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This paper explores the idiosyncratic features of the modal system in Hainan Min (based on data collected through fieldwork). The lexical items are firstly presented in four categories of modal types, including epistemic, deontic, circumstantial and bouletic modals. The modal hierarchy is built upon data with multiple modals: epistemic > deontic > dynamic. The last part of the paper introduces the negative modal forms in Hainan Min. The scopal interaction between negation and modals is also discussed. The negation always scopes over modals.

Key words: Hainan Min, modal hierarchy, modality, scopal interaction

1. Introduction

The present study focuses on the modal structures in Hainan Min, which has rarely been explored in previous studies. As a branch of the Min dialects, Hainan Min is a Chinese dialect spoken on Hainan Island. While it is mostly assumed to be a dialect of Southern Min, Hainan Min and other dialects of Southern Min are barely mutually intelligible. There is not only a phonetic separation, but also lexical and syntactical divergences between Hainan Min and other Chinese dialects. For example, the Mandarin disposal marker ba corresponds to ɓue in Hainan Min. Unlike Mandarin ba, ɓue cannot take an animate complement and it can colloquially serve as a verb indicating ‘hold’. Unlike ka in Southern Min, ɓue does not perform multiple functions; for example it cannot serve as a benefactive marker. The syntactic idiosyncratic features of Hainan Min have not been widely studied in previous literature. This paper will try to fill this gap by focusing especially on modal structures.

Modality is a category of linguistic meaning involving the expression of possibility and necessity. The syntactic strategies to convey modality can be varied, including auxiliaries, verbs, nouns, adverbs, adjectives and conditionals. These different kinds of modal expressions are exemplified by the English data in (1) (see von Fintel 2006: examples (1)–(6)):
Considering the complexity of the syntactic types of modality, this paper mainly focuses on the Chinese data corresponding to (1a) and (1b). Chinese does not behave like Indo-European languages with productive inflections. Modal auxiliaries and modal verbs in Chinese cannot be clearly separated. The present study will generally treat modal auxiliaries and modal verbs together as ‘modal verbs’ in Chinese; that is, the modal expressions corresponding to the English modals, such as can, could, will, would, shall, should, may, might, must, dare (to), need (to) and ought to, will be considered as modal verbs in Chinese.

To distinguish different modal readings, except for ‘epistemic’ and ‘deontic’ modals, there is a great deal of terminological variety. Among previous studies, two main approaches are mostly accepted: Kratzer’s (1981, 1991) and Palmer’s (2001) views. Kratzer (1981, 1991) assumes that modal notions are relative to three axes: (i) modal relation, (ii) modal bases and (iii) modal ordering sources. Modal relation is connected with possibility and necessity. The modal bases include epistemic and circumstantial modal bases. The conversational background of the modal bases induces an ordering source. Depending on different ordering sources, the epistemic modal base may be related to the modal expressions, such as must, probably, there is a good possibility that, might, there is a slight possibility that and is more likely than. Circumstantial modal base may create possibilities of different worlds, such as what the law provides, what is good for you, what is moral, what we aim at, what we hope and what we want. The main concern of Kratzer (1981, 1991) is not to provide a classification of modal expressions, but rather to explain the logical nature of modal interpretations. On the other hand, according to Palmer’s (2001) modal systems, modality is divided into two major categories: propositional and event modality. The propositional modality includes epistemic and evidential modals, which are concerned with the speaker’s attitude to the truth value of the proposition; event modality, on the other hand, includes deontic and dynamic modality, which involves the permission, obligation, ability or intention to do a certain action or bring about some state of affairs. Palmer’s divisions (propositional/event) somehow correspond to Kratzer’s modal bases (epistemic/circumstantial). The basic categorization of modal meanings is thus believed to be epistemic and non-epistemic.

In this paper, I basically adopt Kratzer’s (1981, 1991) and Palmer’s (2001) views to explore the epistemic and non-epistemic modals in Hainan Min. However, non-epistemic modals are further divided into three categories: deontic, circumstantial and bouletic. The modal system in Hainan Min is thus divided into four categories. Epistemic modality can express speculative, deductive and
assumptive; deontic modality can express permissive, obligative and commissive; circumstantial modality can express abilitive; bouletic modality can express volitive. This division is shown in (2).

(2)  
a. Epistemic: for example speculative, deductive and assumptive  
b. Deontic: for example permissive, obligative and commissive  
c. Circumstantial: for example abilitive  
d. Bouletic: for example volitive

Palmer (2001) classifies the latter two modal meanings (ability and volition) within the dynamic category. I split the dynamic modality into two groups to clearly show the different modal meanings in Hainan Min. This classification of modality also matches Cable’s (2013) division, which follows those of von Fintel & Heim (2011:Chapter 3) and Kratzer (1981). Cable (2013) employs logical notions to define the four modal meanings, as shown in (3).

(3)  
a. Epistemic: \{w’ ∈ W: everything we know about w is also true in w’\}  
b. Deontic: \{w’ ∈ W: the law in w is being followed in w’\}  
c. Circumstantial: \{w’ ∈ W: everything true in w (up to now) is true in w’\}  
d. Bouletic: \{w’ ∈ W: our goals/desires in w are met in w’\}

The definition of the circumstantial modal in (3) seems not to clearly relate to ability. However, Cable (2013) discusses in detail the circumstantial modal with examples associated with ability. The circumstantial modal is exemplified by the sentence *John can jump five inches.* Ability is included into the circumstantial modality because a sentence like *John can jump five inches* can be paraphrased as *Given the circumstances, a possibility is that John jumps five inches.*²

To explore the lexical expressions of the modal system, data from the field have been collected. Since the modal system in Hainan Min has hardly been presented to linguistic academics, this paper will provide and describe as much data as possible. In addition, modality is assumed to be contingent and dependent on conversational backgrounds. I thus designed a context-sensitive sentence list to collect linguistic data when I conducted fieldwork. The following section introduces the lexical items used in Hainan Min.

2. The modal items in Hainan Min

This section introduces the modal system of Hainan Min. Four types of modality are presented: epistemic modality, deontic modality, circumstantial modality and bouletic modality.

2.1 Epistemic modality

The epistemic modality relates to a set of possible worlds where everything we know about the worlds is also true in this set of worlds. It expresses ‘speculation’, ‘deduction’ and ‘assumption’.

² Von Fintel & Heim (2011) suggest that the circumstantial modal conforms to the laws of nature. I use the term ‘circumstantial’ to indicate ‘ability’.
In Hainan Min, the epistemic modals include beh⁵卜, oi⁴²会, ing⁴⁴-kaï⁴⁴應該 and ho²¹-neng²²可能。³

I. beh⁵卜

Beh⁵卜, as in (4)–(6), is used more frequently than other modals.

(4) Ho²²-tsi²¹ beh⁵ tiak³ la¹¹.
peach will ripe PERF
‘The peaches will ripen soon.’

(5) Tien⁴⁴-bun²² ho¹¹ ho¹¹ kan⁴⁴ lau²² beh⁵ bang⁴⁴ la¹¹.
news report that CL building will collapse PERF
‘It is reported on the news that the building will collapse.’

(6) Mue⁴⁴-mue⁴⁴ beh⁵ o²¹ tia²¹ tu⁴⁴ la¹¹.
younger sister will learn write character PERF
‘The younger sister will learn to write Chinese characters.’

II. oi⁴²会

Oi⁴²会 is also frequently used, as in (7)–(8).

(7) Lau⁴²-se⁴⁴ oi⁴² me⁴⁴ gua²¹.
teacher will scold 1SG
‘The teacher will scold me.’

(8) A⁴⁴-meng²² oi⁴² du⁴² o²¹-iau⁴².
A-Meng will at school
‘A-Meng will be at school.’

Beh⁵卜 and oi⁴²会 are glossed by the English modal will, which is actually just a rough approximation. While the two modals can be used one for the other as in (9)–(10) to indicate the

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³ I offer my own interpretation of the Chinese characters of modal verbs in Hainan Min, not only based on their semantic features, but also according to phonological consideration. The modal beh⁵ corresponds to 欲 in previous studies. I do not follow this convention because beh⁵ in Hainan Min is frequently used to refer to a future event. I thus employ the character卜, which is also used in Taiwanese. San¹¹ is the only modal verb for which I cannot find any corresponding Chinese character that would match both its phonological and semantic features. I thus leave it with a blank Chinese character. A list of the Chinese characters used in other studies is given in the appendix for reference.

⁴ The following abbreviations are used in glossing examples: 1, first person; 2, second person; 3, third person; CL, classifier; MOD, modifier; NEG, negation; PL, plural (e.g. 3PL = 3rd person plural); PART, particle; PERF, perfective aspect; Q, question marker; SG, singular.
possibility of rain, the English translations cannot exactly reflect the divergence between the two modals.

(9) He\textsuperscript{42}-nu\textsubscript{11} oi\textsuperscript{42} loh\textsuperscript{3} fiou\textsuperscript{42}.
   tomorrow will fall rain
   ‘It will rain tomorrow.’

(10) He\textsuperscript{42}-nu\textsubscript{11} beh\textsuperscript{5} loh\textsuperscript{3} fiou\textsuperscript{42}.
   tomorrow will fall rain
   ‘It will rain tomorrow.’

