot appear before the subject as English modal auxiliaries do:

269.* Neng/Hui/Keyi ni qu tushuguan?
CAN-you-go-library
"CAN you go to the library?"

As for whether modal auxiliaries can take nouns or not, it is known that English modal auxiliaries cannot take direct objects and some linguists object that Chinese modal auxiliaries can take nouns right after them. Pragmatically, I would argue, unlike English auxiliaries which are lack of semantic richness in the words alone and require other verbs to convey complete meanings, Chinese modal auxiliary *hui* in some circumstances (such as used as modal adjectives defined by Tang and Tang) can be used as transitive verbs followed directly by nouns. This usually occurs when the original/regular verb of the object is commonly recognized and most of the time, this object is a kind of special skill:

270. (a) Ta hui Zhongwen, Yingwen, Fawen, Riwen he Yinduwen.
s/he-CAN-Mandarin-English-French-Japanese-and-Hindi
"S/He knows (how to speak) Mandarin, English, French, Japanese and Hindi."

(b) Wo meimei hui (da) diannao, hui (tan) gangqin, hui (la) xiaoti Qin...
I-younger sister-CAN-(hit)-computer-CAN-(play)-piano-CAN-(play)-violin
"My younger sister knows computer; knows (how to play) the piano and the violin."

It doesn't mean that *hui* can be followed with all kinds of nouns, and this type of use is not very common after all. In other words, it is not acceptable to say:
270 b' * Ta *hui* daziji, *hui* qiche.
s/he-CAN-typewriter-CAN-automobile
"S/He CAN typewriter; CAN car."

The modal auxiliary *neng*, when used idiomatically, can definitely take nouns. This is very different from English modals:

270 c. Ta *neng* wen *neng* wu.
s/he-able-literature-bale-martial art
* "S/He CAN both brainy and brawny activities."
So far, we have investigated what modality is and how modal expressions are displayed in Mandarin and English. However there is one important element in the expressions of modality that has not been discussed. It is the ‘negated’ modal expression.

De Haan (1997) raises the question of the need for study on the interaction of modality and negation by stating that since Aristotle most have focused on the philosophical aspect while the linguistic side of the problem has been largely ignored.

De Haan’s framework of modality and negation concerns the interaction between epistemic and deontic modal elements and simple negation, which is defined semantically as that element whose only role is to change the truth value of the sentence. In English this element is NOT. De Haan’s analysis is based on the ‘scope of the negation’ and he claims that English uses different modal verbs to distinguish between ‘wide scope of negation’ and ‘narrow scope of negation’. To explain this, he provides two sentences containing two different negated modal verbs:

272. John NEED NOT fly to New York tomorrow.

Sentence (271) is considered as a ‘narrow scope of negation’ in that the sentence expresses an obligation not to do the action described in the proposition;

---

39 De Haan (1997) does not distinguish between modal auxiliaries and modal verbs. He uses modal verbs to refer to both.
the negation is in the scope of the modal verb (auxiliary) MUST. Whereas sentence (272) conveys the meaning that there is no obligation to perform a certain action and lets the negation have scope over the modal verb NEED. In other words, as De Haan (1997) explains, this sentence can be expressed as:

273. John does not NEED to fly to New York tomorrow.

In short, English uses different modals for different scope interpretations. However, there should be a language in which these two interpretations can be distinguished by simply placing the negative marker in different locations in a sentence without changing the verbs. De Haan uses Italian to illustrate such phenomenon:

274. a. Gianni non deve andare a Roma.
   Gianni-neg\textsuperscript{40}-MUST:3SG:PRES\textsuperscript{41}-go:INF\textsuperscript{42}-to-Rome
   "Gianni NEEDN'T go to Rome."

275. Gianni deve non andare a Roma.
   Gianni- MUST:3SG:PRES-NEG-go-INF-to-Rome
   "Gianni MUSTN'T go to Rome."

De Haan (1997), however, does not directly mention that some modals in Mandarin adopt this negative marker placement strategy. By looking at some materials concerning negation in Mandarin, it can be concluded that in Mandarin, modals can be negated by negative markers "bu" 不, "mei" 没 and "wei". Classical negative markers "wu" 無 or "mo" 毋 and "fei" 非 are sometimes used in formal literary writings or formal special compounds and set

\textsuperscript{40}NEG represents "negative marker".
\textsuperscript{41}The form of this MUST is third person singular and present tense.
\textsuperscript{42}The infinitive form of "go".
phrases with negative connotations. “Wu” and “fei”, particularly, are restricted to
the coining of new idiomatic combinations (Zimmer, 1964). These negative affixes
are also mostly seen in double negative structures. Modern Chinese uses the
negative marker “bu” widely among all Mandarin modals. Only certain modal verbs
and auxiliaries are negated by “mei” and “wei” in completed actions. Some
examples can be found in Chao (1968) and Guo (1997): “mei/wei neng” ‘was not
able to’, “mei gan” ‘did not dare’ and “mei ken” ‘was not willing to.’ The examples of
using “mei” and “wei” as negative markers in the Sinica corpus show that they are
mainly used in completed (past) actions in comparison with “bu”:

276. a. Zhongyanyuan di san ge wu nian jihua mei neng luoshi.
   Academia Sinica-order-three-class-five-year-plan-not-BE ABLE TO-realize
   “The third five-year-plan of Academia Sinica COULdn’t be implemented.”

   b. Dang keji bu neng fanxing renwen, renwen wei neng zhuishang
   when-technology-not-CAN-reflect-humanities-humanities-not-CAN-catch up-
   keji shi, shei dou meiyou bi shei gaoming.
   technology-time-who-all-not-compare-who-superior
   “Only when technology CAN reflect humanities and humanities CAN catch up
   with technology CAN we talk about superiority.”

277. a. Wo zuotian haishi mei ken song gei ni.
   I-yesterday-still-not-be willing to-give-to-you
   “I was still not willing to give it to you yesterday.”

   b. Ta wei ken xianru xueyuan de laolong.
   S/He-not-be willing to-fall-academy-attr.-cage
   “He did not want to be confined in the academy.”

278. a. Ta mei gan hui tou kan na zhi wuhei de qiang.
   S/he-not-DARE-turn-head-see-that-class.-dark black-attr.-gun
   “S/He was afraid to turn round and look at that dark black gun.”

   b. Er ren suiran shixian zao yi jingyou zhuanren zhidian,
   Two-person-although-advance-early-already-through-specialist-guide
   que ye wei gan dayi.
“Although these two people had been advised by experts in advance, they still did not dare to be careless.”

In addition to the consideration of time frames, some modals denote different meanings when used with different negative markers. For example, “bu neng” means ‘not permitted’ but “wu neng” means ‘not capable’. Neng in the second phrase denotes a dynamic possibility. Some modals, however, can simply co-occur with one negative marker such as the modal auxiliary hui: “bu hui xiayu” ‘WON’T rain’ with the epistemic prediction meaning or “bu hui huahuar” ‘don’t know how to paint’ with the meaning of ability. Some negative markers as mentioned above are used together in double negative phrases or sentences to denote a positive meaning: “fei wo mo shu” ‘I am the only (qualified) one who can have it.’ Or “fei mai bu ke” – ‘I’ll have to buy it (There is no way that I am not going to buy it.).’ Since the negative marker “bu” in Mandarin is the only one which can co-occur with all the modals discussed in this paper and most importantly, it is very similar to the English ‘not’. Therefore in later sections I will be mainly focusing on the negated modals with the negative marker “bu”.

In order to make the picture more clarified, it is necessary to bring the focus on the history of negation first. The next sections begin with the English negation and apply the theory of scopes of the negation to the negated modals in Mandarin.

5.1 The History of Negation

The concepts of negation and opposition have been drawn wide attention to logicians, linguists and philosophers of language from Plato and Aristotle to
present scholars. The origin of the concept of negation dates back at least to Aristotle's four categories of opposition (Cat. 11b17):

I. Correlation, e.g., double vs. half
II. Contrariety, e.g., good vs. bad
III. Privation, e.g., blind vs. sighted
IV. Contradiction, e.g., Socrates sits vs. Socrates does not sit.

In the terms of logic and philosophy, if a statement cannot be true and false at the same time, it is called the Law of contradiction (LC) whereas if a statement must be either true or false is called the Law of Excluded Middle (LEM) (Horn, 1989; De Haan, 1997).

In the contrary phenomenon, only LC can apply to it but in the contradictory situation, both LC and LEM can apply to it. That is to say, in contradictory opposition, a corresponding affirmation and denial cannot both be true, by LC, but neither can they both be false, by LEM. In other words, nothing can exist between two contradictories, but something may exist between contraries (Horn, 1989).

Consider the following sentences in De Haan (1997):

279. a. Socrates is a good man.
   
   b. Socrates is a bad man.

280. a. Socrates is sitting.
   
   b. Socrates is not sitting.

In contradictory negation, by LC, only one of the statements (a or b) in either (279) or (280) can be true and, by LEM, only one of the statements (a or b)
in (279) or (280) can be false. In contrary negation, both statements (a and b) in either (279) or (280) can be true or they can be false at the same time. In order to show this clearly, de Haan illustrates it by conjoining the two sentences (a and b in 279 and 280) and denying them both:

281. a. *Socrates is neither sitting nor not sitting.

b. Socrates is neither a good man nor a bad man.

As we can see here, (281a) is simply unacceptable. This proves Horn's (1989) idea that "something may exist between contraries but nothing can exist between contradictories." This phenomenon can be further illustrated with the famous Square of Oppositions (SO) with quantifiers:

![Graph 5.1a. Square of Oppositions (SO) with quantifier](image)

The SO was first employed eight hundred years after Aristotle by the commentators Apuleius and Boethius (Horn, 1989; de Haan, 1997). The letters A, I, E, O are extracted vowels from Latin verbs *affirmo* 'I affirm' and *nego* 'I deny'. The vertical axis A-I vs. E-O represents a distinction in quantity (affirmative vs.
negative opposition). The horizontal axis A-E vs. I-O represents a distinction in quality (the notions of universal vs. particular). The E-I (No-Some) and A-O (Every-Not Every) pairs are contradictory oppositions. The A-E (Every-No) pair is a contrary negation and the I-O pair (Some-Not Every) is usually considered as subcontrary. The I-O pair; i.e., 'some' and 'not every' is called subcontrary in that they can refer to the same situation:

282. Some men are white. ≈ 283. Not every man is white.

The semantic difference between the two is that (282) can be used in a situation when the statement “Every man is white” is true but (283) cannot be used in such situation (De Haan, 1997).

English linguists also use the same square to illustrate the connection between modality and negation. The A-E pair shows the contrary ‘necessity’ situation in modality and I-O pair shows the contrary possibility situation in modality:

\[
\begin{array}{c}
\text{necessary} & \text{A} & \text{E} \\
\hdashline
\text{necessary} & \text{contraries} & \text{subcontraries} \\
\text{I} & \text{Contradictories} & \text{O} \\
\text{possible} & \text{possible not}
\end{array}
\]

Graph 5.1b Square of Oppositions (SO) in Modality
The interpretation of A-E and I-O pairs is “Something cannot be necessarily (or possibly) true and necessarily (or possibly) not true at the same time, but they can be false at the same time.” This shows that A and E are contraries and so are I and O. However the I-O pair is more complicated than this and will be explicated later. The interpretation for A-O and E-I pairs is equivalent to the contradictory situation mentioned above where both LC and LEM can apply to them; i.e., if something is ‘necessary’ then it cannot be ‘possible not’. Similarly, if something is ‘necessarily not’, it cannot be ‘possible’.

The situation with the I-O pair, as mentioned above, is rather more complicated. It involves the scope of the negation. Let’s consider the following sentence:

284. It MAY snow tomorrow or it MAY not snow tomorrow.

The modal ‘MAY’ and the modal negation ‘MAY not’ in the two clauses in (284) can be seen as examples of the I-corner and the O-corner in the Square of Opposition. The modal ‘MUST’ and its negated form ‘MUST not’ go to A-corner and E-corner respectively:

\[
\begin{array}{cc}
\text{A} & \text{E} \\
\text{MUST} & \text{MUST not} \\
\text{I} & \text{O} \\
\text{MAY} & \text{MAY not}
\end{array}
\]
In order to make the story clarified, let's consider the Klima (1964) tests first. Understanding the Klima tests will help understand the syntactic differences and the two semantic interpretations between the O-corner and the E-corner.

5.1.1 The Klima Tests

The Klima Tests are named after Klima, S. Edward, the author of *Negation in English* published in 1964. His theories have been considered as one of the earliest theories on English negation. The Klima tests are composed of four tag clauses added to negative clauses but not positive clauses. The four tags are the tags which contain the words:

A. not ... either
B. neither
C. not even
D. a question tag of opposite polarity.

Examples of each tag are as follows (Klima, 1964):

285 a. Publishers will not reject suggestions, and writers will not accept them, either.

b. Writers will not accept suggestions, and neither will publishers.

c. Writers will not accept anything, not even suggestions.

d. Writers will never accept suggestions, will they?

