“Can,” “Could,” or “May” in Chinese? A Usage-based Perspective Gleaned from Diachronic Corpus Analysis

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Abstract
This study analyzes four linguistic forms related to modality in Chinese: 能 néng, 可能 kěnéng, 可 kě, and 可以 kěyǐ. They have overlapping functions and posit great challenges to Chinese as second language (L2) learners. Through examining diachronic corpus data, this study finds that the functions associated with 能 néng, 可能 kěnéng, and 可以 kěyǐ generally fall into three categories: 能 néng indicates agent-oriented modality, 可能 kěnéng expresses epistemic modality, and 可以 kěyǐ denotes enabling conditions or speaker-oriented modality. The boundaries of these three types of modality overlap; hence, selecting the most appropriate form is challenging for L2 Chinese learners. 可 kě requires special treatment due to its unique syntactic features such as its occurrence in passive voice constructions and set phrases. The results of the corpus analysis can help with teaching and learning these four modal words in a more precise way.

Keywords
Modality, Chinese modal markers, corpus, diachronic development, category

1 Introduction

Modality as a semantic category revolves around the notions of ability, desire, possibility, obligation, permission, etc. Modals, although frequently used, pose difficulties even to advanced L2 learners (Tyler, 2012). Not only are modals highly polysemous, the speaker attitude expressed by modals is abstract and situated in a particular social, cultural context. Bybee et al. (1994) propose a diachronic and dynamic approach to modal verbs. They believe modal verbs are best viewed as a set of diachronically developed and related functions. Tapping into both historical and contemporary corpora, this study employs a diachronic methodology, specifically, the framework of modality proposed by Bybee et al. (1994), to investigate the Chinese modals——能 néng ‘can, could, may,’ 可能 kěnéng ‘can, could, may,’ 可 kě ‘can, could, may,’ and 可以 kěyǐ ‘can, could, may.’
2 Theoretical Background

Much of the research on modality has focused on lexical items, especially modal verbs (Mortelmans, 2007; Sweetser, 1990). Cross-linguistically, lexical modal items are ambiguous between root senses, which concern real-world obligation, permission or ability, and epistemic senses such as probability or possibility (Sweetser, 1990). The modal verb must in “John must be home” can convey root permission sense, in the context that John’s parent would not let him go out, or epistemic possibility sense, in the context that the speaker saw John’s coat at home (Sweetser, 1990). Sweetser analyzes this root/epistemic polysemy in linguistic modality as a metaphorical extension from the real-world (root) domain to the domain of reasoning (epistemic sense). Whether this extension should be analyzed as metaphoric, metonymic or another process has invited many discussions (see Mortelmans, 2007).

Langacker (1991, 1999) views the process by which expressions pertaining to physical likelihood come to refer to social norms, and to epistemic reasoning as subjectification, i.e., “a shift from a relatively objective construal of some entity to a more subjective one” (1999, p. 297). “John must be home” can be construed from a social regulation perspective or from a more subjective reasoning perspective. Langacker’s subjectification approach to modality, although a method of shifting of construal synchronically, is also based on the insights from the historical development of modals. Langacker (1991) points out that in analyzing modals, “a certain amount of diachronic perspective should greatly clarify the synchronic analysis” (p. 269).

Talmy (2000) approaches modality as a syntactic category that corresponds to the semantic category of force dynamics. In other words, linguistic modal items (or modals) are the grammaticalized encodings of the ways that entities “are conceived to interrelate with respect to the exertion of force, resistance to force, the overcoming of such resistance, barriers to the exertion of force and the removal of such barriers” (Talmy, 2000, p. 219). Based on Talmy’s force-dynamic framework, the English modal verbs can and may in “John can/may not leave the house” both express the same force-dynamic configuration (i.e., the root modality) in which the main force, the subject’s tendency toward the action expressed by the verb, is blocked by an opposing force. The difference between can and may lies in the opposing force. Specifically, the opposing force associated with can is “some factor,” while the opposing force linked to may is limited to “an authority” (Talmy, 2000, p. 441).

Furthermore, many studies exploring polysemous linguistic items have taken a diachronic approach (e.g., Amaral, 2006; Chen, 2017; Jansegers & Gries, 2020). As Bybee et al. (1994) note, “it may be impossible to come up with a succinct characterization of the notional domain of modality and the part of it that is expressed grammatically” (p. 176) from a synchronic perspective. Bybee et al.’s (1994) framework of modality emphasizes the types of modality and categorizes expressions into different types of modality. The following three types of modality are relevant to this study:

• Agent-oriented modality: “Agent-oriented modality reports the existence of internal and external conditions on an agent with respect to the completion of the action expressed in the main predicate.”
• Speaker-oriented modality: Speaker-oriented modality informs a speaker’s attitude or evaluation about the existence of enabling conditions with regard to a particular situation described in the context, including “directives as well as utterances in which the speaker grants the addressee permission.”
• Epistemic modality: “Epistemic modality applies to assertions and indicates the extent to which the speaker is committed to the truth of the proposition.”

(Adapted from Bybee et al., 1994, pp. 177-179)

Note that Bybee et al.’s definition of speaker-oriented modality is expanded in this paper to cover more situations that can be categorized into this type in Chinese. The diachronic perspective is represented by
the development paths of modalities in Bybee et al.’s framework. Related to this study are the following development paths.

Diagram 1
*Paths of Development for Modalities (Adapted from Bybee et al., 1994)*

AGENT-ORIENTED  ➔  SPEAKER-ORIENTED  ➔  EPISTEMIC

Diagram 2
*The Path of Development from Ability (Adapted from Bybee et al., 1994)*

ability ➔  root possibility (internal or external ability) ➔  epistemic possibility ➔  permission

Bybee et al. propose that agent-oriented modality generally is at the early stage of grammaticalization, while speaker-oriented modality and epistemic modality are generally at later stages of diachronic development or are more grammaticalized (Diagram 1). For example, it is observed in different languages that words signaling agent-oriented “ability” sense generalize to root possibility (i.e., internal or external ability), and subsequently extend to express “epistemic possibility” sense and speaker-oriented “permission” sense (Diagram 2). These development paths are generalizations of Bybee et al.’s study of world languages, and are used as a reference for the current study. This study’s findings on Chinese modality may further verify these proposed development paths or modify them to reflect the specific features of Chinese.