Kratzer (1991) points out that modal words are gradable (e.g. barely possible, easily possible, more likely).

(11) a. It must be rainy tomorrow.
    b. It is probably rainy tomorrow.
    c. There is a good possibility that it is rainy tomorrow.
    d. It might be rainy tomorrow.

Following Kratzer’s idea that possibility can be graded, I further asked my language consultants about the difference between beh\textsuperscript{5}  和 oi\textsuperscript{42}  . When a relative context is provided, the informants use the two modals differently. Following Kratzer (1991), the possibility of rain can be graded as in (11). According to the language consultants, oi\textsuperscript{42}  expresses more certainty on the possibility than beh\textsuperscript{5}  does. It is therefore assumed that oi\textsuperscript{42}  may be used to express (11a) to (11c) and beh\textsuperscript{5}  may express (11b) to (11d). This graded possibility explains the broad overlapping distribution of the two modals, but they still reveal some differences. The different degree of certainty can also be examined when the modals co-occur with some specific adverbs. The examples below show that beh\textsuperscript{5}  does not agree with adverbs denoting strong certainty (e.g. dziak\textsuperscript{3}-dia\textsuperscript{44}  ‘definitely’) as well as oi\textsuperscript{42}  does.

(12) a. ??He\textsuperscript{42}-nu\textsubscript{11} dziak\textsuperscript{3}-dia\textsuperscript{44}  beh\textsuperscript{5} loh\textsuperscript{3} fiou\textsuperscript{42}.
    tomorrow definitely will fall rain
    ‘It will definitely rain tomorrow.’

   b. He\textsuperscript{42}-nu\textsubscript{11} dziak\textsuperscript{3}-dia\textsuperscript{44}  oi\textsuperscript{42} loh\textsuperscript{3} fiou\textsuperscript{42}.
    tomorrow definitely will fall rain
    ‘It will definitely rain tomorrow.’

Another difference between beh\textsuperscript{5}  和 oi\textsuperscript{42}  is that beh\textsuperscript{5}  can refer to future events, while oi\textsuperscript{42}  simply expresses the possibility. For example, the imminent future is only acceptable with beh\textsuperscript{5}  , but not with oi\textsuperscript{42}  , as shown in (13) and (14).

(13) Hi\textsuperscript{44}  beh\textsuperscript{5} am\textsuperscript{11} la\textsuperscript{11}.
    sky will dark PERF
    ‘The sky is going to get dark.’
(14) *Hi⁴⁴ oi⁴² am¹¹ la¹¹.
   sky will dark PERF
   ‘The sky is going to get dark.’

The third difference between the two modals is that oi⁴² 會 can be negated, while beh⁵ 卜 cannot, as in (15) and (16).

(15) Lau⁴²-se⁴⁴ bo²² oi⁴² me⁴⁴ gua²¹.
   teacher NEG will scold 1SG
   ‘The teacher will not scold me.’

(16) *Lau⁴²-se⁴⁴ bo²² beh⁵ me⁴⁴ gua²¹.
   teacher NEG will scold 1SG
   ‘The teacher will not scold me.’

Beh⁵ 卜 and oi⁴² 會 are the two epistemic modals mostly uttered in colloquial Hainan Min. However, ing⁴⁴-kai⁴⁴ 應該 and ho²¹-neng²² 可能 can also be used when the language consultants are asked to express Mandarin sentences in Hainan Min. The usage of ing⁴⁴-kai⁴⁴ 應該 and ho²¹-neng²² 可能 are similar to their Mandarin corresponding counterparts, as in (17)–(19).

III. ing⁴⁴-kai⁴⁴ 應該

(17) Hen⁴²-na⁴⁴ ing⁴⁴-kai⁴⁴ ti⁴² fio²⁴-tui²¹ sun⁴⁴.
   now should be rain-water spring
   ‘It should be the rainy season now.’

(18) Tse²¹ mou²¹ san²² ing⁴⁴-kai⁴⁴ kau⁴⁴ tan²¹.
   this acre farmland should high yield
   ‘This farmland should have high productivity.’

IV. ho²¹-neng²² 可能

(19) A⁴⁴-hua⁴⁴ ho²¹-neng²² tsiah³ toi⁴⁴ dou²¹ hia¹¹.
   A-Hua may eat much stomach hurt
   ‘A-Hua may eat too much, till his stomach hurts.’

2.2 Deontic modality

The deontic modality is involved in a set of possible worlds where the related law in the worlds is being followed in this set of worlds. It expresses ‘permission’, ‘obligation’ and ‘commission’. In Hainan Min, the deontic modals include sam¹¹, ing⁴⁴-kai⁴⁴ 應該, ho²¹-dzi²¹ 可以, dit⁵ 得, toh⁵-dit⁵ 作得, tun²¹ 准, iau¹¹ 要 and neng²² 能.
I. *sam*\(^{11}\)

*Sam*\(^{11}\) generally expresses ‘obligation’. It is a unique modal verb whose etymon is difficult to relate. While many related languages have been researched, including Mandarin Chinese, Southern Min, Cantonese, Hakka and even several aboriginal languages in Hainan, the etymon of the modal verb *sam*\(^{11}\) remains undiscovered. Examples are shown in (20)–(22).

(20) Tse\(^{21}\) phien\(^{44}\) bun\(^{22}\)-tsiang\(^{44}\) sam\(^{11}\) du\(^{42}\) gueh\(^{3}\) doi\(^{21}\) tia\(^{21}\) ho\(^{21}\). this CL article must at month bottom write done ‘The article must be completed/finished at the end of the month.’

(21) Lau\(^{42}\)-se\(^{44}\) kong\(^{21}\) ue\(^{44}\) sam\(^{11}\) it\(^{5}\) dioh\(^{3}\). teacher talk word must remember arrive ‘What the teacher says must be remembered.’

(22) Lak\(^{5}\) au\(^{42}\) kai\(^{22}\) nang\(^{22}\) dziak\(^{3}\)-dia\(^{44}\) sam\(^{11}\) tia\(^{21}\) lin\(^{42}\)-tsiop\(^{3}\). fall back MOD people definitely must write exercise ‘People who fall behind must do the exercise.’

The word *sam*\(^{11}\) is believed to be a language-specific modal verb in Hainan Min. It expresses necessity. *Ing*\(^{44}\)-*kai*\(^{44}\) 應該 and *ho*\(^{21}\)-*dzi*\(^{21}\) 可以 are also used to express deontic meanings and their usages are similar to their corresponding Mandarin counterparts.

II. *ing*\(^{44}\)-*kai*\(^{44}\) 應該

(23) Tiau\(^{21}\)-uang\(^{22}\) ing\(^{44}\)-kai\(^{44}\) 6ue\(^{42}\) kong\(^{44}\)-hua\(^{11}\) toh\(^{5}\) liau\(^{21}\). little-Wang should hold homework do finished ‘Little Wang should finish his homework.’

(24) Tsin\(^{11}\)-6ou\(^{44}\) kai\(^{22}\) nang\(^{22}\) ing\(^{44}\)-kai\(^{44}\) bang\(^{44}\)-to\(^{42}\) lak\(^{5}\) au\(^{42}\) kai\(^{22}\) nang\(^{22}\). progress MOD people should help fall back MOD people ‘Those who have performed well should help whoever falls behind.’

III. *ho*\(^{21}\)-*dzi*\(^{21}\) 可以

(25) Du\(^{21}\) ho\(^{21}\)-dzi\(^{21}\) tse\(^{42}\) tse\(^{21}\) mo\(^{42}\) ui\(^{42}\). 2SG can sit this CL seat ‘You can have this seat.’

(26) Du\(^{21}\) ho\(^{21}\)-dzi\(^{21}\) dziop\(^{3}\) lai\(^{22}\). 2SG can enter come ‘You can come in now.’
It is assumed that the modal force can differentiate \textit{sam} from \textit{ing-kai} 应该 through the test given in von Fintel & Iatridou (2008). In English, \textit{ought to/should} is considered to be weaker than \textit{have to/must}. Von Fintel & Iatridou (2008) show this divergence by the following pair of sentences.

(27) a. You ought to wash your hands—in fact, you have to.
   b. ??You have to wash your hands—in fact, you ought to.

I employ these sequences to test \textit{sam} and \textit{ing-kai} 应该 in Hainan Min. The result is that \textit{sam} is close to English \textit{have to/must} and \textit{ing-kai} 应该 is close to \textit{ought to/should}.

The three modal expressions, \textit{sam}, \textit{ing-kai} 应该 and \textit{ho-dzi} 可以, syntactically occur at a preverbal position. \textit{Sam} and \textit{ing-kai} 应该 semantically express ‘obligation’, while \textit{ho-dzi} 可以 expresses ‘permission’. The following two modals also express ‘permission’, but they have different syntactic distributions from the above three modals. \textit{V-dit 得} occurs at a postverbal position and \textit{toh-dit 作得} occurs in sentence final position.