The negative element which passes the Klima test is called an instance of “sentence negation” and the sentence which passes all the tests is called “strong” sentence negation. And the sentence which passes all three tests but (285b) is called “weak” sentence negation. Whereas a sentence with a negative element
which does not pass any of the Klima tests is an instance of “constituent negation.”

An instance of “constituent negation” is a sentence like:

286. Taking the bus is inconvenient.

Semantically, it is a negative meaning sentence, but syntactically, it does
not pass the Klima test on negation in that it cannot co-occur with any Klima tags:

287. a. *Taking the bus is inconvenient and neither is taking the train.
    b. *Taking the bus is inconvenient, not even the train.

In effect, sentence (286) is positive as far as Klima test is concerned:

288 a. Taking the bus is inconvenient and so is taking the train.
    b. Taking the bus is inconvenient and taking the train is inconvenient, too.

The Klima tests have been discussed only briefly in cross-linguistic
research. Most of the studies dealing with the Klima tests are in Indo-European
languages. They are, according to de Haan (1997), Kraak (1966) and Seuren
(1967) for Dutch, Stickel (1970) for German, Attal (1971) for French and Ibañez
(1972) for Spanish and Barkir (1970) for Iraqi Arabic. That is to say, prior to the
present study, there is no research done with the Klima Tests on the application of
Mandarin modality and negation. In the following section, I will try to use the Klima
tests to interpret the E-corner and the O-corner in the Square of Oppositions in
Mandarin with the modals MAY and MUST and other modals previously discussed.

5.1.2 The Interpretations of Negated Modals in the SO

Taking the Klima tests into account, let’s consider the difference between
the O-corner and the E-corner again in the Square of Oppositions. The first
interpretation is concerned with an epistemic interpretation of O-corner and deontic interpretation of E-corner:

289. It **MAY** [not snow] tomorrow.

290. It **MAY not** snow tomorrow.

So the negation in (289) is in the scope of the modal verb. It describes the probability of not having snow tomorrow\(^{43}\). And according to the Klima tests, sentence (289) is treated as a positive statement:

291. It **MAY** [not snow] tomorrow and so **MAY** it [not rain].

i.e., it cannot go with any Klima tags:

292. *It **MAY** [not snow] and neither **MAY** it rain.

It is unlike sentence (290) in which the modal verb is in the scope of the negation and is also a sentential negation:

293. He **MUST not** come next week and neither **MUST** she.

The second interpretation is the deontic interpretation and the O-corner has a new verb **NEED**. In this version, the modal verbs are in the scope of negation and both negations are sentential (De Haan, 1997):

```
A      E
MUST   MAY not
I      O
MAY    NEED not
```

294. It **MAY not** snow tomorrow and neither **MAY** it rain.

295. He **NEED not** come next week and neither **NEED** she.

---
\(^{43}\) It is not concerned with the permission of not having snow under certain circumstances.
Take scopes of the negation into account, the different interpretations of sentences (289) and (294) can be tested with Mandarin:

289'. Mingtian *keneng* bu xiaxue.
    Tomorrow-MAY-not-snow
    “It MAY [not snow] tomorrow.”

294'. Mingtian *bu keneng* xiaxue ye bu *keneng* xiayu.
    Tomorrow-not-possible-snow-also-not-MAY-rain
    “It [MAY not] snow tomorrow and neither MAY it rain.”

One can see that the negation is in the scope of the modal adverb in sentence (289') whereas the modal adverb is in the scope of the negation in sentence (294'). (289') describes a possibility of not having snow tomorrow whereas (294') denies the possibility of having snow tomorrow based on the circumstance given; like say, according the weather forecast, the temperature will not be low enough to permit snow! So one may conclude that in Mandarin, if the modal is in the scope of the negation, the sentence is considered as a sentential negation. The negation can be carried onto the second clause in the sentence; that is:

294'' * Mingtian *bu keneng* xiaxue he/huo xiayu.
    Tomorrow-not-MAY-snow-and/or-rain
    “It is not possible that it WILL snow and/or rain tomorrow.”

is more acceptable than:

289'' * Mingtian *keneng* bu xiaxue he/huo xiayu.
    Tomorrow-MAY-not-snow-and/or-rain
    “It probably WILL not snow and/or rain tomorrow.”

where the negation is in the scope of the modal, and the negation cannot be carried onto the second clause in the sentence. In the following sections, the
modal auxiliaries will be discussed with the Kliima tests and scopes of the negation to examine their compatibility with negation. However one should note that according to De Haan’s (1997) category, English is seen to be a Modal Suppletion Strategy (MSS) language while Mandarin Chinese is a Negation Placement Strategy (NPS) language. In the MSS construction, the difference between narrow scope and wide scope interpretations of negation is expressed by means of different modal elements. It is the modal element that differs in shape, not the negation. In other words, the negation is inherently incapable of expressing scope (De Haan, 1997):

296. John [MUST not] go to school. (MOD (NEG (p))) – narrow scope
297. John [NEED not] go to school. (NEG (MOD (p))) – wide scope

Sentence (297) can be written as:

298. John does not NEED to go to school. (NEG (MOD (p))) – wide scope

Other Germanic languages such as Dutch and German or Finnish and Celtic languages, such as Scots Gaelic are also considered to be predominately MSS languages.

The NPS construction is characterized by the fact that it is the position of the negation that determines its scope. The difference between narrow and wide scope interpretations of the negation is expressed by means of negation itself. The negative element occupies two different places to show the differences in scope:

a. (NEG MOD) V_{main} (NEG (MOD (p))) – wide scope
b. MOD (NEG V_{main}) \quad (MOD (NEG (p))) – narrow scope

An example can be found in Mandarin where the “bu” can be placed before and after the modal auxiliary keyi. And it denotes two different meanings and two scopes:

299. a. Ta [bu keyi] qu.
   S/He-not-CAN-go
   “It is not possible for him to go./S/He is not allowed to go.”

b. Ta keyi [bu qu].
   S/He-CAN-not-go
   “S/He NEED not go.”

It is not uncommon, however, that, as De Haan’s research on different languages shows, a sentence can have a narrow scope structure with a wide scope interpretation. Sentence (299b) above shows this phenomenon in Mandarin: “Keyi bu qu”, syntactically, is a narrow scope of the negation but the interpretation is the wide scope one. The same can be said to another NPS construction language, Italian. Let’s recapitulate sentence (274) in the beginning of this chapter into (300):

300. Gianni non deve andare a Roma.
   Gianni-neg-MUST:3sg:pres-go:inf-to-Rome
   “Gianni MUSTN’t go to Rome.”

(300) shows the wide scope structure with narrow scope interpretation.

Palmer (1986) makes a distinction between the different interpretations of “MUSTN’T” and “NEEDN’T”:

“… there may be a positive obligation towards a negative course of action or a negative obligation towards a positive course of action. English uses mustn’t for the first and needn’t for the second:

150
John MUST come tomorrow
John MUSTN’T come tomorrow
John NEEDN’T come tomorrow

The second sentence expresses “There is necessity not to come.” The third is “There is no necessity to come.” The former is considered as a narrow scope interpretation whereas the latter is a wide scope interpretation.

However if a language is categorized as MSS, it does not mean that it cannot have NPS construction and the reverse can be said with NPS languages. This involves the inherent scopal ability of the modal, namely “uniscopal” or “biscopal.” In later sections one can find that English, an MSS predominant language, can use a NPS construction if the modal is biscopal. On the other hand, an MSS construction can be applied to some uniscopal modals in Mandarin, an NPS construction language.

Bearing this in mind, let’s shift our focus to the epistemic and deontic interpretations on negation in MSS construction language, English, and NPS construction language, Mandarin.

5.2 The Epistemic Interpretations with MSS and NPS

To begin, let’s consider the following matrix (5.2a) based on De Haan’s (1997) continuum Model (5.2b):

Weak 301. a. Victor MAY (CAN) be there.
        b. Victor MAY not be there.
        c. Victor CAN’T be there.

302. a. Victor SHOULD be there by now.
        b. Victor SHOULD NOT be there by now.
Strong

303. a. Victor **MUST** be there.
   
b. Victor **CAN'T** be there.
   
c. Victor **MAY NOT** be there.

Graph 5.2a Matrix of Epistemic Interpretations

<table>
<thead>
<tr>
<th>Weak</th>
<th>Strong</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MAY/CAN</strong></td>
<td><strong>WILL/SHOULD</strong></td>
</tr>
<tr>
<td><strong>(MIGHT/COULD)</strong></td>
<td><strong>MUST</strong></td>
</tr>
</tbody>
</table>

Graph 5.2b Continuum Model

In the weak system of epistemic interpretation, "**MAY not**" only has a narrow scope in negation meaning and **CAN'T** only expresses wide scope (De Haan, 1997). The reason for "**MAY not**" having only a narrow scope of the negation was explained in section 5.1.2. Let's briefly repeat it here. With the epistemic notion, in sentence (301 b), the speaker is expressing the possibility of Victor not being there. So "Victor **MAY** either be there or not be there", that is the question. Similarly, in Mandarin, as I explained above, the negation can be in the scope of the modal adverb in this case:

301 b'. Zhang San *kaneng/dagai* bu zai nar.
   
   Zhang San-**MAY-not-at-there**
   
   "Zhang San **MAY** [not be] there/It is possible that Zhang San is not there."

The same can be said of **CAN'T**. With the weak epistemic interpretation, **CAN'T** semantically can only have wide scope of the negation:

301. C’ It is not possible that Victor **CAN/MAY** be there.

   C'' * It is possible that Victor **CAN'T** be there.
Similarly, we can interpret CAN'T in (302c) in Mandarin as:

301 C”’ Zhang San bu keneng zai nar.
Zhang San-not-MAY-at-there
“Zhang San CAN’T be there./It is not possible that Zhang San is there.”

(301 C”’) is to oppose the idea that “Zhang San keneng zai nar.”

What about other epistemic modals such as neng and keyi in Mandarin? In chapter four, I mentioned that the negation for the epistemic keyi is bu neng. And according to De Haan’s (1997) frame work, keyi in Mandarin is an MSS phenomenon, not NPS. The following examples show that with the epistemic interpretation, the negation of keyi itself cannot determine the scope. It has to be replaced or supplemented by another modal. Let’s recall sentence (109’):

109’ Women jintian keyi zuo de shi, you xuduo shi guoqu zuo bu dao de.
We-today-CAN-do-attr.-thing-have-many-be-past-do-not-reach-attr.
“Many things we MAY BE ABLE TO do today COULDN’T be achieved in the past.”

The underlined portion shows that keyi has to be replaced by other elements to indicate its negation. The same can be seen in sentence (110) in chapter four:

110. Zhe zhang zhuozi keyi zuo shi ge ren -epistemic capacity
This-class.-table-CAN-sit-ten-class.-people
“It is possible that ten people CAN sit at this table (This table can possibly seat ten people.).”

The negated sentences either do not make any sense or are grammatically incorrect regardless of the position of the negative marker:

110’ *Zhe zhang zhuozi bu keyi zuo shi ge ren.
This-class.-table-NOT-CAN-sit-ten-class.-people
* “This table is not allowed to seat ten people.”

110” * Zhe zhang zhuozi keyi bu zuo shi ge ren
This-class.-table-CAN-not-sit-ten-class.-people
“This table CAN [not seat] ten people.”
So in order to have a grammatically and semantically acceptable negative sentence, *keyi* has to be replaced:

110” a. Zhe zhang zhuozi *bu neng* zuo shi ge ren -epistemic capacity
   This-class.-table-not-CAN-sit-ten-class.-people
   “It is not possible that ten people CANNOT sit at this table (This table CANNOT seat ten people.).”

b. Zhe zhang zhuozi zuo *bu xia* shi ge ren -epistemic capacity
   This-class.-table-sit-not-down-ten-class.-people
   “This table CANNOT seat ten people.”

Since *neng* and *keyi* behave similarly in their positive epistemic interpretation (cf. 4.2.1), *neng*, like *keyi* can only have the wide scope of the negation in its epistemic interpretation. Recall sentence (115) in chapter four:

115. Feng *keyi/neng* fa dian.
   Wind-CAN-generate-electricity
   “Wind CAN generate electricity.”

115’ a. Feng *bu neng* fa dian.
   Wind-not-CAN-generate-electricity
   “Wind CAN’T generate electricity.”

b. * Feng *neng* bu fa dian.
   Wind-CAN-not-generate-electricity
   “Wind CAN [not generate] electricity.”

As the results shown above, both *neng* and *keyi* in their epistemic interpretations can only take the wide scope structure.

The modal auxiliary SHOULD in English, in any case, can only take narrow scope interpretation. As far as epistemic modality is concerned, as De Haan points out, there is no possibility for a verb with the notion of SHOULD to combine with a negation and be in the scope of that negation. In other words, only negation can be in the scope of the modal auxiliary SHOULD, but not the other way around. So the interpretation for sentence (302b) is:
Victor xianzai yinggai hai bu zai/mei dao nar.
Victor-now-SHOULD-still-not-at-not-arrive-there
“Victor SHOULdn’t be there by now.”