3 Chinese Modal Verbs

The aforementioned pioneering works have inspired many cognitive linguistics (CL)-based studies on modals in other languages like French, German and Spanish. Chinese modals have also received considerable attention. For instance, Yao (2020) analyzed the Chinese modal verb 会 *huì* ‘will’ using three models: the force-dynamic model, psychological space model, and dynamic evolutionary model. Zhang (2011) compared the Chinese modal verb 必 *bì* ‘must’ and the English modal verb must. Li’s (2003) dissertation offered a comprehensive typological comparison of modality in English and Chinese. Wang (2018) conducted a cognitive-pragmatic study of two modal verbs of possibility, 可以 *kěyǐ* and 能 *néng*, in conversational Taiwan Mandarin. Meisterernst (2008) focused on 可 *kě* and 可以 *kěyǐ* in Han-period Chinese. Yang (2020) tried to explain the order of co-occurrence of Chinese modal verbs, such as 应该可以 *yīnggāi kěyǐ* ‘should be able to’ and 会要 *huì yào* ‘will want,’ from a cognitive linguistics perspective. These previous studies have enriched our understanding of modality in Chinese. However, it is still rare to find research that focuses specifically on the challenging modalities in Chinese as a second or foreign language (CFL) classrooms and can offer finding to inform pedagogical grammar.

A widely adopted Chinese as a second language (L2) textbook in the United States, *Integrated Chinese* (Liu et al., 2017), lists both 可以 *kěyǐ* and 可能 *kěnéng* as modal verbs with similar glosses ‘can, may’ for 可以 *kěyǐ* and ‘may’ for 可能 *kěnéng*. Inappropriate or incorrect uses of these modal verbs, therefore,
are frequently observed in L2 Chinese learners’ oral and written productions. For example, in cases where 可以 kěyǐ should be used, learners often misuse 可能 kěnéng, and vice versa, as illustrated in the examples below.

(1) a. 你可能从生活中学很多东西，当然你还可能从书上和在学校里学到知识。
    Nǐ kěnéng cóng shēnghuó zhōng xué hěnduō dōngxī, dāngrán nǐ hái kěnéng
    you may from life middle study many things, of course you also may
    cóng shū shàng hé zài xuéxiào lǐ xué dào zhīshi.
    from book on and be school in study arrive knowledge.
    ‘You can learn many things from life, and of course you can also acquire a lot of knowledge from books and at school.’

*b. 你游泳的时候可以死。
    Nǐ yóuyǒng de shíhòu kěyǐ sǐ.
    You swim of when can die.
    ‘You may die while swimming.’

Without appropriate pedagogical grammar, L2 learners will not be able to use these Chinese modals correctly based on the English glosses that are also highly polysemous themselves. There is a pressing need for research that can inform pedagogical grammar on modality in Chinese. Armed with theoretical advances in the domain of modality, this study focuses on four modal items in Chinese: 能 néng, 可能 kěnéng, 可 kě, and 可以 kěyǐ.

4 Literature Review on 能 néng, 可能 kěnéng, 可 kě, and 可以 kěyǐ

This section reviews the discussions on 能 néng, 可能 kěnéng, 可 kě, and 可以 kěyǐ in three important books by Wang (1957/2018), Lü (1980/1999), and Li and Thompson (1981). Wang (1957/2018) focuses on the functions of 能 néng, 可 kě, and 可-以 kě-yǐ in ancient times (pre-Qin period, i.e., before 221 BCE). Lü (1980/1999) analyzes the meanings and syntactic features of the four modal markers in modern Chinese. Li and Thompson (1981) direct more attention to discussing the status of 可能 kěnéng, i.e., whether 可能 kěnéng should be classified as a modal verb. It is not controversial that 可 kě and 可以 kěyǐ can function as a modal verb. The modal verb status of 能 néng and 可能 kěnéng has been challenged by the fact that 能 néng and 可能 kěnéng can be modified by intensifiers or adverbs, such as 很 hěn ‘very,’ in certain situations. The discussion in this session will give an overview on how these four modal forms serve different syntactic roles and semantic functions in the Chinese language.

4.1 Wang Li (1957/2018)

Wang (1957/2018) focuses on the early uses of 能 néng, 可 kě, and 可-以 kě-yǐ. He notes that 能 néng originally is a verb which can take an object. Consider the following example.

(2) 非曰能之，愿学焉。（《论语・先进》）
    Fēi yuē néng zhī, yuàn xué yān.
    not say be capable of it/them, willing study YAN.
    ‘I do not say that I am capable of handling them, but I am willing to learn.’

In example (2), 能 néng is a verb taking an object expressed by the pronoun 之 zhī ‘it, them.’ 能 néng as a verb has the sense of ‘to be capable; to have the ability to do something.’

Wang points out that 能 néng can also be used as a modal verb, as shown in example (3).
(3) 事父母，能竭其力；事君，能致其身（《论语·学而》）

Shì fùmǔ, néng jié qí lì; shì jūn, néng zhì qí shēn

serve parents, can exhaust his/her strength; serve ruler, can devote his/her body

‘If, in serving his parents, he can exert his utmost strength; if, in serving his prince, he can devote his life.’ (English translation by James Legge)

In example (3), 能 néng appearing before the verbs 竭 jié ‘exhaust’ and 致 zhì ‘devote’ has the sense of ‘can.’ Wang further claims that in pre-Qin classical texts, the concept of ‘possibility’ is often expressed by 能 néng or 可 kě. Specifically, 能 néng expresses the ‘possibility’ enabled by ability. Unlike 能 néng, when 可 kě denotes the sense of ‘possibility,’ it generally appears in a passive voice construction, as illustrated in examples (4) and (5).

(4) 道不可闻，闻而非也；道不可见，见而非也；道不可言，言而非也。（《庄子·外篇·知北游》）

Dào bù kě wén, wén ér fēi yě; dào bù kě jiàn, jiàn ér fēi yě;
Dào not can hear, hear ER not YE; Dao not can see, see ER not YE;
Dào bù kě yán, yán ér fēi yě.
Dào not can speak, speak ER not YE.

‘The Dao cannot be heard; what can be heard is not It. The Dao cannot be seen; what can be seen is not It. The Dao cannot be expressed in words; what can be expressed in words is not It.’ (English translation by James Legge)

(5) 锲而不舍，金石可镂。（《荀子·劝学》）

Qiè ér bù shě, jīn shí kě lòu.
carve and not give up, metal stone can engrave.

‘If one carves without stop, even metal and stone can be engraved.’

According to Wang, the expression 可 - 以 kě-yǐ in classical texts is different from the disyllabic modal verb 可以 kěyǐ ‘can’ in modern Chinese. In classical grammar, 可 - 以 kě-yǐ, as illustrated in example (6), is a combination of two words 可 kě ‘can’ and 以 yǐ ‘to use.’

(6) 良弓难张，然可以及高入深；良马难乘，然可以任重致远。（《墨子·亲士》）

Liáng gōng nán zhāng, rán kě yǐ jí gāo rù shēn;
good bow hard stretch, but can use reach high enter deep;
liáng mǎ nán chéng, rán kě yǐ rèn zhòng zhì yuǎn.
Good horse hard ride, but can use bear heavy reach far.

‘Good bows may be hard to draw, but one can use them to reach great heights and pierce deeply. Fine horses may be hard to ride, yet one can use them to carry heavy burdens and make long journeys.’