IV. \textit{dit 得} in [V-dit 得] form

\textit{dit 得} is not an independent modal verb. It needs to attach to a verb to construct a [V-dit 得] sequence. This [V-dit 得] compound indicates that the action conveyed by the verb is permissible.

(28) Du\textsuperscript{21} tse\textsuperscript{42} dit\textsuperscript{5} tse\textsuperscript{21} mo\textsuperscript{42} ui\textsuperscript{42}.\textsuperscript{6}
   \hspace{2cm} 2SG sit get this CL seat
   \hspace{2cm} ‘You can have this seat.’

(29) Du\textsuperscript{21} u\textsuperscript{42} tsieng\textsuperscript{11-ki} na\textsuperscript{42} kong\textsuperscript{21} dit\textsuperscript{5}.
   \hspace{2cm} 2SG have evidence then say get
   \hspace{2cm} ‘Only if you have evidence, can you say so.’

V. \textit{toh-dit 作得}

\textit{toh-dit 作得} occurs in sentence final position, expressing the meaning of ‘permission’. With the interrogative expression \textit{toh-dit 作得 bo}\textsuperscript{22}, which serves as a tag question, the speaker asks for permission about the whole proposition conveyed by the preceding clause, as in (30) and (31). It can also occur in an assertive sentence, indicating the meaning of ‘allowance’, as in (32).

(30) Gua\textsuperscript{21} tse\textsuperscript{42} tse\textsuperscript{21} mo\textsuperscript{42} ui\textsuperscript{42}, toh\textsuperscript{5} dit\textsuperscript{5} bo\textsuperscript{22}?
   \hspace{2cm} 1SG sit this CL seat do-get Q
   \hspace{2cm} ‘May I have this seat?’

\textsuperscript{5} The modal force is shown by Kratzer (1991) as: necessity, weak necessity, good possibility, possibility, slight possibility, at least as good a possibility, better possibility and maybe others.

\textsuperscript{6} The phrase tse\textsuperscript{42} dit\textsuperscript{5} 坐得 ‘sit get’ is not separated with a dash, as in tse\textsuperscript{42} dit\textsuperscript{5} ‘sit-get’ as it is necessary to distinguish tse\textsuperscript{42} dit\textsuperscript{5}, combining together due to context, from fixed customary lexical items, e.g. toh-dit 得 作得, ho-dzi 可以, and ing-kai 应该.
The modal force of V-dit^5 得 and toh^5-dit^5 作得 is a possibility. They are distinct from sam^11 and ing^44-kai^44 應該, which indicate necessity.

These five modal expressions, sam^11, ing^44-kai^44 應該, ho^21-dzi^21 可以, dit^5 得, and toh^5-dit^5 作得, are mostly used in a colloquial context. When the language informants are given a formal or a written context, tun^21 准, iau^11 要 and neng^22 能 are used to correspond to their Mandarin counterparts. These modals are not often used in colloquial contexts.

VI. tun^21 准

(33) Tse^21 ke^11 sia^44 na^42 tun^21 tse^42 lak^3 kai^22 nang^22.
this CL vehicle only allow sit six CL people
‘The car only allows for the accommodation of six people.’

VII. iau^11 要

(34) O^21-te^44 iau^11 an^11 ti^22 dzuan^22-tsia^22 toh^5-niap^3.
student should according to time finish assignment
‘Students should finish their homework on time.’

VIII. neng^22 能

(35) Tiau^21-tsi^21 toh^5 kang^44 liau^21 du^21 neng^22 du^22 su^11 la^11.
little-Tsi do work finished 2SG can return home PERF
‘Little Tsi, you have finished the work, so you can go home now.’

2.3 Circumstantial modality

The circumstantial modality relates to a set of possible worlds where everything true in the world is true in this set of worlds. It expresses the possibility of an action or state under a physical circumstance. In Hainan Min, the circumstantial modals include bat^5 識, oi^42 會, dit^5 得, toh^5-dit^5 作得 and ho^21-dzi^21 可以.
I. bat⁵ 識

The modal verb bat⁵ 識 literally means that the agent of the proposition has the knowledge to perform the activity conveyed by the verb, that is, that the agent has the ability to execute the action to achieve some specific goals. Bat⁵ 識 can usually be replaced by another modal verb oi⁴² 會.

(36) Gua²¹ kong⁴⁴ bat⁵ duá⁴² i²².
1SG grandfather can play string
‘My grandfather can play the stringed instrument.’

(37) Tiau²¹-ngou²² bat⁵ dio¹¹ fiu²².
little-Ngou can hook fish
‘Little Ngou can fish.’

II. oi⁴² 會

(38) Gua²¹ kong⁴⁴ oi⁴² duá⁴² i²².
1SG grandfather can play string
‘My grandfather can play the stringed instrument.’

(39) Tiau²¹-ngou²² oi⁴² dio¹¹ fiu²².
little-Ngou can hook fish
‘Little Ngou can fish.’

While bat⁵ 識 and oi⁴² 會 have overlapping distribution, they are semantically distinct. The difference lies in the graded modal notions. Though both bat⁵ 識 and oi⁴² 會 can occur in (40), according to the language consultants, bat⁵ 識 indicates that ‘my brother knows how to speak English’, while oi⁴² 會 implies that ‘my brother can speak English well’.

(40) Lau⁴²-di⁴² bat⁵/oi⁴² kong⁴⁴-eng⁴⁴-ue⁴⁴.
old-younger brother can/can say English
‘My brother can speak English.’ (with bat⁵)
‘My brother can speak English well.’ (with oi⁴²)

In other words, the degree of proficiency conveyed by bat⁵ 識 and oi⁴² 會 is different. This divergence can be clarified when bat⁵ 譬 and oi⁴² 會 co-occur with another modal verb like beh⁵ 卜. The scenario described in (41a) is acceptable for a child who starts to walk, while the scenario in (41b) is strange if a child is about to learn how to walk.

(41) a. Nih⁵-kia²¹ beh⁵ bat⁵ kia²² la¹¹.
little-child will can walk PART
‘The little kid is going to be able to walk.’

b. * Nih⁵-kia²¹ beh⁵ oi⁴² kia²² la¹¹.
little-child will can walk PART
‘The little child is going to be able to walk well.’
III. dit\textsuperscript{5} 得 in [V-dit\textsuperscript{5}] form

Similar to the deontic modal dit\textsuperscript{5} 得, the circumstantial modal dit\textsuperscript{5} 得 cannot occur independently; it needs to attach to a verb. The [V-dit\textsuperscript{5}] compound indicates ‘be able to’, as in (42).

(42) Tse\textsuperscript{21} toi\textsuperscript{44} mue\textsuperscript{22} lai\textsuperscript{42} te\textsuperscript{44} hou\textsuperscript{22}, bo\textsuperscript{22} tsiah\textsuperscript{3} dit\textsuperscript{5}.

this many rice inside occur soil NEG eat get
‘There is sand in the rice, so it is not edible.’

IV. toh\textsuperscript{5}-dit\textsuperscript{5} 作得

The modal toh\textsuperscript{5}-dit\textsuperscript{5} 作得 often occurs in sentence final position and indicates that the agent of the clause has the ability to achieve the goal of the activity conveyed by the predicate.

(43) I\textsuperscript{44} da\textsuperscript{44}-ki\textsuperscript{44} hui\textsuperscript{44} i\textsuperscript{44}-zuan\textsuperscript{42} dou\textsuperscript{44} toh\textsuperscript{5}-dit\textsuperscript{5}.

3SG self open hospital all do-get
‘He can open up his own clinic.’

V-dit\textsuperscript{5} 得 and toh\textsuperscript{5}-dit\textsuperscript{5} 作得 have very different distribution from other modals. While the two modal expressions can both convey ability, they are distinct from each other when they occur in a resultative construction.\textsuperscript{9} Only V-dit\textsuperscript{5} 得 can appear in the resultative structure, with [V-dit\textsuperscript{5} OR] or [V-dit\textsuperscript{5} R] sequences; toh\textsuperscript{5}-dit\textsuperscript{5} 作得 cannot occur in such constructions, thus *[VOR toh\textsuperscript{5}-dit\textsuperscript{5}]/*[VR toh\textsuperscript{5}-dit\textsuperscript{5}] are ungrammatical, as shown in (44)–(46).

(44) a. I\textsuperscript{44} tia\textsuperscript{21} dit\textsuperscript{5} tu\textsuperscript{44} liau\textsuperscript{21}.

3SG write get book finished
‘He can finish writing his book.’

b. *I\textsuperscript{44} tia\textsuperscript{21} tu\textsuperscript{44} liau\textsuperscript{21} toh\textsuperscript{5}-dit\textsuperscript{5}.

3SG write book finished do-get
‘He can finish writing his book.’

(45) a. Gua\textsuperscript{21} leng\textsuperscript{22} dit\textsuperscript{5} tse\textsuperscript{21} kai\textsuperscript{22} dang\textsuperscript{44}-tai\textsuperscript{44} hang\textsuperscript{42}.

1SG lift get this CL thing move
‘I can lift this thing.’

b. *Gua\textsuperscript{21} leng\textsuperscript{22} tse\textsuperscript{21} kai\textsuperscript{22} dang\textsuperscript{44}-tai\textsuperscript{44} hang\textsuperscript{42} toh\textsuperscript{5}-dit\textsuperscript{5}.