The evidence proving that English SHOULD is a uniscopal notion comes from NEG raising predicates (De Haan, 1997). A NEG-Raising element, such as THINK is a good candidate, since it does not interfere with the scope:

304. I don’t think you SHOULD leave.
305. I think you SHOULD not leave.

In other words, the negation is raised to the first clause in (304) without changing the meaning and altering the scope. The speaker in both (304) and (305) is suggesting the listener to stay. However if SHOULD is replaced with other modals, such as CAN or MUST, the sentences will have different interpretations:

306. a. I don’t think you MUST leave. (It is not necessary for you to leave.)
   b. I think you MUSTN’T leave. (It is necessary for you not to leave.)

The speaker in (306a) is somewhat making a suggestion (wide scope) whereas (306b) is making a command (narrow scope).

Now how do NPS languages, such as Mandarin, denote the notion of SHOULD? The empirical evidence shows that in most NPS languages, the wide scope structure of the notion SHOULD does not differ from the narrow scope structure of the notion SHOULD in meaning because they are ambiguous between wide and narrow scope of the negation (De Haan, 1997). In De Haan’s research, he demonstrates Malay (Idris, 1980), Khmer, and Estonian (Horn) in which the negation can be placed either before or after the modal notion SHOULD without
changing the meaning. Is the story the same with Mandarin Chinese? The closest notion to English SHOULD in Mandarin with epistemic interpretation is ying(gai), ying(dang).

In epistemic interpretation, they denote "assertion" and in deontic interpretation, they denote "command" (Hsieh, 2001). Let's consider some positive statements from the Sinica Corpus:

307. Ruo an renkou bili jisuan, quan sheng e si de
    if-according to-population-ratio-calculate-whole-province-hungry-die-attr.-
    ren shu dang (yinggai)44 zai er bai wushi wan yishang.  (assertion)
    person-number-SHOULD-at-two-hundred-fifty-ten thousand-above
    “If calculated by the ratio of population, the number of people who died with
    starvation SHOULD be over 2,500,000.”

308. Hao Sijia ye dique gaidang (yinggai) shou dao renmen de xiai yu
    O'Hara-Scarlet-also-certainly- SHOULD-receive-arrive-people-attr.-love-and-
    huanying de ba! (obligation)
    welcome-particle.-mood particle
    “Scarlet O'Hara certainly SHOULD be popular and loved by people.”

Does yinggai possess the same meaning with narrow and wide scope of the negation? Let's negate part of sentence (307) and the whole sentence (308):

307' a ...e si de ren shu bu yinggai zai er bai wushi
    hungry-die-attr.-person-number-not- SHOULD-at-two-hundred-fifty
    wan yishang.
    thousand-above
    “It is not possible that the number of death caused by starvation SHOULD
    exceed 2,500,000.”

b. ...e si de ren shu yinggai bu zai er bai wushi
    hungry-die-attr.-person-number-SHOULD-not-at-two-hundred-fifty
    wan yishang.
    thousand-above
    “It is possible that the number of death caused by starvation SHOULD not
    exceed 2,500,000.”

44 Yinggai in parentheses is not in original.
This shows that there is not much difference in interpretation whether the negative marker "bu" is placed before or after the modal adverb *yinggai*.

In Chapter three I talked about the epistemic and deontic uses of *yinggai*. Here I will negate those epistemic sentences to show that no matter where the negative marker is, the meanings stay the same, especially with the epistemic interpretation:

309 a Cong zher *yinggai* kan bu dao wutai.
From-here-shou/d-see-not-reach-stage
“(You) SHOULD NOT be able to see the stage from here.”

?a’ Cong zher *bu yinggai* kan de dao wutai.
From-here-not-shou/d-see-suffix-reach-stage
“(You) SHOULD NOT be able to see the stage from here.”

310. a *Bu yinggai hui* you fandui ci (yi panjue) de falü tiaowen.
Not-SHOULDN’T-CAN-have-against-this-(one-verdict-)-of-law-regulation
“There SHOULDN’T be a law against this/It WON’T be possible that there is a law against this.”

a’ *Yinggai bu hui* you fandui ci (yi panjue) de falü tiaowen.
SHOULD-NOT-CAN-have-against-this-(one-verdict-)-of-law-regulation
“There SHOULDN’T be a law against this/It is possible that there won’t be a law against this.”

However some other Mandarin modal adverbs which are semantically similar to Mandarin *yinggai* do not syntactically function the same way with the
negative marker “bu”. These include *dagai ‘probably’, *yexu ‘maybe’, *huoxu
‘probably’, which may not be preceded by the negative marker “bu”: *bu *dagai, *bu
*yexu, *bu *huoxu.

The strong epistemic modals are the same as those in the weak. The only
difference we can see is that in this case, the order of the second and the third
sentences is switched (301 b&c) vs. (303 b&c):

<table>
<thead>
<tr>
<th>Weak</th>
<th>Strong</th>
</tr>
</thead>
<tbody>
<tr>
<td>301. a. Victor MAY (CAN) be there.</td>
<td></td>
</tr>
<tr>
<td>b. Victor MAY not be there.</td>
<td></td>
</tr>
<tr>
<td>c. Victor CAN’T be there.</td>
<td></td>
</tr>
<tr>
<td>302. a. Victor should be there by now.</td>
<td></td>
</tr>
<tr>
<td>b. Victor should not be there by now.</td>
<td></td>
</tr>
<tr>
<td>303. a. Victor MUST be there.</td>
<td></td>
</tr>
<tr>
<td>b. Victor CAN’T be there.</td>
<td></td>
</tr>
<tr>
<td>c. Victor MAY NOT be there.</td>
<td></td>
</tr>
</tbody>
</table>

(Matrix 5.2)

Why then in English aren’t MUSTN’T and NEEDN’T used profoundly in
epistemic interpretation? According to Coates (1983), the modal CAN, which is
never epistemic in its positive form, supplies the missing negative for MUST. And
MUST NOT is only used non-epistemically. Palmer (1990) also states that MUSTN’T
and NEEDN’T are not usually used epistemically. CAN’T and MAY NOT are the forms
for the negation of epistemic necessity. MUSTN’T and NEEDN’T may only appear in
which the judgment in terms of necessity is made rather than possibility:

311. He MUSTN’T be there after all.

This can be paraphrased as “It is not necessary for him to be there after all.”
Similarly, MAY NOT and NEEDN’T in the following sentence from Palmer (1990) show
a contrast between possibility that is asserted and necessity that is denied:

312. He **MAY** be there, but he **NEEDN'T** be.

Coates' analysis is based on a British English (BE) Corpus, so the occurrence of MUSTN'T is rare. But De Haan (1997) confirms that it is indeed possible to use MUSTN'T, but not MUST NOT, epistemically in BE. In Tottie's (1985) study where she tests speakers of BE and American English (AE) the use of epistemic modals verbs and negation, she concludes the following results shown in table 5.2:

<table>
<thead>
<tr>
<th></th>
<th>CAN</th>
<th>COULD</th>
<th>MUST</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>British</td>
<td>379</td>
<td>62</td>
<td>1</td>
<td>422</td>
</tr>
<tr>
<td></td>
<td>86%</td>
<td>14%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>American</td>
<td>251</td>
<td>169</td>
<td>122</td>
<td>542</td>
</tr>
<tr>
<td></td>
<td>46%</td>
<td>31%</td>
<td>23%</td>
<td></td>
</tr>
</tbody>
</table>

As we can see, the percentage of weak epistemic CAN and COULD in BE is almost 100% whereas it is only 77% in AE. As for the use of MUSTN'T in BE and MUST NOT in AE, de Haan (1997) explains that the BE form MUSTN'T is used in a phenomenon what Halliday (1970) calls a “verbal crossing out.” That is, it is used to negate a previous sentence with affirmative MUST:

313. a: He **MUST** have left.

b: No, he **MUSTN'T** have left since no one came out.
MUST NOT in AE, on the contrary, is often used when there is no previous modal sentence in the discourse:

314. John MUST NOT have read the instruction booklet. He is making so many mistakes.

This is to be compared with a dialogue in Tottie in (1985):

315. a: John MUST have read the instruction booklet.
    b: He CAN'T have read it. He is making so many mistakes.

So in AE, CAN'T would be used more often to negate a previous affirmative modal sentence. And MUST NOT is used when there is no sentence preceding it. In BE, CAN'T can be used in both cases (De Haan, 1997).

Interestingly, MUST NOT never contracts to MUSTN'T in AE. De Haan (1997) says it might be due to the fact that "MAY NOT" never contracts. And as far as the Klima tests are concerned, while the negative form remains the norm (316a), the positive form is not totally unacceptable (316b) (De Haan, 1997):

316. a John [MUST NOT] have read the instruction booklet and neither MUST Mary.
    b. John MUST [not have] read the instruction booklet and so MUST Mary.

With the strong epistemic interpretation, Mandarin as mentioned in Chapter Three may use modal adverbs, such as yiding ‘definitely, certainly’ and modal auxiliary hui for future dynamic possibility. In the following example, one may find that yiding is more like a uniscopal modal whereas hui can be considered as biscopal. That is, in order to change the meaning and the scope, the negation of yiding has to be supplemented or replaced by another element:

317. Ta yiding bu shi hao xuesheng.
    s/he-definitely-not-be-good-student "S/He MUST NOT be a good student."
318. a. Ta *bu yiding* shi hao xuesheng.
   S/he-not-definitely-be-good-student
   “S/He MAY NOT be a good student.”

b. Ta *bu xU/biyao* shi hao xuesheng.
   S/he-not-necessary-be-good-student
   “S/He does not HAVE TO be a good student.”

While there is little difference between (317) and (318a), in (318b) another modal adverb *xuyao* ‘necessary’ or *biyao* ‘necessary’ is used to indicate the interpretation of the wide scope of the negation. The slight difference between (317) and (318a) lay only in the degree whether the modal is negated or not. The negation is definitely stronger when the negative marker is in the scope of the modal in Mandarin. Therefore, in terms of degree, *yiding* in structure “MOD+NEG+V” is similar to the stronger modal MUST whereas it is paraphrased as a weaker modal MAY in “NEG+MOD+V” structure in English. It is just because *yiding* is a very strong modal adverb and the intensity of this modal gets less when it is negated. But the interpretation of both (318a) and (318b) are within the scope of the negation. So the modal adverb *yiding* can be considered as an MSS structure in the NPS language Mandarin.

However the situation with the modal auxiliary *hui* is different; i.e., the intensity of this modal doesn’t decrease with placement of the negative marker before it. Earlier in this paper I mentioned that the predicate following *hui* determines the notion of *hui*. Based on previous research, it is found that the “ability” *hui* tends to take action verbs while the “assertive” *hui* takes stative verbs.

It neither can be concluded that the *hui* with action verbs is definitely “ability” *hui*. In some cases it can mean that the action is possible or not possible. This is
clarified if the *hui* is negated. Consider the following exchange between A & B regarding a performance of C in a party next week:

319. a: Ta *hui* changer ma? Jianghua de shengyin zheme nanting!
   “Can s/he sing? Such a(n) rough/ugly voice when talking!”
   
   b: Ni rang ta tingjian le, ta shi *bu hui* chang de.
   “If s/he hears what you said, s/he WO’N’T sing (in the party).”

In the following examples one may notice that with actions verbs, the sentence tends to have a wide scope structure while with stative verbs it is more likely the sentence will have a narrow scope structure:

320. a. Zhe ge xuesheng *bu hui xie* Zhongguo zi.
   “This student doesn’t know how to write Chinese characters.”
   
   *a’ Zhe ge xuesheng *hui xie* Zhongguo zi (de).
   “This student CAN write Chinese characters.”

321. a. Ni zheyang shuo ta *hui bu* gaoxing de.
   “S/He will be upset if you make such comments.”
   
   *a’ Ni zheyang shuo ta *bu* gaoxing de.
   “S/He WO’N’T be happy if you make such comments.”

Interestingly, as I mentioned above, negation of the “ability” *hui* is more likely to become epistemic when it is in the narrow scope structure as in (320a’). The sentence (320a’) may be interrelated with “The student who has been expected to write Chinese characters will possibly not write them if something unusual happens.” Another interesting situation with changing the wide scope of
the negation *hui* into the narrow scope of the negation *hui* is when the structure is an interrogative but the meaning is a positive statement:

322. Dao le Xiaweiyi ta *hui* [bu youyong] ma? 
    arrive-asp.-Hawai‘i-s/he-will-not-swim-qm.
    “When s/he is in Hawai‘i, do you think s/he WON'T swim?”

In this utterance, the speaker is actually stating a positive possibility of the agent to swim in Hawai‘i given that fact that the weather and the beaches in Hawai‘i are the most appealing. The phenomenon is very similar to the bishopal modals MAY and CAN in English. One may consider putting a pause between *hui* and “bu” in (321a & 322). This will be cleared up in the next section.

5.3 The Deontic Interpretations with MSS and NPS

According to Palmer (1986), there are several possibilities with the deontic system of English and they will be illustrated with another matrix based on again DE Haan’s continuum model:

Weak 323. a. John MAY/CAN come tomorrow.  
    b. John [MAY NOT]/[CAN’T] come tomorrow (wide scope)  
    c. John MAY [NOT]/CAN [NOT come] tomorrow (narrow scope)  
        (John needn’t come tomorrow.)