Note that in Chinese, the object of a sentence can be moved to the sentence initial position to be treated as the topic of the sentence and to form a topic-comment structure. In (6), 良弓 liáng gōng ‘good bow’ is the topic of the first sentence, which is also the object of the second clause in the first sentence. Similarly, 良马 liáng mǎ ‘good horse’ is the topic of the second sentence, which is also the object of the second clause in the second sentence.

Wang further notes that there are two differences between 可 kě ‘can’ and 可 - 以 kě-yǐ ‘can use something.’ First, the verb after 可 kě ‘can’ appears in passive voice, whereas the verb following 可 - 以 kě-yǐ exists in active voice. Second, the verb after 可 kě ‘can’ cannot take an object, whereas the verb after 可 - 以 kě-yǐ ‘can use something’ often takes an object. It can be seen that the two descriptions are
related. In a passive voice sentence, the receiver of an action, which usually is the object in an active voice sentence, becomes the subject. Thus, if the verb after 可 kě ‘can’ is in passive voice, there is no object after the verb. Likewise, in active voice, it is common for the verb to take an object. Therefore, if the verb following 可 kě - 以 kě-yǐ ‘can use something’ is in active voice, an object can be expected.

In Wang’s analysis, the distinctions among 能 néng ‘can,’ 可 kě ‘can,’ and 可 kě - 以 kě-yǐ ‘can use something’ were clear-cut and strict in pre-Qin ancient times, with 能 néng ‘can’ for active voice, 可 kě ‘can’ for passive voice, and 可 kě - 以 kě-yǐ ‘can use something’ representing a combination of a modal verb and a verb. However, the functions of these three linguistic forms gradually became mixed together as the language evolved. According to Wang, the modal verb 可 kě - 以 kě-yǐ ‘can’ in modern Chinese was developed later from the construction of 可 kě - 以 kě-yǐ ‘can use something.’

4.2 Lü Shuxiang (1980/1999)

According to Lü (1980/1999), 可 kě ‘can’ as a modal verb has two functions—expressing ‘permission’ or ‘possibility,’ as shown in (7a) and (7b), and conveying the sense of ‘worthiness,’ as shown in (7c).

(7) a. 不可分割
   bù-kě-fēn-gē,
   not-can-divide-cut
   ‘can not be divided; inseparable’

b. 可去可不去
   kě qù kě bú qù
   can go can not go
   ‘can go or not’

(c. 北京可游览的地方不少。
   Běijīng kě yóulǎn de dìfāng bù shǎo.
   Beijing can visit NOM place not few.
   ‘There are many places to visit in Beijing.’ / ‘There are many places that one can visit in Beijing.’

Lü claims that when expressing the sense of ‘permission’ or ‘possibility,’ the modal verb 可 kě ‘can’ is the same as the modal verb 可 kě - 以 kě-yǐ ‘can.’ However, the monosyllabic modal verb 可 kě ‘can’ is mostly used in formal written language, e.g., (7a). When 可 kě ‘can’ is used in spoken language, it only exists in an antithetical construction, e.g., (7b). Moreover, as shown in (7c), 可 kě ‘can’ in the sense of ‘worthiness’ must exist in a “可 kě + verb + 的 de” construction that modifies a noun or in the function of nominalization. Note that in addition to the modal verb function, 可 kě has other functions, e.g., as an adverb emphasizing the tone or forming a question, or as a conjunction word meaning ‘but, however.’ These functions associated with 可 kě are not within the scope of this study and will not be discussed in this paper, although the diachronic development of these functions is worth investigating.

Lü also proposes six senses for the modal verb 能 néng ‘can,’ expressing: (8a) ‘having the ability or condition to do something;’ (8b) ‘being good at doing something;’ (8c) ‘having a certain use;’ (8d) ‘possibility;’ (8e) ‘permission in a particular social context;’ (8f) ‘permission in a particular physical context.’ Below are the corresponding examples for the six senses associated with 能 néng ‘can.’

(8) a. 他的腿伤好多了, 能慢慢走几步。
   Tā de tuǐ shāng hǎo duō le, néng màn màn zǒu jǐ bù le.
   he GEN leg injury good much CRS, can slow slow walk several step CRS.
   ‘His leg injury is much better, and he can walk a few steps slowly.’
b. 他很能团结周围的人。
   Tā hěn néng tuánjié zhōuwéi de rén.
   ‘He really can unite people around him.’

c. 大蒜能杀菌。
   Dàsuàn néng shā jùn.
   ‘Garlic can kill bacteria.’

d. 满天星星，哪能下雨?
   Mǎn tiān xīngxīng, nǎ néng xiàyǔ?
   ‘How can it rain if the sky is full of stars?’

e. 不能只考虑个人，要多想集体。
   Bù néng zhǐ kǎolǜ gèrén, yào duō xiǎng jítǐ.
   ‘One cannot just think about oneself but should think more about the collective.’

f. 这条裙子不能再紧了，再紧就没法穿了。
   Zhè tiáo qúnzi bù néng zài shòu le, zài shòu jiù méi fǎ chuān le.
   ‘The dress cannot be tighter anymore, otherwise there is no way to put it on.’

(Adapted from Lü, 1980/1999)

Lü defines 可能 kěnéng as an adjective and an adverb. As an adjective, 可能 kěnéng ‘possible’ can be used to modify a noun as in (9a). As an adjectival predicate, 可能 kěnéng in (9b) conveys the sense of ‘a possibility to become factual.’

(9) a. 在可能的条件下给予照顾。
   Zài kěnéng de tiáojiàn xià jǐyǔ zhàogù.
   ‘Provide care under possible conditions.’

b. 他临时改变计划，这完全可能。
   Tā línshí gǎibiàn jìhuà, zhè wánquán kěnéng.
   ‘It is entirely possible that he changed his plan suddenly.’

(Adapted from Lü, 1980/1999)

When 可能 kěnéng is used as an adverb, it expresses ‘reckoning’ or ‘possibility.’ Consider examples in (10):

(10) a. 他可能知道这事儿。
   Tā kěnéng zhīdào zhè shìer.
   ‘He may know this.” / “It’s likely that he knows this.’

b. 我想他可能会同意的。
   Wǒ xiǎng tā kěnéng huì tóngyì de.
   ‘I think he probably will agree’
‘I think he **might** agree.’ / ‘I think he **probably** will agree.’
(的 *de* in this sentence is used to add emphasis.)

c. **可能** 大家还记得这件事。
**Kěnéng** dàjiā hái jìdé zhè jiàn shì.
**probably** everyone still remember this CL thing.
‘**Maybe** everyone still remembers this.’
(Adapted from Lü, 1980/1999.)