1SG lift this CL thing move do-get
‘I can lift this thing.’

\textsuperscript{8} Following the advice of one of the reviewers, I rechecked with my language consultants the data with 得 and other lexical items. They state that V 得 is a very local way to express deontic and circumstantial modality. When needed, V 得 is often paraphrased to be 可以.

\textsuperscript{9} In Hainan Min, the resultative construction has the configuration [VOR], rather than [VRO]. That is, in a resultative compound, the object occurs between the verb and the resultative complement.
V. *ho\textsuperscript{21}-dzi\textsuperscript{21} 可以

The modal verb *ho\textsuperscript{21}-dzi\textsuperscript{21} 可以 indicates ‘be able to’. The usage of this modal in Hainan Min is similar to its corresponding counterpart in Mandarin.

(47) Ko\textsuperscript{44} ho\textsuperscript{21}-dzi\textsuperscript{21} hui\textsuperscript{44} sia\textsuperscript{44}.
elder brother can drive car
‘The elder brother can drive.’

VI. *neng\textsuperscript{22} 能

Unlike Mandarin, *neng\textsuperscript{22} 能 does not serve as a circumstantial modal verb to indicate the meaning of ‘ability’. It is assumed that other modal verbs in Hainan Min are sufficient to perform the functions of circumstantial modality. This language does not need *neng\textsuperscript{22} 能 to share this function.

(48) *Ko\textsuperscript{44} neng\textsuperscript{22} hui\textsuperscript{44} sia\textsuperscript{44}.
elder brother can drive car
‘The elder brother can drive.’

2.4 Bouletic modality

The bouletic modality relates to a set of possible worlds where our goals or desires in the worlds are met in this set of worlds. In Hainan Min, the bouletic modal is *hien\textsuperscript{21} 肯.

I. *hien\textsuperscript{21} 肯

The volitionality of the subject can be expressed by the modal verb *hien\textsuperscript{21} 肯.

(49) Mai\textsuperscript{21} hien\textsuperscript{21} kang\textsuperscript{44} i\textsuperscript{22}-hiang\textsuperscript{22} mo\textsuperscript{44} kia\textsuperscript{21}.
mother willing with younger sister see child
‘Mother is willing to help the younger sister look after the child.’

(50) Mai\textsuperscript{21} hien\textsuperscript{21} tsiap\textsuperscript{5}-tang\textsuperscript{11} toi\textsuperscript{11}-king\textsuperscript{42}.
mother willing pick up little-King
‘Mother is willing to pick up little King.’
To sum up, the lexical entry of modals in Hainan Min are depicted as in (51).

(51) a. Epistemic: beh^5 卜, oi^42 會, ing^44-kai^44 應該, ho^21-neng^22 可能
b. Deontic: sam^11, ing^44-kai^44 應該, ho^21-dzi^21 可以, dit^5 得, toh^5-dit^5 作得, tun^21 准, iau^11 要, neng^22 能
c. Circumstantial: bat^5 識, oi^42 會, dit^5 得, toh^5-dit^5 作得, ho^21-dzi^21 可以
d. Bouletic: hien^21 嗎

The following sections will discuss the syntactic and the semantic features of these modals, including the co-occurrence of multiple modals and the scopal interaction between modals and negations.

3. Syntactic categories of modals

There has been a long debate over the syntactic class to which modals belong. This issue is more complicated for Chinese dialects because Chinese is not an overtly inflectional language. However, a discussion of modal categories indeed helps clarify the data in Hainan Min.10

Before deciding the syntactic categories of modals, two related notions need to be distinguished from each other: modal auxiliary and modal verb. As an inflectional language, English represents a good example to describe the difference between these two terms. Firstly, modal auxiliaries in English can be distinguished from modal verbs owing to their lack of participle and infinitive forms, for example can/*caned/*to can. Secondly, modal auxiliaries in English do not have to agree with the third person/singular subject and thus need not be suffixed with -s when the tense is present, for instance *He cans. Thirdly, modal auxiliaries are not used as imperatives and as subjunctives, for example *Go! Can!

Based on the English examples, I assume that a modal auxiliary is more grammatical than a modal verb. Syntactically, modal auxiliaries are more defective than modal verbs in that they share fewer properties with common verbs. In Hainan Min, I adopt the idea that a modal verb exhibits more similar properties to a common verb than a modal auxiliary does. Several syntactic tests are used for linguists to examine the syntactic class of modals in Chinese (see Lin 2012; Lin & Tang 1995). However, the criteria for Mandarin are mostly not suitable for Hainan Min. For example, the A-not-A pattern is assumed to be a good means to represent a verbal form. Against Mandarin, the A-not-A form cannot be used as a syntactic test because the form is not even acceptable in Hainan Min, as shown in (52).

(52) Mandarin:
    Ni chi bu chi fan?
    2SG eat NEG eat rice
    ‘Do you eat rice?’

Hainan Min
    * Du^21 tsiah^3 bo^22 tsiah^3 mue^22?
    2SG eat NEG eat rice
    ‘Do you eat rice?’

10 I am grateful to an anonymous referee for drawing my attention to this issue.
Based on the idiosyncratic properties of Hainan Min, I do not fully adopt Lin & Tang’s (1995) and Lin’s (2012) criteria, but rather employ two attributes to discuss the categories of modals (auxiliary or verb): selectional restriction and a short answer test.

### 3.1 Selectional restriction

Selectional restriction helps clarify the distinction between verbs and auxiliaries. It is very difficult to find a clear-cut distinction between modal verbs and auxiliaries in Hainan Min or in most Chinese dialects. I assume that modals fall in a continuum where verbs and auxiliaries respectively occupy opposite directions. Some modals are closer to the verb class and others are closer to the auxiliary class. Verb-like modals exhibit more choices of transitivity. For example, the circumstantial modals *bat* (識) and *oi* (會) show different transitivity patterns. Both *bat* 識 and *oi* 會 can be followed by a main verb or a verb phrase, as in (53). However, *bat* 識 is acceptable in (54), while *oi* 會 is not.

\[(53) \, \text{Gua}^{21} \, \text{kong}^{44} \, \text{bat}^{5}/\text{oi}^{42} \, \text{dua}^{22} \, \text{i}^{22}. \]

‘My grandfather can play string.’

\[(54) \, \text{Lau}^{42}-\text{di}^{42} \, \text{bo}^{22} \, \text{bat}^{5}/\text{oi}^{42} \, \text{tu}^{44}. \]

‘My young brother cannot understand sinograms.’

The contrast between (53)–(54) shows that *bat* 識 can take a noun or a verb phrase as its complement, while *oi* 會 prefers to take a verb phrase as its complement. This fact suggests that *bat* 識 is a more verb-like modal, and *oi* 會 is an auxiliary-like modal.

Another example is *ai* (愛). In modern Hainan Min, *ai* (愛) is used as a common verb, simply expressing the meaning of ‘to love’, as in (55) and (56). It selects a noun as its complement.

\[(55) \, \text{A}^{44}-\text{ta}^{44} \, \text{tsien}^{44} \, \text{ai}^{11} \, \text{tsi}^{22}. \]

‘A-Ta loves money very much.’

\[(56) \, \text{i}^{44} \, \text{ti}^{21} \, \text{dou}^{44} \, \text{ai}^{11} \, \text{ho}^{11} \, \text{mo}^{42} \, \text{nang}^{22}. \]

‘Even if she died, she would still love that man.’

However, in a Hainanese Bible published by the British and Foreign Bible Society (1899), the word *ai* (愛) is used to express the epistemic modality, as in (57) and (58).

\[(57) \, \text{Va}^{21} \, \text{ai}^{11} \, \text{hoe}^{11} \, \text{i}^{44} \, \text{toh}^{5} \, \text{jak}^{3}-\text{kai}^{22} \, \text{foe}^{11}-\text{gou}^{21} \, \text{(Genesis 2:18)} \]

‘I will make a spouse for him.’
(58)  fog11-ki11 va21 kai22 nag22, ciu42 ai11 hai22 va21 (Genesis 4:14)
meet lSG MOD people then will kill lSG

‘Whoever meets me will kill me.’

I have checked the occurrences of the word ai11愛 in this Bible and they are all followed by a verb phrase like (57) and (58). The distribution in the Bible implies that ai11愛 is used as a modal auxiliary rather than a common verb. On the other hand, ai11愛 in modern Hainan Min does not express modal meanings. Even when it is followed by a verb phrase, ai11愛 always indicates ‘to love’ rather than ‘will’.

(59)  gua21 ai11 mo44 dien42-ti42.
1SG love see television

‘I love to watch television.’

*I will watch television.’

(60)  i44 kong21 ue44, gua21 na11-ku11 ai11 hia44.
3SG say word 1SG very love listen

“When he talks, I really love to listen.’

*‘When he talks, I will really listen.’

Since ai11愛 is used as a common verb in modern Hainan Min, it is not included in the modal inventory.

There is another example, bo22-dziong42無用, which expresses a deontic meaning only when it occurs in a negative form. For instance, (61a) does not correspond to (61b) to have a negative/affirmative pair. Dziong42用 is simply used as a common verb, ‘use’, which takes a noun as its complement.