324. a. John SHOULD come tomorrow.  
    b. John SHOULD[N’T come] tomorrow. (narrow scope)

Strong 325. a. John MUST come tomorrow.  
    b. John MUST[N’T come] tomorrow. (narrow scope)  
    c. John [NEEDN’T] come tomorrow. (wide scope)
Let's start with the weak modals. It is observed that the weak modals are the same as those in the weak epistemic system of English. The problem is that it does not correspond to the MSS pattern of English. So at first sight, it seems that there is no difference between the wide scope and narrow scope of the negation. This has something to do with the ambiguous interpretations of the two scopes of the negation with the modals MAY and CAN. However there are strategies to clear this ambiguity. In written English, CAN and 'not' can be contracted in the case of wide scope of the negation (323b) whereas the contraction is not acceptable in the narrow scope of the negation (323c).

Although it is not really possible to distinguish wide scope and narrow scope of the negation with the modal MAY in written English, yet in spoken English, this may be solved by adding stress on the negation, accompanied by a pause between the modal verb and the negation in the narrow scope interpretation (DE Haan, 1997):

323 c' John MAY - not come tomorrow.

The example found in Horn (1972) shows that other materials can be interposed between the modal and the negative marker to distinguish the narrow scope from the wide scope of the negation in the sense of deontic CAN:

326. a. You CAN NOT work hard and still get a Ph.D.
   b. You CAN, if you bribed your chairman, not work hard and still get a PH.D.
   c. You CAN't work hard and still get a PH.D.

Sentence (326c) can only have a wide scope interpretation. This difference can also be demonstrated with the Klima tests. By adding the Klima tags, we shall
see that (326b) which has the narrow scope appears to be positive and (326c) possessing the wide scope stays negative:

326 b' You CAN, if you bribed your chairman, not work hard and still get a Ph.D., and so CAN Mary.

326 c' You CAN'T work hard and still get a Ph.D., and neither CAN Mary.

This also explains why (323c) with the narrow scope structure has the wide scope interpretation:


In other words, John has a choice here. He CAN either come or not come; i.e., he NEEDN'T (doesn't HAVE TO) come if he doesn’t want to.

The reason for weak deontic interpretation avoiding the use of NEED is as Palmer (1986) claims; having no obligation to do something is not the same having permission not to do it. In addition, the modal verb itself is seen to be a strong modal verb by De Haan (1997) in that NEED acquires its weak modal interpretation through its logical relation\(^{45}\) and it is not in itself a weak modal verb. Speaking of which, let's shift the focus to the strong deontic modal system in English\(^{46}\). As noted here, in the wide scope of negation in a strong deontic modal system, a totally new verb, NEED, appears. The same was seen in Mandarin when the strong epistemic interpretation was discussed with yiding. As the Klima tests show:

327. a. John MUSTN'T come, and neither MUST Mary.

    b. John NEEDN'T come and neither NEEDS Mary.

\(^{45}\) The possible logical relation mentioned here by De Haan is the possible logical equivalence of "not necessary=possible not".

\(^{46}\) As for SHOULD, I have already talked about it in the previous section and it is concluded that it is a unispecal notion in English, i.e. it only combines with negation in one way and has no difference in meaning. Thus, it will not be repeated here.
328. a. John MUSTN'T come, not even if he wants to.

    b. John NEEDN'T come, not even if he wants to.

There is no syntactic difference between the two modals MUST and NEED (De Haan, 1997). The purpose of introducing this new modal is to disambiguate the semantic interpretation between the wide and narrow scopes of the negations. This concludes that English strong deontic modality uses MSS negation.

The deontic modal auxiliaries in Mandarin have been introduced in this paper include neng and keyi. I have briefly talked about the use of keyi in the beginning of this chapter to demonstrate that in the sense of deontic permission, Mandarin is an NPS language. Let's consider another example of negated deontic permission keyi:

329. Zai jiaoshi li bu keyi shuohua.
    At-classroom-in-not-CAN-speak
    "(You) MUSTN'T talk in the classroom."

    At-classroom-in-CAN-not-speak
    "(You) CAN [not talk] in the classroom."

Obviously, this shows the same result as in sentences (299 a & b) above.

An example found in Beijing Ren Min Ri Bao also indicates that, in this case, keyi functions the same way as CAN which embraces the scope of the negation and can be separated by a pause or a tress on the negative marker:

    although-such-then-CAN-[not-say]-morality-[not-care]-law-qm.
    "Even so, CAN (they) be so immoral and neglect the law?"

However things are never easy with keyi. Besides denoting "permission," keyi in Mandarin is also used in a sense of "personal promise-worthiness." In this
case, the negation is controlled by MSS, not NPS any more. Let's recapitulate sentence (93) in chapter four into (332) here:

332. Zhe ge wenti hen keyi yanjiu yi fan.
   This-class-question-very-CAN-study-one-turn
   “This issue is worth discussing.”

The negation of keyi has to be replaced by another element “bu zhide”, otherwise, it would be an ungrammatical sentence:

332’. a. Zhe ge wenti hen bu zhide yanjiu.
   This-class-question-very-not-worth-study
   “This issue is really not worth discussing.”

   *b. Zhe ge wenti hen (bu) keyi (bu) yanjiu yi fan.
   This-class-question-very-(not)-CAN-(NOT)-study-one-turn
   “This issue is not very worth discussing.”

Another deontic modal auxiliary dei ‘must; have to’ also shows the MSS phenomenon in Mandarin. When negated, the deontic permission dei has to be replaced by another modal element:

333. Ta dei qu.
   s/he-HAVE TO-go
   “S/He MUST/HAS TO go.”

333’. a. Ta bu bu yong qu = Ta keyi bu qu.
   s/he-not-necessary-go=s/he-CAN-not-go
   “S/He NEEDN'T go.”

   b. Ta bu keyi qu.
   s/he-not-CAN-go
   “S/He MUSTN'T go.”

As the examples show, both the wide and narrow scopes of the modal dei have to be replaced with other modal elements such as “bi” ‘necessary’ or “yong” ‘use’ and keyi in Mandarin; i.e., neither “bu dei”, nor “dei bu” is acceptable in
Mandarin. As mentioned above, when indicating the wide scope of interpretation, *keyi* syntactically appears in the narrow scope of the negation. That is why while *bi* and *yong* stays with the wide scope structure, *keyi* occurs with the narrow scope structure in (333' a).

The situation with deontic permission *neng* is basically similar to *keyi*. The negation determines the scope:

334. Ta *bu neng* qu.
    S/he-not-CAN-go
    “It is not possible for him to go./S/He MUSTN’T go.”

335. Ta *neng* bu qu.
    s/he-CAN-not-go
    “S/He CAN [not go]./ S/He NEEDN’T go.”

However the interesting thing in Mandarin is that unlike *keyi*, *neng* with the narrow scope of the negation is usually used in interrogatives and denotes a syntactically positive deontic necessity:

336. Laoshi jiao wo lai, wo *neng* bu lai ma?
    “The teacher asked me to come, do (you think) I have the choice not to come?”

Which means the speaker in (336) MUST come without any options.

As for the other notion of *neng* which denotes a special talent in deontic ability, it can have both the wide scope and the narrow scope of the negations with two different meanings:

337. Ta *neng* chi *neng* he.
    s/he-CAN-eat-CAN-drink
    “S/He eats and drinks a lot.”

338. a Ta *neng* (san tian) bu chi bu he. (narrow scope)
    s/he-CAN-(three days)-not-eat-not-drin
    “S/He CAN, (for three days), [not eat] and [not drink].”
5.4 Conclusion

Based on the analysis above, there are several points can be concluded in terms of the wide scope and the narrow scope of the negations as well as their interactions with Mandarin and English modals:

I. Interposing of other materials between the modal verbs and the negation is allowed in the narrow scope of the negation:

338. Ta *neng* (san tian) bu chi bu he. (narrow scope)

*s/he-CAN-(three days)-not-eat-not-drink

"S/He CAN, (for three days), not eat and not drink."

II. Only the wide scope of the negation can take the Klima tags:

329'. Zai jiaoshi li, ni *keyi* shuohua, ta ye *keyi*.

At-classroom-in-you-CAN-speak-s/he-also-CAN

"You MUSTN'T talk in the classroom and neither MUST s/he."

* " You MUSTN'T talk in the classroom and so MUST s/he."

329" * Zai jiaoshi li, ni *keyi* bu shuohua, ta ye *keyi* bu.
At-classroom-in-you-CAN-not-speak-s/he-also-CAN-not

" You MUSTN'T talk in the classroom and so MUST s/he."

III. While the main stress in the wide scope of the negation lies on the modal:

333'. Ta *bu neng qu*,

s/he-NO-CAN-go

"It is not possible for him to go./S/He MUSTN'T go."

in the narrow scope of the negation, it is the negation that is stressed, not the modal:

338'. Ta *neng bu chi bu he*.

s/he-CAN-not-eat-not-drink

"S/He CAN, (for three days), not eat and not drink."
IV. Despite the fact that English is an MSS construction language, the modals MAY and CAN, however, shows NPS construction. It is because other materials can be interposed between the negative element “not” and the modals in the narrow scope of the negation (see 337' above).

V. Mandarin, on the contrary, is an NPS construction language that can have MSS construction. This is illustrated by the modal adverb yiding and the modal auxiliaries keyi and dei. Yiding in the wide scope of the epistemic negation has to be replaced by another modal word, xuyao, in Mandarin. Keyi, in the wide scope of the epistemic negations, has to be replaced by neng or, in its deontic worthiness sense, by zhide. As for dei, in the deontic use it has to be replaced with bi or yong and keyi in the wide scope interpretation (not structure)\(^\text{47}\), and with keyi in the wide scope structure.

\(^{47}\) It is explained earlier that bi and yong show the wide scope structure of the negation while keyi shows the narrow scope structure of the negation in the meaning of wide scope “NEEDN’T”. 

170
The trend in current research in the field of linguistics concerns the use of corpora; corpus study cannot be neglected in linguistic analyses because corpus linguistics studies language use in real lives. It is a scientific methodology that examines language use in different genres and contexts. In this aspect, this paper is no exception. Valuable research into the use of a language phenomenon should include contexts in different genres. The Academia Sinica Balanced Corpus (ASBC) 3.0 is a 5,000,000-word corpus collected from various sources for Taiwan Mandarin. This corpus will be introduced in later sections. Because of the availability of the concordance programs and corpora at present time, this chapter mainly focuses on the use of modality and negation in two Mandarin speaking places, Taiwan and Beijing. The corpora used are Taiwan Central Daily News (CDN) and Beijing People's Daily-Ren Ming Ri Bao (RMRB). It is expected to contribute later researchers to the use of search engines and further discussions on negated modal expressions in modern Mandarin.

Before discussing how modal auxiliaries are used negatively in these two places, I shall spare some effort on the background of corpus study.

6.1 The Corpus Study: Corpus Linguistics

One frequently asked question is whether corpus linguistics is a sub-discipline of linguistics. The answer has to be considered in two directions.

On the one hand, when compared with syntax, semantics, and sociolinguistics/pragmatics, the answer to this question is "no" because these
disciplines concentrate on "describing/explaining some aspect of language use. Corpus linguistics in contrast is the methodology that may be used in almost any areas of linguistics" (McEnery & Wilson, 2001). However when differentiated between approaches taken to study language, corpus linguistics, on the other hand, is regarded as an area of linguistics; that is, we can have corpus-based syntactic and/or semantic analyses verses non-corpus-based syntactic and/or semantic analyses.

What is "corpus study"? How does it benefit research concerning linguistics and the use of natural languages? To begin, let's review an exchange\footnote{This is originally in Hill (1962) and cited by McEnery and Wilson (2001).} between Chomsky who condemned the "corpus data" in "early corpus linguistics\footnote{It is a term used in McEnery and Wilson (2001) to refer to linguistics before the advent of Chomsky. For detailed origin and history of corpus linguistics, see McEnery and Wilson (2001).} (McEnery and Wilson, 2001) and Hatcher:

Chomsky: The verb perform cannot be used with mass word objects: One can perform a task but one cannot perform labour.

Hatcher: How do you know, if you don't use a corpus and have not studied the verb perform.

Chomsky: How do I know? Because I am a native speaker of the English Language (Italics original).

Despite of the incisiveness of Chomsky's observation, Chomsky was, as McEnery \textit{et al.} (2001) claimed, wrong. The proof they provide is from British National Corpus (BNC). In BNC, there are occurrences of both perform magic and performing magic as well as perform sex.
The above example shows that native-speaker intuition can no longer satisfy any study related to language. As Stubbs (1996) claims, a corpus offers data that is more concretely validated than "native speaker intuition", so a persuading research has to be assisted with the use of a corpus.

So what is a corpus? A corpus is a body or collection of linguistic data or text files for use of scholarly research (Malmkjaer, 1991). A well-balanced large linguistic corpus is useful in research and application of the language. Most recent corpus linguistics technology requires a computer which can store the collection of text files and apply software to those files to produce frequency lists, lists of key words, or strings of words showing which words co-occur (or collocate) with others (Simpson & Swales, 2001).