Note that according to Lü, 可能 *kěnéng* in (10a) is an adverb; however, it also behaves like a modal verb ‘may, might,’ as Chinese modal verbs and adverbs both typically appear before the verb. This issue is not discussed in Lü’s book. Nevertheless, 可能 *kěnéng* in (10c) cannot be a modal verb because it precedes the subject 大家 *dàjiā* ‘everyone,’ which is a position only works for adverbs. The situation in which 可能 *kěnéng* appears right before the modal verb 会 *huì* ‘will’ in (10b), syntactically speaking, can only be analyzed as an adverb as well.

### 4.3 Charles N. Li and Sandra A. Thompson (1981)

To Li and Thompson (1981), 能 *néng* and 可以 *kěyǐ* are modal verbs. Both 能 *néng* and 可以 *kěyǐ* can convey the sense of ‘be able to,’ but 可以 *kěyǐ* can also express the idea of ‘has permission to’ or ‘may.’

Regarding whether we should treat 可能 *kěnéng* in example (10a) as a modal verb, Li and Thompson (1981) offer three reasons why it cannot be classified as a modal verb. First, 可能 *kěnéng* can be modified by intensifiers, such as 很 *hěn* ‘very,’ as in (11).

(11) 他 **很可能** 知道这事儿。

Tā **hěn** kěnéng zhīdào zhè shìer.

‘It’s **very** likely that he knows this.’

*‘He **very** may know this.’*

Li and Thompson believe that auxiliary verbs or modal verbs such as English *may* or *will* cannot be modified by intensifiers, i.e., adverbs such as 很 *hěn* ‘very’ or 更 *gèng* ‘even more.’ However, Lü thinks that some Chinese modal verbs can be modified by intensifiers or adverbs, as shown in example (8b). This points to the potential syntactic differences between English and Chinese modal verbs.

Secondly, Li and Thompson suggest that 可能 *kěnéng* can be nominalized with 的 *de* to form a noun that occurs after 是 *shì* ‘be,’ but a modal verb cannot. For instance,

(12) a. 那种冲突是 **可能** 的。

Nèi zhǒng chōngtū shì **kěnéng** de.

‘That sort of conflicts is a **likely** one.’

*‘That sort of conflicts is **possible**/**probably** one.’*

b. 那种冲突是 **能** 的。

Nèi zhǒng chōngtū shì **néng** de.

‘That sort of conflicts is a **be capable of**/**can** one.’

*‘That sort of conflicts is **be capable of**/**can** one.’*

c. 那种冲突是 **可** 的。

Nèi zhǒng chōngtū shì **kě** de.

‘That sort of conflicts is a **can** one.’

*‘That sort of conflicts is **can** one.’*
It is worth noting that when “是 shì... 的 de” construction is not used to nominalize a phrase but to emphasize a predicate, certain modal verbs can function as the predicate appearing in the “是 shì... 的 de” construction, as shown in (13).

(13) 只要你给金鱼喂食，它们是不会同类相残的，但是如果你长时间不给它们喂食，它们是会会的。

Zhǐyào nǐ gěi jīnyú wèi shí, tāmen shì bù huì tóng-lèi-xiāng-cán de, as long as you give goldfish feed food, they SHI not will be cannibalistic DE, dànshì rúguó nǐ cháng shíjiān bù gěi tāmen wèi shí, tāmen shì huì de. but if you long time not give them feed food, they SHI will DE.

‘As long as you feed the goldfish, they won’t be cannibalistic, but if you don’t feed them for a long time, they will.’

The third reason that 可能 kěnéng cannot be classified as a modal verb is because 可能 kěnéng can occur in a sentence-initial position before the subject, as in (10c). Li and Thompson analyze 可能 kěnéng in this case as an adjectival verb that semantically may take a clause as its subject. Thus, sentence (10c) should be understood as ‘It is likely that everyone still remembers this.’ In contrast, Lü defines 可能 kěnéng in this case as an adverb, and subsequently, sentence (10c) can be interpreted as ‘Maybe everyone still remembers this.’

In summary, the previous studies provide important findings on the various functions and syntactic features of the four lexical words used to indicate modality in Chinese. However, there are several unsettled questions in the literature, such as how to classify 可能 kěnéng, how to understand the situations in which 能 néng and 可能 kěnéng can be modified by intensifiers or adverbs, and how to better describe the differences between 能 néng, 可 kě, and 可以 kěyì. To address these issues, the current study will closely examine their uses in both historical and contemporary corpora and explore the following research questions.

1. How do we understand the situations in which 能 néng and 可能 kěnéng can be modified by intensifiers or adverbs?
2. How do we characterize 能 néng, 可能 kěnéng, 可 kě, and 可以 kěyì, so that they can be learned and used more accurately by L2 Chinese learners?

5 Data Sources

In terms of data, this study takes a usage-based perspective, i.e., investigating linguistic items through real usage events. A usage event refers to “an actual instance of language use, in all its complexity and specificity” (Langacker, 2008, p. 220). Thus, instead of using made-up data, corpus data are used to invoke evidence from actual language use for linguistic analysis. The Analects of Confucius, also known as the Analects (论语, r. 480 BCE-350 BCE), is selected as the data set to study the early uses of 能 néng, 可能 kěnéng, 可 kě, and 可以 kěyì, because as a well-known and well-studied ancient text, the meanings of these words are clear, and its content and language have an enduring linguistic and cultural impact. To my knowledge, no studies have focused on the modality in the text of the Analects. Since the Analects is a small corpus, the four target items were examined in a near-exhaustive fashion. The data for studying the functions of the four target modals in modern Chinese is obtained from the modern Chinese corpus of the Center for Chinese Linguistics (CCL) at Peking University. The CCL corpus is one of the largest corpora of Chinese. It contains 581,794,456 characters. For each of the four target modals, the first token in every 50 tokens in the CCL modern Chinese corpus was examined, and a total of 50 of such tokens were included for analyses.
6 Findings

6.1 Early uses of 能 néng, 可能 kěnéng, 可 kě, and 可以 kěyǐ

In this section, all of the English translations of the examples are adopted or adapted from James Legge’s translations accessed via Chinese Text Project (https://ctext.org/).

6.1.1 Findings on 能 néng in the Analects

Sixty-nine tokens of 能 néng are identified in the text, among which there is one case of 可能 kěnéng. In the Analects, 能 néng is used as a noun meaning ‘ability’ or ‘person with ability,’ as a verb denoting ‘have the ability to do something’ or ‘enable somebody to do something,’ and as a modal verb meaning ‘be able to, can’ and highlighting the agent’s ability in completing the action expressed by the main verb. Based on Bybee et al.’s (1994) framework of modality, this modal verb function of 能 néng belongs to agent-oriented modality. The modal senses represent the most frequently used function of 能 néng, with 49 tokens or 71% of the total uses, followed by the verb senses of 能 néng, with 11 tokens or 15.9% of the total uses, and the noun senses of 能 néng, with 9 tokens or 13% of the total uses. See Table 1 for detailed information.

|            | No. of Tokens | Frequency of Use |
|------------|---------------|------------------|
| noun (13%) | 5             | 7.2%             |
| ‘ability’  |               |                  |
| ‘person with ability’ | 4 | 5.8%         |
| verb (15.9%) | 8         | 11.6%            |
| ‘have the ability to do something’ |               |                  |
| ‘enable somebody to do something’ | 3 | 4.3%         |
| modal v. (71%) | 49         | 71%              |
| ‘be able to, can’ |            |                  |

Here are corresponding examples for the senses and functions associated with 能 néng.