(61)  a.  du21 bo22-dziong42 tse42 tse21 mo42 ui42.
2SG NEG-use sit this CL seat

‘You are not allowed to take this seat.’

b.  *du21 dziong42 tse42 tse21 mo42 ui42.
2SG use sit this CL seat

‘You are allowed to take this seat.’

In addition, while bo22-dziong42無用 often occurs with a second-person subject, it can also co-occur with other subjects, such as (62).

(62)  a.  nang22 bo22-dziong42 hiam11 i44-te44 ziu22-ziu22 hui44 ioh3.
person NEG-use call doctor careless open medicine

‘People are not allowed to ask doctors to carelessly provide prescriptions.’

b.  nih5-kia21 bo22-dziong42 nam11 la11.
little-child NEG-use play PART

‘The little children are not allowed to play anymore.’

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Bo^22-dziong^42 無用 expresses modal meaning and is followed by a verb phrase, while dziong^42 用 only selects nouns to be its complement.

3.2 Short answer

Whether an element can be used as a short answer or not is frequently considered as a test to identify a verb in Mandarin (see e.g. Chao 1968; Huang et al. 2009; Li & Thompson 1981). This traditional verbhood test is adopted to explore the modal lexicon in Hainan Min. The modals beh^5 卜, oi^42 會, sam^11 和 hien^21 肯 are tested together because they share the same distribution in (63). The result shows that only sam^11 cannot serve as a simple answer to a question. 11

(63) a. Q: I^44 beh^5/oi^42/sam^11/oi^42/hien^21 hu^11 o^21-iau^42 bo^22?  3SG will/will/must/can/willing go school NEG
   ‘Will/Will/Must/Is he willing to go to school?’
   will/will/must/can/willing
   ‘Yes, he will/will/must/can/is willing to.’

In addition, dit^5 得 and toh^5-dit^5 作得 are tested, as in (64) and (65), separately from the above five modals because they have different distribution from the others. The result shows that dit^5 得 cannot be used as a short answer, while toh^5-dit^5 作得 can.

(64) a. Q: I^44 hu^11 dit^5 o^21-iau^42 bo^22?  3SG go get school NEG
   ‘Can he go to school?’
   get/go get
   ‘Yes, he can.’

(65) a. Q: I^44 hu^11 o^21-iau^42, toh^5-dit^5 bo^22?  3SG go school do-get NEG
   ‘Is he allowed to go to school?’
   will/will/must/can/willing
   ‘Yes, he will/will/must/can/is willing to go to.’

The fact suggests that compared to other modal items, sam^11 and dit^5 得 do not behave like typical verbs. Sam^11 and dit^5 得 cannot occur independently. 12 Dit^5 得 is like a verbal suffix which needs

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11 Disyllabic modals ho^21-neng^22 可能, ing^44-kai^44 應該 and ho^21-dzi^21 可以 are also tested and they can all serve as a simple answer to their corresponding questions.
12 The etymon of sam^11 remains mysterious to the author. The reason why sam^11 cannot serve as a short answer indeed needs more research on this particular modal.
to attach to a lexical verb. Regarding the short answer test, the modals in Hainan Min appear to behave very much like verbs.

It is not easy to have a very reliable test to prove that a certain modal belongs to a verb class or an auxiliary class. Modals are thus not specifically categorized into either of these two categories. I propose that for modals in Hainan Min, there is a syntactic continuum ranging from a verb pole to an auxiliary pole. Modals relatively behave more like verbs or auxiliaries. For example, $bat^5$ 識 has more verbal properties than $oi^{42}$ 會, and $sam^{11}$ is not a standard verb when it is used as a short answer. Noticing that modals behave distinctly from common verbs, the present study employs the general term ‘modal verb’ to refer to the modal items investigated in this paper.

4. Multiple modals

This section explores the hierarchy of different types of modals. Cinque (1999) suggests that adverbs cross-linguistically present a universal ordering. With regard to modality, the hierarchy of modal adverbs is illustrated as in (66).

$\ldots [pro\text{\_}ably\ Mod_{\text{epistemic}} \ldots [nee\text{\_}ssarily\ Mod_{\text{necessity}} \ldots [i\text{\_}ntentionally\ Mod_{\text{volitional}}$)

Based on Cinque (1999), the ordering of modals may be assumed to be ‘epistemic > deontic > bouletic’. If this hierarchy is cross-linguistically universal, it should also be true for the modal system in Hainan Min.

4.1 Epistemic > deontic

In Hainan Min, the epistemic modal verb can precede the deontic modal verb, but cannot allow the opposite word order. In other words, the sequence ‘epistemic + deontic’ is allowed; the sequence ‘deontic + epistemic’ is not acceptable, for example $ho^{21}$-neng$^{22}$ 可能 + $sam^{11}$, $ing^{44}$-kai$^{44}$ 應該 + $dit^5$ 得, $ing^{44}$-kai$^{44}$ 應該 + $bo^{22}$-dziong$^{42}$ 無用 and $*sam^{11} + oi^{42}$ 會, as shown in (67)–(71). The epistemic modality is higher than the deontic modality in Hainan Min.

I. epistemic + deontic (e.g. $ho^{21}$-neng$^{22}$ 可能 + $sam^{11}$)

(67) $Tse^{21}$ $bu^{21}$ tu$^{44}$ $ho^{21}$-neng$^{22}$ $sam^{11}$ $ba^{11}$ $kang^{44}$ $hu^{11}$ nien$^{22}$-kiu$^{11}$.

this CL book may should put work go research

‘People may have to stop their work and spend time reading this book.’

II. epistemic + deontic (e.g. $ing^{44}$-kai$^{44}$ 應該 + $dit^5$ 得)

(68) $A^{44}$-hua$^{44}$ $ing^{44}$-kai$^{44}$ $bo^{22}$-$dit^5$ hau$^{21}$-$si^{11}$.

A-Hua should NEG-get exam

‘A-Hua may not be allowed to take the exam.’
III. epistemic + deontic (e.g. ing\textsuperscript{44}-kai\textsuperscript{44} 應該 + bo\textsuperscript{22}-dziong\textsuperscript{42} 無用)

(69) Tiau\textsuperscript{21}-uang\textsuperscript{22} ing\textsuperscript{44}-kai\textsuperscript{44} bo\textsuperscript{22}-dziong\textsuperscript{42} kang\textsuperscript{44} de\textsuperscript{44} tio\textsuperscript{44} me\textsuperscript{44}.

little-Wang should \textsubscript{NEG-use} with father mutual scold

‘Little Wang may not have to quarrel with his father.’

(70) Dua\textsuperscript{44}-ke\textsuperscript{44} liau\textsuperscript{42} a\textsuperscript{44}-meng\textsuperscript{22} ing\textsuperscript{44}-kai\textsuperscript{44} bo\textsuperscript{22}-dziong\textsuperscript{42} hau\textsuperscript{21}-si\textsuperscript{11}.

everyone guess A-meng should \textsubscript{NEG-use} exam

‘Everyone guessed that A-Meng may not have to take the exam.’

IV. *deontic + epistemic (e.g. *sam\textsuperscript{11} + oi\textsuperscript{42} 會)

(71) *Kia\textsuperscript{21} sam\textsuperscript{11} oi\textsuperscript{42} bat\textsuperscript{5} kau\textsuperscript{11} be\textsuperscript{42}-mai\textsuperscript{21} kai\textsuperscript{22} kuan\textsuperscript{44}-tiom\textsuperscript{44}.

child should will know arrive father-mother \textsubscript{MOD} concern

‘Children should understand their parents’ concern.’

4.2 Epistemic > circumstantial

The combination of ‘epistemic + circumstantial’ is acceptable, while the opposite word order ‘circumstantial + epistemic’ is not. For example, the sequence ho\textsuperscript{21}-neng\textsuperscript{22} 可能 + dit\textsuperscript{5} 得, as in (72) and (73).

I. epistemic + circumstantial (e.g. ho\textsuperscript{21}-neng\textsuperscript{22} 可能 + dit\textsuperscript{5} 得 / *dit\textsuperscript{5} 得 + ho\textsuperscript{21}-neng\textsuperscript{22} 可能)

(72) a. Ho\textsuperscript{11} 6ui\textsuperscript{21} tu\textsuperscript{44}, i\textsuperscript{44} ho\textsuperscript{21}-neng\textsuperscript{22} tia\textsuperscript{21} dit\textsuperscript{5} liau\textsuperscript{21}.

that CL book 3SG may write get finished

‘He may be able to finish his writing.’

b. *Ho\textsuperscript{11} 6ui\textsuperscript{21} tu\textsuperscript{44}, i\textsuperscript{44} tia\textsuperscript{21} dit\textsuperscript{5} liau\textsuperscript{21} ho\textsuperscript{21}-neng\textsuperscript{22}.

that CL book 3SG write get finished may

‘He may be able to finish his writing.’