A corpus is different from an archive in that an archive is simply an unstructured repository of naturally occurring texts whereas a satisfactorily balanced corpus provides both textual and contextual contents, for example a representation of bibliographic detail (Gammon, 2002). An ideal corpus is grammatically tagged and digitized for the convenience of linguistic researchers. Electronic corpora are beneficial in many ways:

1. They provide high capacity.
2. They speed up research for specific purposes.
3. They facilitate automatic analysis.

In other words, the advantages of corpus-based research include: a) a large amount of data provides a comprehensive view; b) quantitative analysis
provides accurate description; and c) quick retrieval saves the researcher’s time and energy.

In Sociolinguistic Context: Corpus research observes variations of a language in different social contexts, e.g., to compare Mandarin used in Taiwan and in Mainland China, in written forms and in spoken forms, in formal situations and in casual occasions, in newspapers and in novels, and contemporary versus historical periods.

Depending on the purpose of research, linguists may use different types of corpora for their analyses. In general, there are two major types of corpora; one is called specialized corpora and the other, general corpora. Specialized corpora, as the name suggested, are assembled and designed for special or particular research projects, such as child language development (Carterette & Jones, 1974) or training and test corpora developed to facilitate the building of models of language and of language processing (Leech, 1992).

General corpora are used by linguists who seek to analyze a particular language phenomenon. A general corpus, thus, is designed to balance different text genres, such as spoken or written, public speeches or private conversations, interviews, or announcements, etc. General or balanced corpora are sometimes referred to as core corpora, which can be used as a basis for comparative studies (Kennedy, 1998).

After a corpus is established, a tool needs to be used to analyze the data. Such tools are concordance programs. They are software installed on a
computer to identify sets of symbols and classify them as "words" according to predefined specifications (Hockey, 2001). It has to be able to sort words in a word list into alphabetical or frequency order. There are two basic types of concordance programs:

I. Batch concordance program: a batch concordance program operates on raw text. It allows the user, 1. to determine whether a hyphenated words are to be treated as one word or two. 2. to search for punctuation, characters to investigate forms that occur at the end of sentences (Hockey, 2001). Batch-generated concordances for all the words in a corpus can be expensive in that it is not only time consuming but also requires a large amount of disk space (Kennedy, 1998).

II. Interactive text analysis program: If the corpus has been pre-processed by computer to index each word, the software can be used to find almost instantly all the occurrences of a type, and the size of the context can be easily altered (Kennedy, 1998). The one with comparatively more functionality is known as TACT (Text Analysis Computing Tools), a DOS-based interactive text analysis program developed at the University of Toronto between late 1980s and early 1990s (Bradley 1991; Lancashire et al, 1996) for English. For Chinese, there are two softwares that I am familiar with. One is "Tir" designed by Beijing Chinese Information Process Laboratory and the other one is Reading Room (Gammon, 2002)-a multi-lingual text searcher.

\[50\] For detailed description of these programs, see Hockey in Simpson and Wilson (2001).
In the following sections, I will give a brief introduction to the two types of Chinese concordance software and The Academia Sinica Corpus.

6.2 Concordance Programs for Mandarin

6.2.1 TIR

It is the second type of concordance program which is faster and more interactive. It was designed and developed by the “Dianzi Bu Ji Suan Ji Yu Weidianzi Fazhan Yanjiu Zhongxin (CCID) Zhongwen Xinxi Kaifa Chuli Shiyan Shi (CIPOL)” in Beijing. TIR uses Key Word in Context (KWIC) (Kennedy, 1998) format. It can sort concordances for a large amount of texts. It can be operated under both Windows and DOS. This program allows text analysis on a per-chapter, per-paragraph, and per-sentence basis. However the inconvenient element is that it does not support wide range of Chinese viewing software. For instance it is not compatible with NJ Star Communicator or Twinbridge Chinese Character software. Richwin works well with this program. It definitely does not allow users to search multi-lingual texts. In addition, the process of constructing folders is quite complicated for beginners in corpus studies. The key word(s) can only be typed in one at a time; i.e., no combination of key word(s) is accepted.

6.2.2 Sentence Searcher (SS) and Reading Room (RR)

The functions of Reading Room, “allows users to search multi-lingual texts by sentence for keyword occurrences, allowing study of vocabulary in context and vocabulary occurrence counting. It is the upgraded version of AEG, Inc. of

---

51 For more information on this program, interested party(ies) can contact (CCID) (CIPOL): Representative: Zhang Min. Address: No. 20, Yi, Fu Xin Rd. Hai Dian QU, Beijing, China Tel: 2017531-2572 Fax: (01) 821-8370
Honolulu's popular Sentence Searcher software that has been mentioned in the International Association of Chinese Linguists Newsletter, and has been used by many successful language research projects." (Gammon, 2002).

Reading Room emphasizes multi-lingual text use-searched texts, search keys, and search results may all contain a mixture of languages and orthographies. One benefit is that Reading Room allows text analysis on a per-sentence basis rather than a per-line or other non-linguistic basis. Reading Room also supports a wide majority of popular character sets including the non-Latin-centric Big-5, Guo Biao and Unicode encodings. Users may also use different character sets during the same search, such that (working in Chinese for example) one could search a Big-5 source text using GB input keys and receiving Unicode output." (Gammon, 2002), which is not available with Sentence Searcher.

Users should note that Reading Room is a Java program, which means it runs only under Java environment. Unfortunately, if the PC is not installed with Java environment, Reading Room does not work. Because of the difficulty in setup of Reading Room with individual computers, Roderick Gammon, the inventor of Reading Room, provides a search service as another option for researchers. Researchers provide key words and Dr. Gammon does the search, charging a reasonable fee. The discussion in this chapter was done using a combination of TIR, SS, and the search service. TIR is mainly used for the articles from RMRB. SS is used partially for articles in CDN, Taiwan. Part of the
search on CDN is done with the search service. When using SS, however, the author of this paper have found several shortcomings of this search engine:
1. It does not have choices on the modes of result display; i.e., it only shows the paragraph which contains the key word(s).
2. When displaying BIG-5 encoded files, the result sentence stops where the key word(s) is (are). It is hard for researchers to have a close look at how the key word(s) is (are) used in contexts.
3. When performing searches, the manager is not able to stop a search until it is completed. It causes inconvenience and puts bound to the manager and the engine.

In spite of these minor weaknesses, unlike TIR, SS offers starters in corpus studies an easy way to launch. The manager of SS does not have to go through complicated folder constructions. Simply select the files to search, type in key word(s), (or combination of key word(s)), name the result file and go!

6.3 Corpora

The corpora used for this chapter to compare negated modal uses between Taiwan Mandarin and Beijing Mandarin include Central Daily News and Beijing People's Daily (Ren Min Ri Bao). They will be introduced in the following sections.

6.3.1 Academia Sinica Balanced Corpus (ASBC) 3.0

52 This corpus can be obtained by purchasing the CD-Rom (contains 50,00,000 words and phrases) from the Academia Sinica in Taipei or from the website: www.sinica.edu.tw/fims-bin/kwi.sh. However as Chip states, the results on the web are limited to only 2,000 lines used outside of the office of Academia Sinica and only 20,000 lines used inside the office of Academia Sinica.
The texts in the Academia Sinica Balanced Chinese Corpus, simplified as Sinica Corpus, are collected, compiled and maintained by the Information Science Academia Sinica and CKIP group in Taipei, Taiwan. Texts are classified based on five criteria: genre, mode, style, source and topic. Since 1990 the CKIP group has collected almost twenty million modern Chinese words and five million ancient Chinese words. The corpus consists of data in various contexts. Table 6.3a shows the percentage in each subject area. Table 6.3b is the distributive percentage in different genres. Table 6.3c shows the percentage of different media. Table 6.3d indicates the distributive percentage on language styles. And Table 6.3e shows the percentage on different literary styles (CKIP, 1995/1998):

Table 6.3a. ASBC Distribution of Contents

<table>
<thead>
<tr>
<th>Subject</th>
<th>Philosophy</th>
<th>Science</th>
<th>Sociology</th>
<th>Arts</th>
<th>Life</th>
<th>Literature</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual Percentage</td>
<td>10%</td>
<td>10%</td>
<td>35%</td>
<td>5%</td>
<td>20%</td>
<td>20%</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 6.3b. ASBC Distribution of Modes

<table>
<thead>
<tr>
<th>Genre</th>
<th>Report</th>
<th>Criticism</th>
<th>Advertisement (Graphics)</th>
<th>Letter</th>
<th>Notice</th>
<th>Fiction</th>
<th>Prose</th>
<th>Biography (Diary)</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>56.25</td>
<td>10.01</td>
<td>0.59</td>
<td>1.29</td>
<td>0.73</td>
<td>10.12</td>
<td>8.48</td>
<td>0.50</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Genre</th>
<th>Poetry</th>
<th>Proverb</th>
<th>Pamphlet</th>
<th>Play Script</th>
<th>Conversation</th>
<th>Public Speech</th>
<th>Conference</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>0.29</td>
<td>0.03</td>
<td>2.03</td>
<td>0.05</td>
<td>1.34</td>
<td>8.19</td>
<td>0.11</td>
</tr>
</tbody>
</table>

Table 6.3c. ASBC Distribution of Media

<table>
<thead>
<tr>
<th>Media</th>
<th>Newspaper</th>
<th>Magazines</th>
<th>Periodicals</th>
<th>Textbooks</th>
<th>References</th>
<th>Scholarly Works</th>
<th>General Books</th>
<th>Audio-Visual Media</th>
<th>Interviews</th>
<th>Public Speeches</th>
<th>Others</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>31.28</td>
<td>29.18</td>
<td>0.70</td>
<td>4.08</td>
<td>0.13</td>
<td>1.36</td>
<td>8.45</td>
<td>22.83</td>
<td>1.63</td>
<td>0.25</td>
<td>0.78</td>
</tr>
</tbody>
</table>
Table 6.3d. ASBC Distribution of Language Style

<table>
<thead>
<tr>
<th>Style</th>
<th>Written</th>
<th>Written-to-be-read</th>
<th>Written-to-be-spoken</th>
<th>Spoken</th>
<th>Spoken-to-be-written</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>90.14</td>
<td>1.38</td>
<td>0.82</td>
<td>7.29</td>
<td>0.36</td>
</tr>
</tbody>
</table>

Table 6.3e. ASBC Distribution of Literary Style

<table>
<thead>
<tr>
<th>Style</th>
<th>Narration</th>
<th>Theory</th>
<th>Exposition</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>%</td>
<td>70.66</td>
<td>12.24</td>
<td>14.72</td>
<td>2.83</td>
</tr>
</tbody>
</table>

6.3.2 Taiwan Central Daily NEWS (CDN) and Beijing Ren Min Ri Bao RMRB)-People's Daily

This collection consists of newspaper articles from Taiwan Central Daily News (CDN) (2000) and China People’s Daily (2000). These articles were published on-line. The articles were published from January through September 2000 and they are interpreted as canonical written Mandarin non-fiction. The contents of the articles are in a style that is nonfiction and declarative. The corpus was maintained by Roderick Gammon in partnership from AEG, Inc. of Honolulu, Hawai’i (Gammon, 2002).

A detailed corpus structure of CDN and PD (RMRB) is provided in table 6.3f:

Table 6.3f. CDN and PD Corpus Composition

<table>
<thead>
<tr>
<th>Publisher</th>
<th>Month</th>
<th>Archive Entries</th>
<th>Corpus Entries</th>
<th>UTF-16 Characters</th>
<th>UTF-16 Unihan Characters</th>
<th>Estimated words</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDN</td>
<td>January</td>
<td>2,698</td>
<td>2,228</td>
<td>3,244,874</td>
<td>1,466,680</td>
<td>419,051</td>
</tr>
<tr>
<td>CDN</td>
<td>February</td>
<td>2,252</td>
<td>1,664</td>
<td>2,406,878</td>
<td>1,090,025</td>
<td>311,436</td>
</tr>
<tr>
<td>CDN</td>
<td>March</td>
<td>2,799</td>
<td>1,887</td>
<td>2,651,853</td>
<td>1,203,350</td>
<td>343,814</td>
</tr>
</tbody>
</table>

53 For the detailed description of the whole corpus, see Gammon (2002), Appendix A.
Table 6.3 f. (Continued) CDN and PD Corpus Composition