(14) a. 君子病無能焉 (n. ‘ability’)

Jūnzǐ bìng wú néng yān
‘The superior man is distressed by his want of ability.’

b. 以能問於不能 (n. ‘person with ability’)

Yǐ néng wèn yú bù néng
‘Gifted with ability, and yet putting questions to those who were not so’

c. 月無忘其所能 (v. ‘have the ability to do something’)

Yuè wú wàng qí suǒ néng
‘[He], from month to month does not forget what he has the ability to do.’

d. 知及之，仁不能守之；雖得之，必失之。 (v. ‘enable somebody to do something’)

Zhī jí zhī, rén bù néng shǒu zhī;
knowledge attain it/them, virtue not enable conserve it/them;
although gain it/them, must lose it/them.

‘When a man’s knowledge is sufficient to attain, and his virtue is not sufficient to enable him to hold, whatever he may have gained, he will lose again.’

e. 人能弘道, 非道弘人。(modal v. ‘be able to, can’, agent-oriented)

Rén néng hóng dào, fēi dào hóng rén.

‘A man can enlarge the principles which he follows; those principles do not enlarge the man.’

Below is the only instance of 可能 kěnéng in the Analects; however, it is not a single word, but a combination of a modal verb 可 kě and a verb 能 néng.

(15) 孟莊子之孝也, 其他 可能 也; 其不改父之臣, 與父之政, 是難能也。

Mèng Zhuāng Zǐ zhī xiào yě, qítā kě néng yě; he/she not change father of minister, and father of government, is hard achieve YE.

‘The filial piety of Meng Zhuang, in other matters, was what other men can achieve, but, as seen in his not changing the ministers of his father, nor his father’s mode of government, it is difficult to be attained to.’

No tokens of 可能 kěnéng as one word are identified in the Analects (r. 480 BCE-350 BCE). To investigate historic uses of 可能 kěnéng, I extended the analysis to other historical periods after the Analects using the corpus of the Chinese Text Project. In this extended corpus search, no tokens of 可能 kěnéng were found in texts from the Wei, Jin and North-South periods (220 CE-589 CE), and only 4 tokens of 可能 kěnéng were found in texts from the Sui and Tang periods (581 CE-907 CE). I therefore hypothesize that 可能 kěnéng as one word was created much later than 能 néng, 可 kě, and 可以 kěyǐ.

6.1.2 Findings on 可 kě in the Analects

There are over 100 tokens of 可 kě found in the Analects, which include another target word, 可以 kěyǐ. Excluding 可以 kěyǐ, which will be studied separately, the first 100 tokens of 可 kě are examined. As shown in Table 2, 可 kě is mainly used as a modal verb in this particular data set, representing 82% of the total uses of 可 kě. As a modal verb, 可 kě has the sense of ‘may, can’ focusing on the speaker’s attitude or evaluation about the existence of enabling conditions with regard to a particular situation, i.e., speaker-oriented modality. 可 kě in this function often appears in a passive voice sentence (e.g., 16a) or a topic-comment sentence (e.g., 16b).

(16) a. 三年無改於父之道, 可謂孝矣。(passive voice sentence)

Sān nián wú gǎi yú fù zhǐ dào, kě wèi xiào yǐ.

‘If for three years he does not alter from the way of his father, he may be called filial.’

b. 賜也, 始可與言詩已矣! (topic-comment sentence)

Cì yě, shǐ kě yǔ yán shī yǐ yǐ!

‘With one like Ci, I can begin to talk about the odes.’
Table 2

|                        | No. of Tokens | Frequency of Use |
|------------------------|---------------|------------------|
| **modal v. (82%)**     |               |                  |
| passive                | 67            | 67%              |
| active                 | 4             | 4%               |
| topic-comment (passive/active) | 11       | 11%              |
| **verb (phrase) (18%)**|               |                  |
| passive                | 1             | 1%               |
| active                 | 17            | 17%              |

In the *Analects*, 可可 is also identified as a verb which functions as a predicate and expresses a speaker’s attitude or evaluation about a particular situation described in the context. As a predicate, the senses of 可可 depend on context, as shown in (17).

(17) a. 人而無信，不知其可也。(verb)
Rén ér wú xìn, bù zhī qí kě yě.
‘I do not know how a man without truthfulness is to get on.’

b. 聖人，吾不得而見之矣；得見君子者，斯可矣。(verb)
Shèngrén, wú bù dé ér jiàn zhī yǐ;
sage, I not get to see him/her YI;
dé jiàn jūnzǐ zhě, sī kě yǐ.
get see moral man ZHE, then would satisfy me YI.

‘A sage it is not mine to see; could I see a man of real talent and virtue, that would satisfy me.’

In certain contexts, the speaker’s attitude or evaluation can involve permission, as shown in (18).

(18) 颜渊死，門人欲厚葬之，子曰：「不可。」
Yán Yuān sǐ, ménrén yù hòuzàng zhī, Zǐ yuē: “Bù kě.”
‘When Yan Yuan died, the disciples wished to give him a great funeral, and the Master said, “[You] may not do so.”’

6.1.3 Findings on 可以 kěyǐ in theAnalects

There are 33 tokens of 可以 kěyǐ in the Analects, and all of them are modal verbs ‘can, may’ expressing speaker’s attitude or evaluation about the existence of enabling conditions with regard to a particular situation described in the context, i.e., speaker-oriented modality. In contrast with 可可, which appears mainly in a passive voice construction in modal functions, 可以 kěyǐ as a modal verb is more frequently used in an active voice construction (see Table 3).

Table 3

|                    | No. of Tokens | Frequency of Use |
|--------------------|---------------|------------------|
| **modal v.**       |               |                  |
| passive             | 7             | 21.2%            |
| active              | 26            | 78.8%            |
Here are examples of 可以 kěyǐ in an active voice sentence and a passive voice sentence respectively.

(19) a. 温故而知新，可以为师矣。（active voice sentence）
    Wēn gù ér zhī xīn, kěyǐ wéi shī yǐ.
    ‘If a man keeps cherishing his old knowledge, so as continually to be acquiring new, he may be a teacher of others.’

b. 可以託六尺之孤，可以寄百里之命（passive voice sentence）
    Kěyǐ tuō liù chǐ zhī gū, kěyǐ jì bǎi lǐ zhī mìng
    ‘can be entrusted with the charge of a young orphan prince, and can be commissioned with authority over a state of a hundred li’
    (In this sentence, 里 lǐ is a unit of area.)