(73) a. Tse\textsuperscript{21} kien\textsuperscript{42} se\textsuperscript{42} toi\textsuperscript{11}-i\textsuperscript{22} ho\textsuperscript{21}-neng\textsuperscript{22} fan\textsuperscript{42} dit\textsuperscript{5} tsi\textsuperscript{a22}.

this CL matter little-Yi may handle get successful

‘This thing, little Yi may be able to handle.’

b. *Tse\textsuperscript{21} kien\textsuperscript{42} se\textsuperscript{42} toi\textsuperscript{11}-i\textsuperscript{22} fan\textsuperscript{42} dit\textsuperscript{5} tsi\textsuperscript{a22} ho\textsuperscript{21}-neng\textsuperscript{22}.

this CL matter little-Yi handle get successful may

‘This thing, little Yi may be able to handle.’

4.3 Epistemic > bouletic

The sequence ‘epistemic + bouletic’ is allowed, while the opposite word order ‘bouletic + epistemic’ is ruled out. For example, the combinations of ‘ho\textsuperscript{21}-neng\textsuperscript{22} 可能 + hien\textsuperscript{21} 肯’ and ‘beh\textsuperscript{5} 卜 + hien\textsuperscript{21} 肯’, are acceptable, as in (74) and (75). However, the combinations of ‘*hien\textsuperscript{21} 肯 + oi\textsuperscript{42} 會’, and ‘*dzuan\textsuperscript{42}-i\textsuperscript{11} 願意 + oi\textsuperscript{42} 會’ are not, as in (76)–(78).
In summary, the epistemic modality is higher than the deontic modality, the circumstantial modality and the bouletic modality. It is thus at the highest position of the modal hierarchy. Except for the epistemic modality, the ordering of the other three types is yet certain. The following sections discuss the relationship between the other modals.

### 4.4 Deontic > Circumstantial

The deontic modal verb precedes the circumstantial modal. For example, the sequence ‘sam$^{11} + bat^5$’ is shown in (79).

I. deontic + circumstantial (e.g. $sam^{11} + bat^5$)

(79) Kia$^{21}$ dzia$^3$-dia$^{44}$ sam$^{11}$ bat$^5$ kau$^{11}$ be$^{42}$-mai$^{21}$ kai$^{22}$ kuan$^{44}$-tio$^{44}$.

‘Children definitely must know arrive father-mother MOD concern’
4.5 Deontic > Bouletic

The deontic modal precedes the bouletic modal. For example, the sequence ‘sam$^{11}$ + hien$^{21}$ 肯’ is shown as in (80).

I. deontic + bouletic (e.g. sam$^{11}$ + hien$^{21}$ 肯)

\[(80)\text{ Mai}^{21} \text{ sam}^{11} \text{ hien}^{21} \text{ tsiap}^{5} \text{-tang}^{11} \text{ toi}^{11-\text{king}}^{42}.\]

‘Mother must be willing to pick up little King.’

The data show that the deontic modality is higher than the circumstantial and bouletic modalities, but the ordering of the circumstantial and the bouletic modals is not yet settled. The next section explores the hierarchy of these two types of modality.

4.6 Circumstantial and bouletic

There is no ordering of the circumstantial and the bouletic modalities. Neither the sequence ‘circumstantial + bouletic’ nor the opposite sequence ‘bouletic + circumstantial’ is acceptable. The sentences (81) and (82), respectively, exemplify the unacceptability of these two orderings.

I. *circumstantial + bouletic (*oi$^{42}$ 會 + hien$^{21}$ 肯)

\[(81)\text{ *I}^{44} \text{ oi}^{42} \text{ hien}^{21} \text{ doi}^{42} \text{ toi}^{44} \text{ nang}^{22} \text{ mien}^{44} \text{ tai}^{22} \text{ sio}^{11} \text{ ko}^{44}.\]

‘*He is able to be willing to sing a song in front of many people.’

‘*He will be willing to sing a song in front of many people.’

The modal verb oi$^{42}$ 會 can be interpreted either as epistemic or circumstantial. Only the epistemic modality can occur before the bouletic modality.

II. *bouletic + circumstantial (*hien$^{21}$ 肯 + oi$^{42}$ 會)

\[(82)\text{ *I}^{44} \text{ hien}^{21} \text{ oi}^{42} \text{ doi}^{42} \text{ toi}^{44} \text{ nang}^{22} \text{ mien}^{44} \text{ tai}^{22} \text{ sio}^{11} \text{ ko}^{44}.\]

‘*He is willing to able to sing a song in front of many people.’

‘*He is willing to going to sing a song in front of many people.’

The data suggest that a clear ordering of the circumstantial and the bouletic modalities does not hold in Hainan Min. This fact supports Palmer’s (2001) classification in which he combines the circumstantial and the modalities into one category, named ‘dynamic modality’.

In terms of the modal hierarchy, the ternary classification (epistemic, deontic and dynamic) is sufficient to describe the modal system in Hainan Min. To sum up, the hierarchy of the modal system in Hainan Min can be shown as in (83).
5. Negation and modals

The relationship between negation and modals is explored in this section. Lien (2013) points out that there are four common negative forms related to modal verbs in Taiwan Southern Min: bo5 無, m7 毋, be7 袂 and bien7 免. The latter two forms are derived from a phonological process: fusion. Each negative form has its specific distribution and semantic association. Unlike Taiwan Southern Min, the negative form of modality in Hainan Min is comparatively very simple. There is only one negative form in Hainan Min: bo22 無. There is no negative form in Hainan Min derived from phonological fusion. In other words, Hainan Min has not developed synthetic forms of negative modals, but Taiwan Southern Min has. All the negative modals in Hainan Min come from combinations of the negative form bo22 無 and various modal verbs. Based on the quaternary modal system, the following section introduces various combinations of the negative form bo22 無 and the modal verbs.

5.1 Negative epistemic modals

The negative epistemic modals in Hainan Min are bo22 oi42 無會, bo22 ho21-neng22 無可能 and bo22 ing44-kat44 無應該, as in (84)–(88). The negative form bo22 無 functions as a negation of the following proposition.

I. bo22 oi42 無會

(84) Lau42-se44 bo22 oi42 me44 gua21.
    teacher NEG will scold 1SG
    ‘The teacher will not scold me.’

(85) Gua21 liau42 j22-hiang22 bo22 oi42 toh5 tse21 tsiang21 se42.
    1SG guess younger sister NEG will do this type matter
    ‘I guess the younger sister won’t do this kind of thing.’

II. bo22 ho21-neng22 無可能

(86) De44 bo22 ho21-neng22 hu11 dzit3-bun21.
    father NEG may go Japan
    ‘Father may not go to Japan.’
III. \textit{bo}^{22} \textit{ing}^{44}-\textit{kai}^{44} 無應該

\begin{align*}
\text{(88)} & \text{Tse}^{21} \text{kui}^{11} \text{kai}^{22} \text{bo}^{44}-\text{lo}^{22} \text{bo}^{22} \text{ing}^{44}-\text{kai}^{44} \text{diam}^{22}. \\
& \text{this season MOD pineapple NEG should sweet}
\end{align*}

‘This season’s pineapples shouldn’t be sweet.’

5.2 Negative deontic modals

The negative deontic modals in Hainan Min are \textit{bo}^{22}-\textit{dziong}^{42} 無用, \textit{bo}^{22}-\textit{fit}^{5} 無得, \textit{bo}^{22}\textit{toh}^{5}-\textit{fit}^{5} 無作得, and \textit{bo}^{22} \textit{tua}^{21} 無准, \textit{bo}^{22} \textit{neng}^{22} 無能, respectively, as in (89)–(97). These negative deontic modals express ‘prohibition’, ‘forbiddance’ and ‘refusal of permission’.\textsuperscript{13}

I. \textit{bo}^{22}-\textit{dziong}^{42} 無用

The modal expression \textit{bo}^{22}-\textit{dziong}^{42} 無用 is the most frequently used among these modals.

\begin{align*}
\text{(89)} & \text{Bo}^{22}-\text{dziong}^{42} \text{bue}^{42} \text{tua}^{21} \text{sioh}^{5}-\text{kak}^{3} \text{du}^{42} \text{kong}^{44}-\text{bang}^{22} \text{la}^{42}. \\
& \text{NEG-use hold paper throw away at toilet inside}
\end{align*}

‘You are not allowed to throw paper in the toilet.’

\begin{align*}
\text{(90)} & \text{Bo}^{22}-\text{dziong}^{42} \text{phah}^{5} \text{gua}^{21} \text{kia}^{21}. \\
& \text{NEG-use beat 1SG child}
\end{align*}

‘You are not allowed to beat my child.’

These data may also be interpreted as negative imperatives. Some languages have special morpho-

\text{logical mechanisms for imperatives, while some do not. Hainan Min does not have an overt lexicon}
to express imperatives. Notice that not all sentences with \textit{bo}^{22}-\textit{dziong}^{42} 無用 are uttered with the

\text{second person subject, such as (62). The expression \textit{bo}^{22}-\textit{dziong}^{42} 無用 is assumed to be a modal}

\text{expression.}\textsuperscript{14}

\textsuperscript{13} These modals may be pragmatically differentiated by ‘the strength of modals’, proposed by Horn (1972) and developed in von Fintel & Iatridou (2008). The modal strength is a complicated issue requiring detailed comparisons of the modal data and will not be discussed in this paper. The focus of the present study is to introduce the possible combinations of the negative form and the modal verbs.