<table>
<thead>
<tr>
<th></th>
<th>April</th>
<th>May</th>
<th>June</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDN</td>
<td>2,699</td>
<td>2,555</td>
<td>2,746</td>
</tr>
<tr>
<td>CON</td>
<td>1,943</td>
<td>1,622</td>
<td>1,659</td>
</tr>
<tr>
<td>May</td>
<td>2,211,986</td>
<td>2,330,990</td>
<td>2,330,990</td>
</tr>
<tr>
<td>CON</td>
<td>1,245,234</td>
<td>1,005,342</td>
<td>1,058,342</td>
</tr>
<tr>
<td>June</td>
<td>355,761</td>
<td>287,241</td>
<td>301,383</td>
</tr>
<tr>
<td>CON</td>
<td>2,742,634</td>
<td>1,245,234</td>
<td>1,058,342</td>
</tr>
<tr>
<td>PO</td>
<td>2,555</td>
<td>1,622</td>
<td>1,659</td>
</tr>
<tr>
<td>May</td>
<td>2,211,986</td>
<td>2,330,990</td>
<td>2,330,990</td>
</tr>
<tr>
<td>PO</td>
<td>1,245,234</td>
<td>1,005,342</td>
<td>1,058,342</td>
</tr>
<tr>
<td>June</td>
<td>355,761</td>
<td>287,241</td>
<td>301,383</td>
</tr>
<tr>
<td>CON</td>
<td>1,245,234</td>
<td>1,005,342</td>
<td>1,058,342</td>
</tr>
<tr>
<td>PD</td>
<td>28</td>
<td>20</td>
<td>34</td>
</tr>
<tr>
<td>January</td>
<td>83,642</td>
<td>73,829</td>
<td>79,312</td>
</tr>
<tr>
<td>PD</td>
<td>20</td>
<td>20</td>
<td>34</td>
</tr>
<tr>
<td>February</td>
<td>63,076</td>
<td>63,076</td>
<td>63,076</td>
</tr>
<tr>
<td>PD</td>
<td>38</td>
<td>38</td>
<td>43</td>
</tr>
<tr>
<td>March</td>
<td>104,529</td>
<td>93,788</td>
<td>93,788</td>
</tr>
<tr>
<td>PD</td>
<td>38</td>
<td>38</td>
<td>43</td>
</tr>
<tr>
<td>April</td>
<td>2,998</td>
<td>2,998</td>
<td>2,998</td>
</tr>
<tr>
<td>PD</td>
<td>2,997</td>
<td>2,997</td>
<td>2,997</td>
</tr>
<tr>
<td>May</td>
<td>5,239,824</td>
<td>5,239,824</td>
<td>5,239,824</td>
</tr>
<tr>
<td>PD</td>
<td>63,800</td>
<td>63,800</td>
<td>63,800</td>
</tr>
<tr>
<td>June</td>
<td>16,330</td>
<td>16,330</td>
<td>16,330</td>
</tr>
<tr>
<td>PD</td>
<td>57,155</td>
<td>57,155</td>
<td>57,155</td>
</tr>
<tr>
<td>PD</td>
<td>58,136</td>
<td>58,136</td>
<td>58,136</td>
</tr>
<tr>
<td>August</td>
<td>1,919,301</td>
<td>1,919,301</td>
<td>1,919,301</td>
</tr>
<tr>
<td>PD</td>
<td>18,229</td>
<td>18,229</td>
<td>18,229</td>
</tr>
<tr>
<td>September</td>
<td>2,024,982</td>
<td>2,024,982</td>
<td>2,024,982</td>
</tr>
<tr>
<td>PD</td>
<td>16,229</td>
<td>16,229</td>
<td>16,229</td>
</tr>
<tr>
<td>Totals</td>
<td>548,372</td>
<td>548,372</td>
<td>548,372</td>
</tr>
<tr>
<td>PD</td>
<td>17,982</td>
<td>17,982</td>
<td>17,982</td>
</tr>
<tr>
<td>Totals</td>
<td>1,250,990</td>
<td>1,250,990</td>
<td>1,250,990</td>
</tr>
<tr>
<td>CDN+PD Totals</td>
<td>22,150</td>
<td>22,150</td>
<td>22,150</td>
</tr>
<tr>
<td>CDN+PD Totals</td>
<td>17,403</td>
<td>17,403</td>
<td>17,403</td>
</tr>
<tr>
<td>CDN+PD Totals</td>
<td>26,891,509</td>
<td>26,891,509</td>
<td>26,891,509</td>
</tr>
<tr>
<td>CDN+PD Totals</td>
<td>11,447,926</td>
<td>11,447,926</td>
<td>11,447,926</td>
</tr>
</tbody>
</table>

There are total of 17,403 entries for the aggregation of CDN and RMRB in this corpus. Each entry represents one article. These entries are stored as extensible markup language (XML) compliant Text Encoding Initiative version 2 (TEI-2), "Lite" files. TEI-2 allows one to unite a text's contextual data with its content, or body text. The total aggregation of body text within the present corpus consists of 26,891,509 Unicode 2.0 (UTF-16) characters inclusive of punctuation and white space (Gammon, 2000).
The explanation of UTF-16 and Unihan can be found in Gammon (2002):

"UTF-16 is a text-encoding standard that includes the majority of the humanity's orthographic tokens... UTF-16 standard arranges its characters into logical blocks by loose linguistic types including a "Unihan" block... it unites and aggregates 21,000 Han Chinese characters that are used by the Chinese, Japanese, and Korean (CJK) languages... The ability to identify a UTF-16 character as a member of the Unihan block allows rapid tallying of the Chinese characters in a text."

This corpus is used extensively in this chapter to compare the uses of negated modal auxiliaries in Taiwan and Beijing Mandarin.

6.4 Utilization of the Corpora

6.4.1 ASBC Website

The Academia Sinica Balanced Corpus has a website open to public for research purposes but with limited source texts. This paper, therefore, does not use this website for search purposes. The URL of the "main page" is www.sinica.edu.tw/fts-bcn/kwi.sh. This site consists of "Main page", "Menu", "Result Display" and "Refine Results". They will be briefly introduced in the following sections (CKIP, 1995/1998).

6.4.1.1 Main Page

In the "main page" of the corpus, there are four classifications: 1. mode: consisting of written, written-to-be-read, written-to-be-spoken, spoken, and spoken-to-be-written. After selecting the desired language style, one can go to category 2. literary style: consisting of narration, theory, exposition, and description. Category 3 is medium and includes newspaper, textbooks, and
interviews (see table 6.3c). The last category on this "main page" is the topics (see table 6.3a). After setting the desired category, click enter to go to the menu.

6.4.1.2 Menu

With this page two types of sorting can be done depending on the manager's selection of environment. There are four types of environment: 1. Key word (KW); 2. Reduplication (AAB-shi shi kan 'try', ABB-shi kan kan 'try', AABB-ping ping an an 'safe and sound', or ABAB-gao xing gao xing 'enjoy'); 3. Part of Speech (PS); 4. Feature. (Refer to the following graph 6.1 for details). One needs to use a Chinese Character input software such as NJ star Communicator or Richwin to key in the KW.

![Graph 6.4 a "Menu" for ASBC]

The manager of the site can select to key in either only one environment (single item condition) or three environments (multiple item condition) at one time. KW, PS and Feature can be set simultaneously. The multiple item condition can be sorted with "and" or "or".
A. "And" condition: The result won't be shown until all three environments (KW, PS and Feature) are concordant.

B. "Or" condition: The data can be sorted and the result will be displayed with more than one condition set at one time.

One can always move the cursor to the "Question mark" and click it for help of using this site. When the set up is done, click the button of "proceed", the "Result Display" page will pop out.

6.4.1.3 Result Display

On the page of result, there are two links which are linked to "menu" and "advanced research". The link on the top of the page indicates if one wants to have PS and Feature eliminated. The following sample is excerpted from the total of 1,760 lines with depth of 1 found with KW: Gao xing and Reduplication:

AABB:

<table>
<thead>
<tr>
<th>共1760筆資料</th>
</tr>
</thead>
<tbody>
<tr>
<td>自然(D)有(V_2)人(Na)高高興興(VH)地(DE)來(D)奮力塗惡(VA),</td>
</tr>
<tr>
<td>...它們(Nh)只(Da)是(SHI)單單純純(VH)的(DE)工藝品...</td>
</tr>
<tr>
<td>...不如(Cbb)撲撲實實(VH)地(DE)去(D)了解(VK)</td>
</tr>
</tbody>
</table>

PS and Feature can be eliminated by clicking the box on the top of the page. The manager can click the box for "Refine Results" to get refined results.
6.4.1.4 “Refine Results” Page

This page has five functions:

1. Filtering: it is used to filter any unwanted factors set in the “menu” in order to get more precise and refined results. The “Anti-condition” functions as eliminating any data results that were set in previous condition. The “filter” function can be used to filter KW and it can also filter the words or phrases before and after KW. In order to do so, the “range” has to be set. (0 represents KW itself, -1 indicates the word to the left of KW and +1 means the word to the right of KW). The range cannot exceed ten words. The conditions of the words to the left and to the right of the KW are represented as “-X” and “X” respectively if the KW is involved. Otherwise, they are indicated as “- X” and “Y” respectively.

Four possible ranges can be set:

a. “0” to “0”: This is the condition of the KW itself. And the condition is set under “condition 1”.

b. “-X” to “0”: the condition of all the words to the left of the KW is set under “condition 1” and the condition of the KW is set under “condition 2”.

c. “0” to “X”: “condition 1” is the condition of the KW and “condition 2” is the condition of all the words to the right of the KW.

d. “-X” to “Y”: the condition of all the words to the left of the KW is set under “condition 1” and the condition of all the words to the right of the KW is set under “condition 2”.

185
II. Tallying up PSs: This totals the frequency of the occurrence of the KW and occurrences of the words or PSs before or after the KW in different linguistic environments.

III. Statistics of the collocation: This shows the probabilities of the co-occurrence of the KW and the word or PSs before and after it. In order to obtain significant collocation, the data cannot be filtered. The probably is a relative value of the MI: mutual information value; i.e., MI > 0 indicates higher probability of the co-occurrences. On the contrary, MI < 0 shows lower probability of the co-occurrences.

The formula of MI value is:

\[ I(x, y) = \log \frac{P(x, y)}{P(x) P(y)} = \log \frac{f(x, y)}{f(x)/N \cdot f(y)/N} \]

\[ I: \text{mutual information} \]
\[ P: \text{probability} \]
\[ N: \text{size of the corpus} \]

Freq (x): the occurrence frequency of the KW in the entire corpus

Freq (y): the occurrence frequency of the unit in the entire corpus

Freq (x, y): the occurrence frequency of the KW and the unit within the set range.

IV. Sequencing: The results are sequenced based on “affix”, “suffix” and “PS”.

V. Switching interfaces: The results obtained from the “menu” is categorized as the first layer. The refined results from the “Refine Result” page is the second
layer, and so on and so forth. The results can be recorded up to ten layers.

To get the data from different layers, click on the boxes of "results of the current layer", "results of the upper layer" or "results of the lower layer". Click on the "menu" box to start a new research and the records of the current results will be erased. Graph 6.4 b below shows all the functions in "Refine Results" page:

Graph 6.4b. Refine Results Page
The page offers limited results, but one can purchase a CD-Rom from the Academia Sinica. The corpus has to be opened with Microsoft Word Pad and a concordance program is needed to run the data. TIR is not compatible with this corpus. Technically, “Sentence Searcher (SS)” and the upgraded version “Reading Room (RR)” should work ideally with this corpus but current study encounters a difficulty with the encoding of ASBC version 3.0. Therefore, SS and RR do not work with ASBC 3.0 at present.

6.4.2 CDN and RMRB

The results for this corpus are obtained with both TIR and the Search Service. TIR runs most efficiently in a hard drive with more disk space. Normally, it works best in the C drive. In TIR, a new folder has to be created first. This folder contains all the “good” files from the corpus, which means all the files from a corpus has to be processed under the folder construction and the code of a file is readable and can be saved in the folder by TIR. The encodings for TIR are GB simplified and traditional. So any files that are written with other encodings cannot be processed by TIR. After all the good files from the corpus are saved in the folder, the search can begin. Under the search line, type in key words with a compatible Chinese character input software (at present only Richwin is compatible with TIR), and the search engine starts the command. The results can be displayed in forms of whole article, paragraphs, sentences or titles. For my purposes, I use the form of “sentence” display. Tao (1996) identified Mandarin speech units as a) noun phrase; b) verb expression; and c) single
arguments with the verb or verb complex. The mean number of words per
sentence in the written formal essay is much greater than in spoken informal
interview. Chao (1968) claimed that a sentence is often defined as a segment of
speech bounded at both ends by pauses.

The Key Words in the sentences are highlighted in red. Because of
different encodings with Taiwan Mandarin and Beijing Mandarin Texts, TIR only
works with RMRB files. The Search Service is used to read CDN files.

6.5 Findings

This section analyzes the findings in the two representative corpora, CDN
and RMRB. The discussion of the interaction of modality and negation is
organized in the order of modals: Keyi, Neng and Hui. It is believed that these
three modal auxiliaries under discussion can highly represent the scopes of the
negation in Mandarin.

6.5.1 Keyi and Its Negation

6.5.1.1 The Wide Scope of the Negative Keyi

6.5.1.1.1 Epistemic Interpretation

In previous chapters, it is concluded that negative epistemic interpretation
of keyi is a MSS phenomenon, which indicates that when negated, Keyi has to
be replaced by other linguistic elements, such as bu neng or V+bu + complement
(dao) structure. In the search of corpus with total of approximately 3000 articles,
both CDN and RMRB show that the majority of structure is V+bu + complement
(dao) which is a substitute structure for bu keyi +V + complement (dao) in
Mandarin. That is to say, in modern Mandarin, *bu keyi* +V + complement (dao) is not acceptable. Here are two sample sentences from CDN (339) and RMRB (340):

339. Zai jianli minzhu zhiji, *bu neng* chanchu heijin... jiu de bu (CDN, May)
at-establish-democrat-during-not-CAN-eradicate-black gold-jiu-get-not-dao xuanmin de rentong yu zhichi
reach-voter-attr.-recognition-and-support
“In the course of establishing a democratic government, if bribery CANNOT be eradicated, the government CANNOT expect approvals and supports from the voters.”