6.2 Contemporary uses of 能 néng, 可能 kěnéng, 可 kě, and 可以 kěyǐ

6.2.1 Findings on 能 néng in the CCL modern Chinese corpus

There are 902,860 tokens of 能 néng in the modern Chinese corpus of the CCL, which include both 能 néng and 可能 kěnéng. 能 néng will be discussed first, and 可能 kěnéng will be analyzed separately in the next section. Table 4 summarizes the findings on 能 néng.

| 能 néng in the CCL Modern Chinese Corpus | No. of Tokens | Frequency of Use |
|----------------------------------------|--------------|-----------------|
| noun                                   | 17           | 34%             |
| ‘ability, skill, function’             |              |                 |
| 能力、技能、功能、机能、职能、职能     | 1            | 2%              |
| ‘person with ability’                   |              |                 |
| modal                                  | 30           | 60%             |
| ‘can, be able to’ (agent-oriented)     |              |                 |
| 能、能够                               | 1            | 2%              |
| ‘cannot’ (permission)                  | 1            | 2%              |
| others                                 | 1            | 2%              |
| 难能可贵                               |              |                 |

As shown in Table 4, 能 néng in this data set is mainly used as a modal marker meaning ‘can, be able to’ for agent-oriented modality. Notably, this modal function is also played by words formed with 能 néng, such as 能够 nénggòu ‘can-enough, can.’ Here are corresponding examples.

(20) a. 所谓有效，是指行动能满足来访者的需要。
    Suǒwèi yǒuxiào, shì zhǐ xíngdòng néng mànzhù láifǎng zhě de xūyào so-called effective, is refer action can satisfy visitor GEN needs
    ‘The so-called effective means that the action can meet the needs of visitors.’

b. 很难设想一个没有受过系统的学校教育的人能够参加工作和做好工作。
    Hěn nán shèxiǎng yí 个 méi yǒu shòu guò xìtǒng de xuéxiào rén nénggòu cān jiā gōng zuò hé zuò hǎo gōng zuò.
    ‘Hard imagine one CL not receive EXP systematic NOM school education NOM person can participate work and do well job.'
‘It is difficult to imagine that a person who has not received a systematic school education can serve in a position and do a good job.’

As a modal marker, 能 nèng in modern Chinese can also be used to convey the sense of ‘permission,’ i.e., a type of speaker-oriented modality. However, this function is one of the less frequently used functions associated with 能 nèng and is only found in the negative form 不能 bù nèng ‘cannot’ in the data set.

(21) 一定 不能 让我们的青少年作资本主义腐朽思想的俘虏。

Yídìng bù néng ràng wǒmen de qīngshào nián zuò zī běn zhǔ yì fǔ xiū xiǎng de fú lǔ, nà jué duì bú xíng.

‘We certainly cannot allow our young people to be the captives of the decadent ideas of capitalism.’

In modern Chinese, the noun category for ‘ability’ includes several words formed with 能 nèng, such as 能力 nénglì ‘ability,’ 技能 jì néng ‘skill,’ 功能 gōng néng ‘function,’ 生能 jī néng ‘function,’ 职能 zhí néng ‘function, role,’ 智能 zhì néng ‘intelligent,’ etc. 能 nèng as a noun referring to ‘person with ability’ appears in the idiom 选贤任能 xuǎn xián rén néng ‘select the virtuous and appoint the able.’ Additionally, 能 nèng is found to form other words that function like adjectives, e.g., 难能可贵 nán néng kě guì ‘commendable, valuable.’

6.2.2 Findings on 可能 kě néng in the CCL modern Chinese corpus

There are 170,979 tokens of 可能 kě néng in the CCL corpus. The part of speech information for the first three items of 可能 kě néng in Table 5 is left blank, as it is under debate whether 可能 kě néng in these constructions should be considered a modal verb, an adverb, or an adjective. We will revisit this issue in the discussion section.

Table 5

| 可能 kě néng in the CCL Modern Chinese Corpus | No. of Tokens | Frequency of Use |
|---------------------------------------------|--------------|------------------|
| 可能 + verb                                 | 19           | 38%              |
| 不可能 + verb                              | 9            | 18%              |
| 很可能 + verb                              | 1            | 2%               |
| adverb                                      |              |                  |
| 可能 + modal verb + verb                    | 3            | 6%               |
| adjective                                   |              |                  |
| ‘possible’                                  | 9            | 18%              |
| noun                                        |              |                  |
| ‘possibility’                               | 9            | 18%              |

Regardless of whether certain uses of 可能 kě néng should be categorized as a modal verb or not, 可能 kě néng conveys modality, especially epistemic modality, i.e., “possibility, probability, and inferred certainty” (Bybee et al., 1994, p. 179). By using 可能 kě néng, it indicates “something less than a total commitment by the speaker to the truth of the proposition” (Bybee et al., 1994, p. 179). Without 可能 kě néng, the speaker would make a total commitment to the truth of the proposition and sound much certain. Compare the difference in tone between examples (22a) and (22b):

(22) a. 他可能怀有个人仇怨，可是他更加重视国家的利益。

Tā kě néng huáiyōu gèrén chóuyuàn, he may harbor personal grudge,
kěshì tā gèngjiā zhòngshì guójiā de liyi.
but he more value country NOM interest.
‘He may harbor personal grudges, but he cares more about the interests of the Country.’

b. 他怀有个人仇怨，可是他更加重视国家的利益。
Tā huáiyǒu gèrén chóuyuàn, 
he harbor personal grudge, 
kěshì tā gèngjiā zhòngshì guójiā de liyi.
but he more value country NOM interest.
‘He harbors personal grudges, but he cares more about the interests of the country.’

In addition to the disputable modal verb functions, 可能 kěnéng can also function like an adverb meaning ‘probably, possibly,’ when 可能 kěnéng appears before the modal verb 会 huì ‘will,’ as in example (23a). 可能 kěnéng in modern Chinese sometimes serves as an adjective or noun. In example (23b), 可能 kěnéng is an adjective meaning ‘possible,’ which modifies the noun 组合 zǔhé ‘combinations.’ As a noun, 可能 kěnéng ‘possibility’ is found in set phrases such as 有可能 yǒu kěnéng ‘has possibilities’ and 尽可能 jǐn kěnéng ‘exhaust possibilities, try one’s best.’

(23) a. 中央银行向银行体系提供大量的外部流动性 可能会 引发急速上升的通货膨胀。
Zhōngyāng yínháng xiàng yínháng tǐxì tígōng dàliàng wàibù liúdòng xìng kěnéng huì yǐnfā jísù shàngshēng de tōnghuò péngzhàng.
‘The central bank’s provision of large amount of external liquidity to the banking system may trigger rapid inflation.’

b. 11 种颜色 可能的组合在 2000 种以上。
11 zhǒng yánsè kěnéng de zǔhé zài 2000 zhǒng yǐshàng.
‘There are more than 2000 possible combinations of these 11 colors.’