\textsuperscript{14} While I do not exclude the possibility for \textit{bo}^{22}-\textit{dziong}^{42} 無用 to get an imperative reading, some linguists debar imperatives from their modal studies (e.g. de Haan 1997).
II. $bo^{22}$-$dit^5$ 無得

The modal expression $bo^{22}$-$dit^5$ 無得 is only used in ancient Chinese or as a fixed idiom chunk in modern Mandarin and Southern Min. However, it is actively used in colloquial modern Hainan Min. This $bo^{22}$-$dit^5$ 無得 is assumed to be a historical remnant.

(91) Tse$^{21}$ kien$^{42}$ se$^{42}$ bo$^{22}$-$dit^5$ hua$^{44}$ ku$^{21}$.  
this CL matter NEG-get drag long  
‘This matter cannot be prolonged.’

III. $bo^{22}$ $toh^5$-$dit^5$ 無作得

The modal expression $bo^{22}$ $toh^5$-$dit^5$ 無作得 only occurs in sentence final position to express a prohibition of the activity conveyed by the previous clause.

(92) Bo$^{22}$ $toh^5$ kang$^{44}$-hua$^{11}$ bo$^{22}$ $toh^5$-$dit^5$.  
NEG do homework NEG do-get  
‘It’s not allowed to not do the homework.’

(93) Tse$^{21}$ kien$^{42}$ se$^{42}$ hua$^{44}$ ku$^{21}$ bo$^{22}$ $toh^5$-$dit^5$.  
this CL matter drag long NEG do-get  
‘This matter cannot be prolonged.’

IV. $bo^{22}$ $tun^{21}$ 無准

The expressions $bo^{22}$ $tun^{21}$ 無准 and $bo^{22}$ $neng^{22}$ 無能 are used, similar to their Mandarin counterparts, to prohibit or ban the activities expressed by the predicate.

(94) Tia$^{21}$ bo$^{22}$ dzuan$^{22}$ lin$^{42}$-tsiop$^3$ kai$^{22}$ dang$^{22}$-o$^{21}$ tsiu$^{42}$ bo$^{22}$ $tun^{21}$ dui$^{21}$ su$^{11}$.  
write NEG finished exercise MOD classmate then NEG allow return home  
‘Students who haven’t finished the exercise are not allowed to go home.’

(95) Tse$^{21}$ diau$^{22}$ hang$^{42}$-tsi$^{21}$ bo$^{22}$ $tun^{21}$ dziop$^3$.  
this CL alley NEG allow enter  
‘Entering the alley is not allowed.’

V. $bo^{22}$ $neng^{22}$ 無能

(96) Tia$^{21}$ lin$^{42}$-tsiop$^3$ bo$^{22}$ liau$^{21}$ kai$^{22}$ dang$^{22}$-o$^{21}$ tsiu$^{42}$ bo$^{22}$ $neng^{22}$ dui$^{21}$ su$^{11}$.  
write exercise NEG finished MOD classmate then NEG can return home  
‘Students who haven’t finished the exercise cannot go home.’

(97) Phak$^3$ tu$^{44}$ bo$^{22}$ liau$^{21}$ bo$^{22}$ $neng^{22}$ iu$^{44}$-tek$^5$.  
study book NEG finished NEG can rest  
‘If you haven’t finished studying, then you cannot have a rest.’
5.3 Negative circumstantial modals

The negative deontic modals in Hainan Min are \textit{bo}\textsuperscript{22} \textit{neng}\textsuperscript{22} 無能, \textit{bo}\textsuperscript{22} \textit{bat}\textsuperscript{5} 無識, and \textit{bo}\textsuperscript{22}... \textit{dit}\textsuperscript{5} 無...得, as in (98)–(103). These negative modals indicate that under some certain circumstances, the subject of the clause lacks the ability or quality to execute the actions conveyed by the predicate.

I. \textit{bo}\textsuperscript{22} \textit{neng}\textsuperscript{22} 無能

The negative modal ‘\textit{bo}\textsuperscript{22} \textit{neng}\textsuperscript{22} 無能’ does not have its positive form ‘\textit{neng}\textsuperscript{22} 能’ as a circumstantial modal. This example illustrates that there is not a one-to-one correlation between the positive and negative modal verbs in Hainan Min.

\begin{enumerate}
\item (98) A\textsuperscript{44}-phong\textsuperscript{42} \textit{bo}\textsuperscript{22} \textit{neng}\textsuperscript{22} \textit{da}\textsuperscript{44}-ki\textsuperscript{44} hu\textsuperscript{11} de\textsuperscript{11}.
A-Phong NEG can self go place
\textit{‘A-Phong cannot go out by herself.’}

\item (99) He\textsuperscript{42-na}\textsuperscript{44} \textit{bo}\textsuperscript{22} \textit{neng}\textsuperscript{22} dfiah\textsuperscript{5} sau\textsuperscript{21}-bue\textsuperscript{22}.
now NEG can pluck strawberry
\textit{‘Strawberries cannot be picked now.’}
\end{enumerate}

II. \textit{bo}\textsuperscript{22} \textit{bat}\textsuperscript{5} 無識

The literal meaning of \textit{bat}\textsuperscript{5} 識 indicates to ‘know how to’, which is assumed to be analogous to the circumstantial modal verb ‘can’. The negative modal ‘\textit{bo}\textsuperscript{22} \textit{bat}\textsuperscript{5} 無識’ is construed as ‘cannot/is not able to’.

\begin{enumerate}
\item (100) Gua\textsuperscript{21} kong\textsuperscript{44} \textit{bo}\textsuperscript{22} \textit{bat}\textsuperscript{5} du\textsuperscript{22} i\textsuperscript{22}.
1SG grandfather NEG know play string
\textit{‘My grandfather cannot (/is not able to) play the stringed instrument.’}

\item (101) Toh\textsuperscript{5} be\textsuperscript{42-mai}\textsuperscript{21} kai\textsuperscript{22} dou\textsuperscript{44} \textit{bo}\textsuperscript{22} \textit{bat}\textsuperscript{5} dziong\textsuperscript{42} dien\textsuperscript{42}-nau\textsuperscript{21}.
do father-mother MOD all NEG know use computer
\textit{‘Parents cannot (/are not able to) use the computer.’}
\end{enumerate}

III. \textit{bo}\textsuperscript{22}... \textit{dit}\textsuperscript{5} 無...得

The negative form ‘\textit{bo}\textsuperscript{22}... \textit{dit}\textsuperscript{5} 無...得’ corresponds to its positive form ‘\textit{V-dit}\textsuperscript{5} 得’. The positive pattern ‘\textit{V-dit}\textsuperscript{5}’ can be interpreted as ‘\textit{is able to V / can V’}. The negative form is thus construed as ‘\textit{is not able to V / cannot V’}.

\begin{enumerate}
\item (102) A\textsuperscript{44}-ta\textsuperscript{44} \textit{bo}\textsuperscript{22} hu\textsuperscript{11} \textit{dit}\textsuperscript{5} nia\textsuperscript{21}.
A-Ta NEG go get mountain
\textit{‘A-Ta could not go to the mountains.’}
\end{enumerate}
(103) De⁴⁴ fie⁴²-nua¹¹ bo²² dui²¹-dit⁵.
father tomorrow NEG return-get
‘Father cannot return tomorrow.’

5.4 Negative bouletic modals

The negative bouletic modals express that the action, conveyed by the predicate, disobeys the goal/wish/desire of the subject of the clause. The examples are bo²² hien²¹無肯 and bo²² dzuan⁴²無願, as in (104)–(106).

I. bo²² hien²¹無肯

(104) Ko⁴⁴ bo²² hien²¹ hui⁴⁴ sia⁴⁴.
elder brother NEG willing drive car
‘The elder brother is not willing to drive.’

(105) Toi¹¹-li⁴² bo²² hien²¹ phak³ ta⁴⁴ hou¹¹.
little-Li NEG willing lie in sunlight clothes pants
‘Little Li is not willing to hang the clothes out.’

II. bo²² dzuan⁴²無願

(106) Lau⁴²-di⁴² bo²² dzuan⁴² hu¹¹ dzia²²-hau²² phak³.
younger brother NEG willing go sun lie in sunlight
‘The younger brother is not willing to go lie out in the sunshine.’

5.5 Scopal interaction between modals and negation

Modal verbs and negative forms will interact with each other because they are both scope-taking elements. Iatridou & Zeijlstra (2013) investigate the scopal inter-action between deontic modals and negation. They point out that existential deontic modals (‘◇’, e.g. may, can) always scope under negation (‘¬’), such as (107), while universal deontic modals (‘□’, e.g. have to, need to, must, should) may vary. Modals like have to and need to scope under negation, as in (108), while modals like must and should scope over negation, as in (109).