340. Youyu zhiliang de bu dao baozheng, zhe ge ming pai zuihou (RMRB)
because-quality-get-not-reach-guarantee-this-class.-famous-brand-finally-dao le.
fall-asp.
“Because the quality was not assured, the company of this name brand finally went bankrupt.”
expect-too-much
“Some people think that Chen Shui-bian haven’t been officially inaugurated, it is not possible to expect too much.” (CDN)

341'. Youren renwei Chen Shui-bian hai wei zhengshi shangren, bu
possible-expect-too-much
“Some people think that Chen Shui-bian haven’t been officially inaugurated, it is not possible to expect too much.”

342. Peng Dehuai deng tongzhi jiran zuo le zheme duo biaoyan, wei
Peng-Dehuai-et al-comrade-since-do-asp.-such-many-performance-for-
shenme bu keyi taolun yixia nei xie biaoyan de xingzhi he
what-not-CAN discuss-a little-that-some-performance-attr.-nature-and-
purpose
“Since Comrade Peng De-huai and others have done so many actings, why CAN’T they talk a little bit about the nature and the purposes of those actings?” (CDN)

342'. Peng De-huai deng tongzhi jiran zuo le zheme duo biaoyan, wei
Peng-De-Huai-et al-comrade-since-do-asp.-such-many-performance-for-
shenme bu keneng taolun yixia nei xie biaoyan de xingzhi he
what-not-Possible-discuss-a little-that-some-performance-attr.-nature-and-
purpose
“Since Comrade Peng De-huai and others have done so many actings, why isn’t it possible for them to talk a little bit about the nature and the purposes of those actings?”

343. Wei shenme dongnan diqu ge daxue ban peixun ban, bu keyi
for-what-southeast-district-every-university-manage-training-class-not-CAN-
dao xi bu lai ban ne?
reach-west-part-come-manage-qm.
“If southeastern districts CAN have training programs, why CAN’T they start the programs in western area?”(RMRB)

343'. Wei shenme dongnan diqu ge daxue ban peixun ban, bu
for-what-southeast-district-every-university-manage-training-class-not-
keneng dao xi bu lai ban ne?
possible-reach-west-part-come-manage-qm.
“If southeastern districts CAN have training programs, why isn’t it possible for them to start the programs in western area?”
344. Gong Li *ke bu keyi* shang Bei Da, ceng bei zhong duo meiti chao
Gong-Li-CAN-not-CAN-up-north-big-ever-by-numerous-many-media-fry-de fei fei yang yang
suffix-boil-boil-raise-raise
“Gong Li’s going to Beijing University was once a burning issue by the media.”
(RMRB)

344’. Gong Li *ke bu keneng* shang Bei Da, ceng bei zhong duo meiti chao
Gong-Li-CAN-not-possible-up-north-big-ever-by-numerous-many-media-fry-de fei fei yang yang
suffix-boil-boil-raise-raise
“If it is possible for Gong Li to go to Beijing University was once a burning issue by the media.”

These examples show that *keyi* indicates a possibility which involves human ability even in its negative form.

6.5.1.1.2 Deontic Interpretation

The findings agree with the argument in chapter four where claims that the deontic use of *keyi* is limited. In both CDN and RMRB, there are very few articles containing sentences with the deontic interpreted wide scope structure-*bu keyi*. In 1,019 RMRB articles, only 11 sentences use *bu keyi*. The same can be said with CDN, out of 17 articles, only 9 sentences use the wide scope structure of the negation *bu keyi*, indicating the deontic notion. And this structure often appears with the adverb jue (dui) ‘definitely’ in front of it to stress the disapproval of the speaker:

345. Xin zhengfu *juedui bu keyi* chong dao fu che.
New-government-definitely-not-CAN-repeat-step-again-rut
“The new government definitely CAN’T make the same mistakes.”

346. Zuojia *jue bu keyi* yuanli shidai he renmin.
Author-definitely-not-CAN-leave-time-and-people
“It is not possible for writers to stay far away from current trends and people.”
6.5.1.2 The Narrow Scope of Negative Keyi

In both CDN and RMRB, more articles contain the narrow scope structure. As mentioned earlier in chapter five, when keyi is negated in its narrow scope structure it actually denotes a wide scope meaning. Many examples are found in both CDN and RMRB. Here are two examples each excerpted from CDN and RMRB respectively:

348. Weilai geren keyi bu canjia wanglu chanye, dan mei ge future-individual-CAN-not-join-network-industry-but-every-class.-ren dou yao liaojie wanglu de shiyong. person-all-want-understand-network-attr.-use
"In the future, individuals won't NEED to join the network industry, yet every single person has to recognize the utilization of network."

"It is not necessary to confine the form of negotiation, nevertheless, negotiation CANNOT be denied."

"The criteria that are based upon to charge the fees don't NEED to be the same with different levels, but it still NEEDS to go through the procedure of the very place..."

"Those who have headaches for a short period time do NOT NEED to be examined but those who have headaches for a long time CAN consider having themselves examined."
The occurrences of either the wide scope of the negated keyi or the narrow scope of the negated keyi are not frequent in this corpus. On the contrary, the negated neng occurs much more frequently than keyi in its wide scope structure.

6.5.2 Neng and Its Negation

6.5.2.1 The Wide Scope of Negated Neng

6.5.2.1.1 Deontic Interpretation

Since bu neng is the negative form of the negative deontic keyi, it is understandable that the occurrences of the negative neng are more frequent than keyi. In CDN, there are more than 200 occurrences of bu neng and there are almost 300 occurrences out of 1,019 articles of bu neng in RMRB. Most of the uses of bu neng are in the environment where it denotes negative deontic permission; i.e., the negative form of deontic keyi or reasonable personal deontic authority when the subject of the utterance is the first person singular, wo ‘I’ or plural, women ‘we’. Some examples excerpted from CDN (352-355) and RMRB (356-360) are as follows:

352. Dang ming juedui bu neng gai, jiu xiang guohao yiyang.
   Party-name-definitely-not-CAN-change-jiu-like-nation symbol-same
   “It is not allowed to change the name of the party; just like the name of the nation CANNOT be changed.”

353. Ruo weibei le ren sheng er pingdeng guannian, shi bu neng bei jieshou de.
   if-defy-asp.-person-born-and-equal-concept-be-not-CAN-by-accept-de
   “Defying the truth that humans are on an equality with each other WILL not be accepted.”

354. (Women) Juedui bu neng hushi guo nei zhan bai fen
   (We)-Definitely-not-CAN-ignore-country-inside-occupy-hundred-percent-
   zhi jiushi de chuantong chanye.
   of-ninty-attr.-traditional-industry
“It is definitely not possible for us to ignore the nation’s traditional industry which takes up to 90 percent of all industries.”

355. Zhiyao shi gongye tuanti jiu yiding yao jiaru, bu neng suiyi
As long as be industry organization jiu MUST want join not CAN casually tuichu.
rename
“An industrial organization MUST join, and is not allowed to renounce without any valid reasons.”

356. Renhe guojia dou bu neng yi renhe fangshi he renhe jiekou ganshe bie any-country all not CAN use any-way and any excuse interfere other guo neizheng.
country interior administration
“No country is allowed to use any possible way and any excuses to interfere with other nation’s interior administration.”

357. Bu neng bu ze shouduan de qintun tamen de liyi.
Not CAN not choice means attr. embezzle their benefit
“One CANNOT embezzle their benefit with any illegal means.”

358. Dan haizi de quanli... bu neng qingshi de.
But child attr. right not CAN neglect de
“It is not allowed to neglect children's rights.”

359. Bu neng zai kehu mianqian shuo bu.
No CAN at customer face say not
“it is not allowed to say ‘no’ in front of a customer.”

360. Women bu neng... zuo deng zhe zhong yali de daolai.
We not CAN sit wait this kind pressure attr. arrive
“It is not allowed for us to sit and wait for such pressure to come.”

An interesting finding with all the articles from CDN and RMRB is that in the notion of personal deontic authority, Taiwan Mandarin tends to eliminate the first person subjects whereas Beijing Mandarin normally keeps them.

6.5.2.1.2 Indication of Ability, Epistemic Possibility, Capacity and Capability

In addition to the negative deontic use, neng, as mentioned in chapter four, also indicates ability, capacity and capability depending on circumstances.
In these cases, not much difference is discovered between Taiwan and Beijing Mandarin:

361. Lian Zhan...yinwei shen fu guojia xingzheng zhongren... (ability)
   Lian-Zhan-because-body-carry-country-administration-heavy responsibility-
   bu neng shixian.
   "Because of the important responsibility of the interior administration that
   Lian Zhan is carrying, many plans regarding foreign visitings COULD not be
   realized."

362. Liang zhe yinggal two-item-probably-not-CAN-combine-use
   "The two probably CANNOT be combined in use..."

363. Jingji bu duli renge jiU (capacity)
   economy-not-independent-personality-not-CAN-independent
   "If (women) CANNOT financially be independent, then they CANNOT have
   independent personalities."

364. Renmin zai ganqing shang (people-at-emotion-up) not-CAN-abandon
   "Emotionally, it is not possible for people to be parted with..."

365. You zhichi zhe renwei ruo (have-support-person-think-if) not-CAN-at-senate-same-use-three-part-attribuer duo shu tongguo ...
   two-many-number-pass
   "Some supporters think if it CANNOT be passed by the two third of the
   majority in the senate as it was (in the...)

6.5.2.2 The Narrow Scope of Negated Neng

6.5.2.2.1 Deontic Interpretation

The structure of narrow scope of the negation is rare in Mandarin. If it
occurs, as mentioned in chapter five, it usually occurs in interrogatives, denoting
deontic necessity. In CDN there is only one interrogative containing this
structure:

366. ...jinri zishen ruhe neng bu kancan chanli.
    today-self-how-CAN-not-search-Zen
    "...how CAN I, myself, not to search for the truth of Zen in Buddhism."
There are more occurrences of interrogatives and exclamations in Beijing Mandarin (RMRB). However relatively speaking, they are still very few. Out of 1,019 articles, only seven sentences were found with this structure:

367. Zheme meili..., zenme neng bu rang ren qingzhu manqiang reqing, such-beautiful-how-CAN-not-let-person-fill-full-fervor
zenme neng bu rang ren jinqing fangge ne?
"Such beautiful..., how CAN one not to be full of fervor; how CAN one not to sing to one's heart's content?"

368. Wei duode zheyang yi ge weizhi, zen neng bu you ran tingerzouxian?
For-snatch-such-one-class.-position-how-CAN-not-tempt-person-risk
"In order to snatch such a position, how CAN one not to be tempted to take risks?"

369. Renmen zen neng bu quzhi-ruowu?
person (pl.)-how-CAN-not-go after-swarm
"How CAN people not to go after it in a swarm."

370. Meiyou yi tao kexue, minzhu de xu an ren yong ren de
without-one-set-science-democratic-attr.-choose-person-use-person-attr.-banfa, zen neng bu chuxian...'guan sha guan' de zhouju?
method-how-CAN-not-appear-official-kill-official-attr.-comedy
"Only when we take scientific and democratic approaches in selecting and appointing a capable person CAN we avoid such comedy as officials' disgracing each other."

371. Wo zen neng bu xinkui?
I-how-CAN-not-ashamed
"How CAN I not feel ashamed?"

372. Renjia yinqin zhaodai, ni zen neng bu chu dian 'xie'.
others-courteous-treat-you-how-CAN-not-out-little-blood
"How CAN you not to make an effort with such a hospitable treat!"

373. ...you zheyang yi pi hanxue chiqing zhe, zen neng bu rang Zhongguo
have-such-one-batch-Sinology-infatuated-person-how-CAN-not-let-China-de xuezhe he chubanjie gandong!
adj.-scholar-and-publisher-touched
"How CAN scholars and publishers in China not to be moved by a batch of such infatuated Sinologists!"
6.5.2.2 Epistemic Interpretation

In the whole corpus, there is only one example with the epistemic possibility interpretation found in CDN:

374. Muqian yu ta tongzhu de Fan Deguang shuo, waipo hai *neng*
currently-with-s/he-together live-attr.-Fan-Deguang-say-grandmother-still-CAN-
*bu chi guizhang zou xia men qian jieti*…
not-hold-staff-walk-down-door-front-stairs
"Fan, Deguang who now lives with her said that grandma CAN still walk down the stairs in front of the door without holding a walking staff."

Only two were found in RMRB:

375. Ren...bu shi shuru mingling jiu *neng* bu ting gong de diannao.
person-not-be-import-command-aspect-CAN-not-stop-work-attr.-computer
"Human beings are not like computers which CAN constantly run as soon as the command is entered."