6.2.3 Findings on 可 kě in the CCL modern Chinese corpus

There are 886,015 tokens of 可 kě found in the CCL corpus, which include the other two target words formed with 可 kě, i.e., 可以 kěyǐ and 可能 kěnéng, and a non-target word, 可是 kěshì ‘but.’ Since 可以 kěyǐ and 可能 kěnéng are two of the four target forms, they were analyzed separately and excluded from the study of 可 kě. The word 可是 kěshì ‘but’ was also excluded, as it is outside the scope of this study. Table 6 shows the results.

| Word Formed with 可 kě | No. of Tokens | Frequency of Use |
|-----------------------|---------------|-----------------|
| modal passive         | 21            | 42%             |
| active                | 8             | 16%             |
| passive/active        | 2             | 4%              |
| words formed with 可 kě | 18          | 36%             |

Table 6
可 kě in the CCL modern Chinese corpus
In this modern Chinese data set, 可 kě is mainly used as a modal verb or a component to form other words or set phrases. Notably, as a modal verb, 可 kě largely appears in a passive voice construction, and most of the words or set phrases formed with 可 kě retain a passive voice reading when used in a sentence. Additionally, 可 kě is found to form the “有 + noun + 可 + verb” construction, which also holds a passive voice reading. Here are examples in which 可 kě is used as a modal verb, to form a word/set phrase, and to form the “有 + noun + 可 + verb” construction, respectively.

(24) a. 汉语一般可分为七大方言
Hàn yǔ yībān kě fēn wéi qī dà fāngyán
‘Chinese generally can divide into seven big dialects.’

b. 对于那些仍然要来到的东西才只好认为是不可避免的
Dùì yú nà xiē réngrán yào lái de dōngxī cái zhǐ hǎo rènwéi shì bù kě bì miǎn de
‘For those things that are still coming, [one] has to think that it is inevitable.’

(25) 据《说文解字》的解说和所引小篆字形可知，“幻”字在东汉以前是将“予”字倒写而形成的。
Jù “shuō wén jiě zì” de jiě shuō hé suǒ yǐn xiǎozhuàn zìxíng kě zhī, “huàn” zì zài Dōng Hàn yǐ qián shì jiāng “yǔ” zì dào xiè ér xíng chéng de.
‘According to the explanation of Shuo Wen Jie Zi and the form of the small seal character, we can know that before the Eastern Han dynasty the character “幻” was formed by writing the character “予” upside down.’
writing the character “予 yǔ” upside down.”
(In this example, the “是 shì…的 de” structure is used to emphasize the predicate between “是 shì” and “的 de.”)

6.2.4 Findings on 可以 kěyǐ in the CCL modern Chinese corpus

There are 277,786 tokens of 可以 kěyǐ in the modern Chinese corpus of CCL. The results of the data set used for this paper are summarized in Table 7.

Table 7

| 可以 kěyǐ in the CCL Modern Chinese Corpus | No. of Tokens | Frequency of Use |
|------------------------------------------|---------------|-----------------|
| modal                                   |               |                 |
| ‘can’ (enabling conditions, active)      | 27            | 54%             |
| ‘can’ (enabling conditions, passive)     | 17            | 34%             |
| ‘can’ (enabling conditions, topic-comment)| 1             | 2%              |
| ‘can’ (permission, active)               | 3             | 6%              |
| ‘could’ (possibility, active)            | 1             | 2%              |
| predicate                               |               |                 |
| ‘okay, fine’                            | 1             | 2%              |

In the corpus data of modern Chinese, 可以 kěyǐ is essentially a modal verb meaning ‘can.’ As a modal verb, 可以 kěyǐ ‘can’ mainly expresses the existence of internal enabling conditions in the agent and/or external physical and social enabling conditions with respect to the action described in the sentence (e.g., example [26a]). 可以 kěyǐ, as a modal verb, is also found to express the senses of ‘permission’ and ‘possibility,’ as shown in examples (26b) and (26c) respectively. The ‘permission’ sense associated with 可以 kěyǐ comes from external social enabling conditions. However, instead of using 可以 kěyǐ, the ‘possibility’ sense in [26c] might be better expressed by 可能 kěnéng. In addition to the modal verb function, 可以 kěyǐ is also used as a predicate meaning ‘okay, fine,’ as illustrated in example (26d).

(26) a. 经过上面简要的分析，我们 可以 对什么是教育进行科学的说明了。
Jīngguò shàngmiàn jiǎnyào de fēnxī, wǒmen kěyǐ
duì shénme shì jiàoyù jìnxíng kēxué de shuōmíng le.
‘After the brief analysis above, we can make a scientific explanation of what education is.’

b. 儿子 可以 不和你商量卖掉那块土地吗?
Ěrzǐ kěyǐ bù hé nǐ shāngliáng mài diào nà kuài tǔdì ma?
‘Can your son sell that piece of land without discussing with you?’

(c. 他们所处不利社会地位招致的无形的、不确定的、无限制的、随时 可以 遭遇到的 各种无情的剥削
Tāmen suǒ chǔ búlì shèhuì dìwèi zhāozhì de wúxíng de, wúquèdìng de, wúxiànzhì de, suíshí kěyǐ zāoyù dào de

ma is a sentence final particle to form a question.)
uncertain NOM, unrestricted NOM, at any time can encounter NOM
gè zhòng wúqíng de bōxuē various kind relentless NOM exploitation
‘the various intangible, uncertain, unrestricted and relentless exploitation that they can encounter at any time due to their disadvantaged social status’
d.只要你觉得画和看到的不一样就可以了。Zhǐyào nǐ juédé huà hé kàndào de bù yíyàng jiù kěyǐ le.
as long as you feel painting and see NOM not same then fine CRS.
‘As long as you feel the painting is different from what you see, it is fine.’

7 Discussions

The study’s first research question asked how to understand the situations in which 能 nèng and 可能 kěnéng can be modified by intensifiers or adverbs. While Lü (1980/1999) claims that some Chinese modal verbs can be modified by adverbs (e.g., 很能 hěn nèng ‘lit. very can, really can’ in example [8b]), Li and Thompson (1981) argue the opposite. Then, can 能 nèng, 可能 kěnéng, 可 kě, and 可以 kěyǐ all be classified as modal verbs in modern Chinese? The diachronic corpus data analysis suggests that all of the four linguistic items can convey modality. It is not controversial in the literature that 可 kě and 可以 kěyǐ can function as a modal verb. Although 能 nèng and 可能 kěnéng can be modified by intensifiers or adverbs in certain cases, this modification is optional. When 能 nèng and 可能 kěnéng are not modified by adverbs while appearing in a modal verb position in a sentence, their modal senses and syntactic features may qualify them as modal verbs. The phenomenon where 能 nèng and 可能 kěnéng can be modified by adverbs in certain cases while appearing in a modal verb position might be a result of the considerable roles that 能 nèng plays as a main verb in classical Chinese and 可能 kěnéng plays as an adjective in modern Chinese, as it is common for verbs and adjectives to be modified by adverbs.