(107) a. John can not leave. ¬ > ◇
b. John may not leave. ¬ > ◇

(108) a. John doesn’t have to leave. ¬ > □
b. John doesn’t need to leave. ¬ > □

(109) a. John must not leave. □ > ¬
b. John should not leave. □ > ¬
It is noteworthy that scopal relations between modals and negation in English are not determined by the syntactic surface order. For example, in (108), the negation is syntactically higher than the modals and the scopal interaction between the two types of scopal elements are therefore the same with the surface order. However, with regards to the existential deontic examples, as in (107), syntactically the modals occur higher than the negation, but their scopal relation is opposite. This scopal mismatch in English, observed by Iatridou & Zeijlstra (2013), is attested in Hainan Min.

The diversity of the word order of negation and modals does not exist in Hainan Min. With respect to the surface order of negation and modals, there are two possibilities in English. When modals are negated, the negative form may occur before the modal, as in (108), or occur following the modal, as in (107). The word order of the negation and modals may vary depending on different modal types. For example, as for the universal deontic modals like *must* and *should*, the negative form must follow them, as in (109). Unlike English, the word order of negation and modals is very simple in Hainan Min. In other words, the negative form only occurs before the modal which it negates.

The four types of negative modality in Hainan Min are shown as follows:

(110) Negative modals in Hainan Min

a. Epistemic: \(bo^{22} ai^{42} \) 無會, \(bo^{22} ho^{21}-neng^{22}\) 無可能, \(bo^{22} ing^{44}-kat^{44}\) 無應該

b. Deontic: \(bo^{22}-dziong^{42}\) 無用, \(bo^{22}-dit^{5}\) 無得, \(bo^{22} toh^{5}-dit^{5}\) 無作得, \(bo^{22} tun^{21}\) 無准, \(bo^{22} neng^{22}\) 無能

c. Circumstantial: \(bo^{22} neng^{22}\) 無能, \(bo^{22} bat^{5}\) 無識, \(bo^{22} dit^{5}\) 無...得

d. Bouletic: \(bo^{22} hien^{21}\) 無肯, \(bo^{22} dzuan^{42}\) 無願

When the data with negative modals shown in (110) are examined, the scopal relation between negation and modals shows that the negation always scopes over the modals (NEG > modal). The surface order of negation and modals exactly reflects their scopal relation. When the negation syntactically occurs after the modals, it will not scope over the modals.

(111) De^{44} ho^{21}-neng^{22} bo^{22} hu^{11} dzit^{3}-bun^{21}. modal > NEG

father may NEG go Japan *NEG > modal

'It is allowed if Father does not go to Japan.'

(112) Hi^{44}-hui^{11} dzua'h, a^{44}-mui^{21} ing^{44}-kai^{44} bo^{22} hoi^{11} dit^{5}. modal > NEG

weather hot A-Mui should NEG sleep get *NEG > modal

'The weather is hot; A-Mui may be unable to sleep.'

(113) O^{21}-te^{44} ing^{44}-kai^{44} bo^{22} iam^{22} kang^{44}-hua^{11} toi^{44}. modal > NEG

student should NEG complain homework much *NEG > modal

'Students should not complain that they have too much homework.'

Moreover, the scope of negation is only limited to the immediately adjacent modal; the negative scope will not expand to the next modal. In other words, the negator cannot skip the first modal to negate over the second modal. It is also impossible for the negation to doubly negate its following two modals, as shown in (114) and (115).
I 44 bo 22 ho 21-neng 22 tia 21 dit 5 tu 44 liau 21.

‘He may not finish writing his book.’  
*He may unable to finish writing his book.’  
*He may not unable to finish writing this book.’

Toi 11-li 42 bo 22 ho 21-neng 22 hien 21 phak 3 ta 44 hou 11.

‘Little Li may not willingly hang the clothes out.’  
*Little Li may unwillingly hang the clothes out.’  
*Little Li may not unwillingly hang the clothes out.’

In Hainan Min, the syntactic word order exactly maps this scopal hierarchy. The higher element in the syntactic layer also takes the higher scope in the semantic layer.

The interaction of modality and negation has attracted the attention of several linguists, such as Steele (1975), de Haan (1997) and van der Auwera (2001). They survey many languages and provide typological results. In de Haan (1997), word order (SOV/SVO/VSO/VOS) and morphological type (bound/free) are concerned with marking differences across languages, as shown in (116).

<table>
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<th>VSO</th>
<th>VOS</th>
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</table>

Based on the result demonstrated by de Haan (1997), Hainan Min is assumed to join the majority in which the word order is SVO and NegV. In addition, the word order of negation and modality is also surveyed, as in (117).

<table>
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<tr>
<th></th>
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<th>VSO</th>
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<td>34</td>
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</table>

Hainan Min falls in the language group which is SVO and NegMod word order. Following de Haan’s (1997) study, Hainan Min is an unmarked language when considering the word order of negation and modality.

If there are two types of lexical modals, the scope also reveals two different types. The first type of modal can take a wider scope over the negation even if it occupies after the negation. On the contrary, the second type of modal takes a narrow scope over the negation when it follows the negation.

a. Neg Mod 1  V_{main} (MOD (NEG (p)))
b. Neg Mod 2  V_{main} (NEG (MOD (p)))
According to the data shown above, modals in Hainan Min belong to the second type of modals. The word order overtly reflects the scope of negation and modality.

6. Concluding remarks

This paper explores the modal system in Hainan Min, which has not yet been studied in previous linguistic literature, based on data collected through fieldwork. I basically adopt Palmer’s (2001) and Kratzer’s (1981) views on modality to account for the linguistic data. Four types of modality in Hainan Min are illustrated in the following table.

(119) Lexical items of modals in Hainan Min

<table>
<thead>
<tr>
<th>Epistemic</th>
<th>Deontic</th>
<th>Circumstantial</th>
<th>Bouletic</th>
</tr>
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<tbody>
<tr>
<td>beh⁵ 卜</td>
<td>sam¹¹</td>
<td>bat⁵ 識</td>
<td>hien²¹ 咬</td>
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<td>of⁴² 會</td>
<td>eng⁴⁴-kai⁴⁴ 應該</td>
<td>or⁴² 會</td>
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<td>V-ditr² 得</td>
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<td>toh⁵-ditr² 作得</td>
<td>ho²¹-dzi²¹ 可以</td>
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<td>iau¹¹ 要</td>
<td>neng²² 能</td>
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</table>

Several modal verbs may be misunderstood as being ambiguous, because they can be interpreted with various modal readings. However, this paper follows Kratzer’s (1981) theory and assumes that the modal verbs are not ambiguous; they are dependent on the context. It is common for modal verbs to be construed as different types of modality since they do not have an absolute meaning. Due to this context-sensitivity, modal verbs and their corresponding modal types do not develop a one-to-one relationship. While a modal verb is not always categorized into a specific modal type, it is common for some modals to have their preferences to express certain modal meanings. For example, sam¹¹ tends to be deontic and neng²² 能 does not tend to be circumstantial. In addition to an introduction of a fruitful inventory of modals, this paper also explores the hierarchy of the modals.

The hierarchy of modals is examined by data with multiple modals. The modal order in Hainan Min matches the hierarchy proposed by Cinque (1999). The epistemic modal occupies the highest, and the deontic modal is the second highest. Hainan Min reveals a complementary distribution of the circumstantial and the bouletic modals. They do not co-occur in the same sentence. Due to the mutually exclusive distribution, the present study follows Palmer’s (2001) idea, which considers the two modals under one category: dynamic modality. The dynamic modals occupy the lowest in the hierarchy by the comparison of modal co-occurrences.

This paper also discusses the interaction between negation and modals. There is only one negative item in Hainan Min: bo²² 無. This specific negative element can negate the four types of modals in Hainan Min. However, the negative modal and its positive counterpart do not display a pairing with a one-to-one relationship. For example, the positive form neng²² 能 cannot be...
interpreted as a circumstantial modal, while its negative form \( \text{bo}^{22} \text{neng}^{22} \) 無能 can be. In addition, the positive form \( \text{dziong}^{22} \) 用 can only serve as a common verb, while its negative form \( \text{bo}^{22} \text{-dziong}^{42} \) 無用 performs a modal function, serving also as a deontic modal.

The scope of negation is analyzed by the different distributions of the negative form and the modals. Unlike the English data, the word order of negation and modals is fixed. The negative form always occurs in front of the modals. The scopal interaction between negation and modals shows that the negation always scopes over the modals. Moreover, the negator can scope over the immediately following modal. It cannot negate any of the modals that follow. As far as word order and scope are concerned, negation and modality in Hainan Min belong to an unmarked language group with SVO and NegMod word order. The modal system in Hainan Min agrees with the major language group, according to the results of the previous typological study (de Haan 1997).

**Appendix**

The list of Chinese characters for the modal verbs in Hainan Min.

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**References**


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本文探討海南閩語情態結構之特點。語料主要蒐集自田野調查。本文首先提出四類情態詞，包含認知類、義務類、情境類及意欲類。此外，探討情態詞共現時，不同情態詞之間的階層關係。海南閩語之階層是：認知類＞義務類＞動力類。本文也討論了情態詞與否定詞之間的語意關係。當否定與情態共現時，海南閩語之否定範圍都大於情態範圍。

關鍵詞：情態，情態階層，範圍互動，海南閩語