376. Zhiyou zai... wending de qianti xia keji shiye cai *neng* buduan
Only-at-stable-attr.-premise-down-technology-career-aspect-CAN-constantly-
develop
"Only in the premise of stabilization CAN the industry of technology be developed constantly."

6.5.3 Hui and Its Negation

6.5.3.1 The Wide Scope of the Negation

The wide scope structure of the negated *hui* denotes two major meanings: negations of dynamic ability and epistemic possibility. The findings show that the negation of epistemic possibility occurs much more frequent than the negation of dynamic ability. Only three examples of "ability" *hui* were found in CDN:

377. Chen Xianglan shi A Mei zu ren… *bu hui* jiang guoyu.
Chen-Xianglan-be-Ami-tribe-person-not-CAN-speak-Mandarin
"Chen Xianglan is from the Ami tribe...she CAN'T speak Mandarin."

378. Lai Taiwan zheme duo nian que ting bu dong Taiyu, *bu hui*
come-Taiwan-such-many-years-but-hear-not-understand-Taiwanese-not-CAN-
shuo Taiyu…
speak- Taiwanese
"(They-officials of Guo Min Party) has been in Taiwan for so many years, but (they) still CAN’T understand and speak Taiwanese..."

379. Bu hui youyong jiu bu yao xian yongku tai da jian.
Not-CAN-swim-asp-not-want-complain-swim pants-too-big-class.
"Don’t complain about the size of the swim pants if you CAN’T swim."

Sentence (379) is a metaphor used to accuse the KMT Party which lost the campaign and puts the blame to former present, LI Deng-hui.

Only one example of “ability” hui was found in RMRB:

380. Na qi bi jiu xie jiu hua, bu hui xie, jiu hua hua.
Take-up-pen-asp.-write-asp.-draw-not-CAN-write-asp.-draw-picture
"As soon as (she) picks up a pen, (she) starts writing or drawing. If (she) CAN’T write, then (she) draws."

Most of the wide scope of the negated hui are epistemic possibility which denotes a future potential. There are almost two hundred instances in CDN and more than one hundred in RMRB. The most frequent structure is “bu hui + V.”:

381. ... bing bu hui chansheng shizhi de yizhi zuoyong.
do-not-WILL-produce-practical-attr.-restrain-effect
"It is not possible to generate real restraining effect." (CDN)

382. ... bu hui you renhe yidong.
Not-WILL-have-any-change
"...nothing WILL change." (CDN)

383. ... bing bu hui chansheng yali.
do-not-WILL-produce-pressure
"...it WON’T generate pressure." (CDN)

384. ... bu hui liuxia qiangu yihan.
Not-WILL-leave-eternity-regret
"...it WON’T leave eternal regrets." (RMRB)

385. Tamen bu hui yaoqiu guojia gei tamen yu guowai yiyang de tiaojian.
They-not-WILL-demand-country-give-they-with-foreign-same-attr.-condition
"They WON’T demand the nation to give them the same articles as those in a foreign country (the United States)." (RMRB)
6.5.3.2 The Narrow Scope of the Negation

The occurrences of this structure are not frequent either in CDN or in RMRB.

In chapter four, it is mentioned that based on Chang's (2000) device, the "assertive" hui can be followed with two predicates, [+changeable] and [-changeable]. In both CDN and RMRB, it is found that the narrow scope structure of hui is followed with negative [+changeable] predicates which indicate the temporary manifestation of an object in time and space:

387. 'Zhong' Mei guanxi hai shi hui buduan gaishan he fazhan. China-America-relations-still-be-WILL-constantly-improve-develop “The relations between China and the United States WILL be constantly (not stop) improving and developing.” (CDN)

388. Ruguo mei shi ren you yi ren zuo ciji, shijie jiu hui If-every-ten-person-have-one-person-do-humanitarianism-world-asp-WILL-buyiyang. different “If one person out of every ten practices humanitarianism, the world WILL not be the same.” (CDN)

389. Yuji jinri shang ban tian kaishi, Taiwan diqu tianqi jiu hui Predict-today-up-half-day-start-Taiwan-district-weather-asp.-WILL-not-stable “The forecast says that since the first half the day, the weather WILL not be stable in Taiwan.” (CDN)

390. Zongshi zhe shi Beijing biran hui bu gaoxing de shi... although-this-be-Beijing-definitely-WILL-not-happy-attr.-thing “Even if this is something that Beijing (government) WILL definitely not be happy about...” (CDN)

391. ...dangshiren hui bu haoyisi concerned-WILL-not-shameless “...those who are involved WILL feel embarrassed.” (CDN)
392. Meijie *hui* bugan jimo de ‘peihe’...
   media-WILL-unwillingly-lonely-attr.-cooperate
   “The media WILL ‘cooperate’ in order not to remain out of the limelight.”
   (RMRB)

393. Yaoyan jiu *hui* bu gong zi po.
   Rumor-asp-WILL-not-attack-self-break
   “The rumor WILL disappear by itself without taking any efforts.” (RMRB)

394. Dui yong dian de xuqiu *hui* buduan zengjia.
   To-use-electricity-attr.-demand-WILL-costantly-increase
   “The demand for electricity WILL be constantly increasing.” (RMRB)

6.6. Conclusion of Chapter Six

   This chapter provides knowledge of corpora linguistics and the utilization of Chinese concordance programs. The findings with the assistance of these programs include both epistemic and deontic uses of the wide and the narrow scope structures of negated three major modal auxiliaries, *keyi*, *neng* and *hui* in Taiwan and Beijing Mandarin. It is concluded that the wide scope of the negation with these modals appears more frequently than the narrow scope structure. And basically, there is not much difference between Taiwan and Beijing Mandarin except when denoting a personal deontic authority, *neng* in Taiwan Mandarin tends to be subjectless.
CHAPTER 7
CONCLUSION

7.1. Retrospect

This paper has examined the uses of modality, mainly through modal auxiliaries in both Mandarin and English as well as promoted the recognition of corpus utilization in linguistic research. In spite of various devices in expressing modality in different languages, the task of these modal expressions is to convey two major worlds: epistemic and deontic. Although some linguists categorize "future tense" and real world "ability" as dynamic possibility, the two notions, yet, do not go beyond the boundary of epistemic and deontic modal meanings.

Epistemic modal expressions are often concerned with prediction and/or the possibility of the occurrence of an event. In this sense, "future tenses" are involved. Deontic modal expressions are concerned with obligation, permission and/or the capacity of an individual to achieve a task under certain circumstances; this involves one's "ability" of doing something.

In categorizing these two worlds as such, one should assume that there should not be any confusion. However in real languages, things are not as simple due to the overlapping meanings between two modals as well as the polysemy and multifunction of an individual modal. In Mandarin, the former refers to the distinction between keyi and neng as well as neng and hui. The latter is the modal auxiliary hui. In English, it is the epistemic MUST and the deontic MUST which normally confuses the listener in a conversation. The use of CAN is often generalized, especially when second language acquisition is involved.
The research regarding interaction of modality and negation show that Mandarin is a Negation Placement Strategy (NPS) dominant language whereas English is a Modal Suppletion Strategy (MSS) dominant language. It does not mean, however, that an NPS language cannot have the MSS phenomenon, and the MSS language does not contain NPS device. The interesting finding is that negativity in Mandarin can be examined by Klima tests, which are usually used for Indo-European languages.

In NPS languages, the scope of the negation is syntactical; i.e., it is determined by the position of the negative marker: ‘bu keyi +V’ vs. ‘keyi +bu V’. In MSS languages, the scope of the negation is semantical, in which a new modal element appears to indicate the wide scope of the negation: MUST vs. NEED. The NPS phenomenon in English can be the use of NEED, which the negative marker may either precede or follow the modal. The MSS phenomena in Mandarin concerns with the use of keyi, and dei. Both modals have to be replaced by another modal element to satisfy the wide and the narrow scope of the interpretations and structures. On one hand, keyi in the sense of worthiness has to be replaced with zhide in the negation. In epistemic interpretations, it has to be replaced with neng. Dei, on the other hand, simply does not have any scopes of the negation. Both of its wide and narrow scopes of the negation has to be supplemented with other modal elements, such as keyi, bi and yong.

The following tables show the contrast of Mandarin and English Modals in both their positive and negative forms:
### Table 7.1a. Contrast List of Positive Mandarin and English Modal

<table>
<thead>
<tr>
<th>Epistemic Possibility:</th>
<th>Mandarin Modal</th>
<th>English Modals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keyi</td>
<td>MAY</td>
<td></td>
</tr>
<tr>
<td>neng</td>
<td>CAN/MAY</td>
<td></td>
</tr>
<tr>
<td>hui</td>
<td>CAN/WILL</td>
<td></td>
</tr>
<tr>
<td>keneng/yinggai/dagai</td>
<td>MAY</td>
<td></td>
</tr>
</tbody>
</table>

| Epistemic Necessity:  | yiding shi     | MUST          |
| yinggai hui           | OUGHT TO       |

<table>
<thead>
<tr>
<th>Deontic Possibility (permission):</th>
<th>keyi</th>
<th>MAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>neng</td>
<td>MAY/CAN</td>
<td></td>
</tr>
</tbody>
</table>

| Deotic Necessity: | yinggai yao | OUGHT TO |
| viding (dei)      | MUST/HAVE TO |

| Dynamic (Ability): | hui | CAN/know how to |
| (Future):          | yao/hui | BE GOING TO/WILL |

### Table 7.1 b. Negative Mandarin and English Modals - Narrow Scope of the Negation

<table>
<thead>
<tr>
<th>Epistemic Possibility:</th>
<th>keyi bu</th>
<th>NEEDN'T (wide scope)</th>
</tr>
</thead>
<tbody>
<tr>
<td>neng bu</td>
<td>CAN not/MAY not</td>
<td></td>
</tr>
<tr>
<td>hui bu</td>
<td>WILL not</td>
<td></td>
</tr>
<tr>
<td>keneng/yinggai/dagai bu</td>
<td>MAY not</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Epistemic Necessity:</th>
<th>yiding bu shi</th>
<th>MUST not</th>
</tr>
</thead>
</table>
Table 7.1b. (Continued) Negative Mandarin and English Modals - Narrow Scope of the Negation

<table>
<thead>
<tr>
<th>Deontic Possibility (permission):</th>
<th>bu keyi/neng (wide scope)</th>
<th>CANNOT/MAY not MUST not</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deotic Necessity:</td>
<td>(bu) yinggai (bu) yao</td>
<td>SHOULDN'T</td>
</tr>
<tr>
<td></td>
<td>yiding dei bu</td>
<td>MUST not</td>
</tr>
<tr>
<td>Dynamic (future):</td>
<td>hui bu</td>
<td>WILL not</td>
</tr>
</tbody>
</table>

Table 7.1c. Negative Mandarin and English Modals - Wide Scope of the Negation

<table>
<thead>
<tr>
<th></th>
<th>Mandarin Modals</th>
<th>English Modals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epistemic Possibility:</td>
<td>bu zhide</td>
<td>N/A</td>
</tr>
<tr>
<td></td>
<td>bu xuyao/bu yong</td>
<td>NEEDN'T</td>
</tr>
<tr>
<td></td>
<td>bu hui</td>
<td>WON'T</td>
</tr>
<tr>
<td></td>
<td>bu keneng/yinggai</td>
<td>MAY not/SHOULDN'T</td>
</tr>
<tr>
<td>Epistemic Necessity:</td>
<td>bu hui/neng shi</td>
<td>CAN'T/MUSTN'T</td>
</tr>
<tr>
<td>Deontic Possibility (permission):</td>
<td>bu keyi/bu neng</td>
<td>MUSTN'T</td>
</tr>
<tr>
<td>Deotic Necessity:</td>
<td>(bu) yinggai (bu) yao</td>
<td>SHOULDN'T</td>
</tr>
<tr>
<td></td>
<td>bu keyi</td>
<td>MUSTN'T</td>
</tr>
<tr>
<td>Dynamic (ability):</td>
<td>bu hui</td>
<td>CAN'T/not know how to</td>
</tr>
<tr>
<td>(future):</td>
<td>bu hui</td>
<td>WON'T</td>
</tr>
</tbody>
</table>

In addition to the discussions on modal auxiliaries, it is also concluded that corpus linguistic study as well as effective and efficient utilization of corpora are important in the field of linguistic research. They provide more accurate and reliable data than speaker's instinct. With the development of technology, several Chinese concordance applications have emerged for linguistic research.
Two concordance programs have been availed for this paper, “TIR” and “Sentence Searcher”. With the assistance of these programs, the negated modal auxiliaries, keyi, neng and hui, do not show much difference in Taiwan and Beijing newspaper articles.

7.2 Prospect

Although this paper has mainly discussed the modal auxiliaries, there are still questions and problems concerning modal particles, modal adjectives, and modal adverbs that need to be solved in both Mandarin and English. As for the interaction of modal and negation, there remain issues such as double negative and the combination of negated modal adverb with negated modal auxiliaries.

Corpus used in this study is a corpus containing newspaper articles from Taiwan and Beijing. This alone is certainly not sufficient in a macro view of a language. An ideal corpora study should include different genres and styles of a language. It is hoped that this study will continue researching the modal expressions used in various sources in a language with balanced corpora.
Bibliography