The controversial 能 nèng in example (8b) conveys agent-oriented modality. Bybee et al. explicitly point out that agent-oriented modality is not considered a modality in many frameworks, as it belongs to the propositional content of the clause. However, agent-oriented modality is an important part of Bybee et al.’s framework. They claim “these modal senses are the diachronic sources of most senses that do qualify as modality” (Bybee et al., 1994, p. 177) in other frameworks. From this agent-oriented modality, 能 nèng has developed the modal function of expressing permission (i.e., speaker-oriented modality) in modern Chinese. The development of the modal functions associated with 能 nèng is in line with the paths of development for modalities proposed by Bybee et al. However, the permission function associated with 能 nèng is less frequently used (2% of the total uses of 能 nèng in the modern Chinese data of CCL) and mostly appears in the negative construction of 不能 bù nèng ‘cannot.’ The agent-oriented modality associated with 能 nèng remains the dominant or the most frequently used function of 能 nèng from ancient times (71% of the total uses of 能 nèng in the Analects) to today (60% of the total uses of 能 nèng in the modern Chinese data of CCL).

In addition to 能 nèng, 可能 kěnéng can also be modified by an intensifier or adverb. According to the results of the CCL modern Chinese corpus analysis, 可能 kěnéng is the most flexible in terms of linguistic functions among the four target items. 可能 kěnéng can be used as a noun meaning ‘possibility,’ as an adjective meaning ‘possible,’ before a modal verb, or before a verb expressing epistemic modality. Epistemic modality represents the degree of the speaker’s commitment to the truth of the proposition (Bybee et al., 1994). The epistemic modality conveyed by 可能 kěnéng is that the proposition may possibly be true. It was found that 3.4% of the instances of “可能 kěnéng + verb” were modified by intensifiers (e.g., 很 hěn ‘very’). When 可能 kěnéng is modified by an intensifier, it behaves more like an adjectival predicate that takes the verb clause as its subject.
For example, 他很可能已经到中国了 Tā hěn kěnéng yǐjīng dào zhōngguó le ‘It is very possible that he has already arrived in China.’ However, when 可能 kěnéng is not modified by intensifiers in the construction of “ 可能 kěnéng + verb”, the modal senses and syntactic features suggest a modal verb interpretation for 可能 kěnéng. This may indicate that 可能 kěnéng is in the process of grammaticalization from an adjectival verb to modal verb. In Chinese, an adjectival verb can be used as the main verb in a sentence. It is commonly accepted that one path of historical evolution of modals is from main verbs to modals (Langacker, 1991).

Additionally, the word 可能 kěnéng is formed by 可 kě, highlighting speaker-oriented modality and 能 néng, focusing on agent-oriented modality, and was created long after the establishment of the modal functions of 可 kě and 能 néng. This may suggest that the epistemic modality expressed by 可能 kěnéng is built on top of agent-oriented modality and speaker-oriented modality. Thus, the general paths of development for modalities proposed by Bybee et al. (1994) may be modified as follows to reflect the specific features of Chinese.

Diagram 3

Development Path for Epistemic Modality in Chinese—the case of 可能 kěnéng

Another challenging question is the differences between 能 néng, 可能 kěnéng, and 可以 kěyǐ in modern Chinese. This is related to the second research question: How do we characterize 能 néng, 可能 kěnéng, 可 kě, and 可以 kěyǐ so that they can be learned and used more accurately by L2 Chinese learners? The corpus data analysis shows that unlike 能 néng, focusing on agent-oriented modality, and 可能 kěnéng, indicating epistemic modality, 可以 kěyǐ highlights the enabling conditions for an agent to perform an action. If the enabling conditions are imposed by the speaker, it constitutes speaker-oriented modality (Bybee et al., 1994), that is, the ‘permission’ sense associated with 可以 kěyǐ. Diagram 4 shows the relationship among 能 néng, 可能 kěnéng, and 可以 kěyǐ in modern Chinese. Although each word highlights a different type of modality, there are overlaps. Namely, there are no clear boundaries among the three types of modality. There are prototypical cases for each type, and bordering cases, e.g., example (26c) discussed above. Relating to the teaching and learning of these modal items in CFL classrooms, Table 8 further illustrates the differences between the three types of modality and between the prototypical and bordering cases for each type, provided with simple sentences that most beginning-to-intermediate-level learners of Chinese can understand.

Diagram 4.

The Relationship Between 能 néng, 可能 kěnéng, and 可以 kěyǐ in Chinese Modality
In addition to 能 néng, 可能 kěnéng, and 可以 kěyǐ, there are other words or linguistic forms that can express modality in Chinese. 可 kě has been used to convey modality in Chinese since ancient times, but it is not commonly taught in Chinese as a foreign language classes. One possible reason is that, as shown in the analysis of the diachronic corpus data, 可 kě occurs mostly in passive voice construction, while modern Chinese tends to avoid using passive voice. Moreover, in modern Chinese, 可 kě often occurs in set phrases (see Table 6), such as 不可或缺 bùkěhuòquē ‘indispensable,’ 高不可攀 gāobùkěpān ‘unattainable,’ 无利可图 wúlìkětú ‘unprofitable,’ 由此可见 yóucǐkějiàn ‘it can be seen that,’ etc. It is therefore not of priority to extract 可 kě from these set expressions and teach it to learners as a marker expressing modality.

### 8 Conclusion and Implications for Teaching

I have examined 能 néng, 可能 kěnéng, 可 kě, and 可以 kěyǐ using diachronic corpus data. Among the four target linguistic forms, 可能 kěnéng is only identified as one word in later time periods (about Sui and Tang, 581 CE-907 CE), while the other three words have been used as modal verbs since the pre-Qin period (i.e., before 221 BCE). This study posits that 可能 kěnéng is in the process of grammaticalizing from an adjectival verb to a modal verb. Moreover, the findings in the corpus data show that 能 néng, 可能 kěnéng, and 可以 kěyǐ represent three types of modality—agent-oriented modality, epistemic modality, and enabling conditions/speaker-oriented modality, respectively. The boundaries of the three types of modality represented by 能 néng, 可能 kěnéng, and 可以 kěyǐ overlap with each other. This categorization has implications for teaching and learning Chinese modality. First, using English glosses to show the overlaps between the three types of modality can be confusing. For example, the Chinese L2 textbook Integrated Chinese (Liu et al., 2017) glosses 能 néng, 可以 kěyǐ, and 可能 kěnéng with ‘can, be able to,’ ‘can, may’ and ‘may,’ respectively. This is not helpful for differentiating their meanings and functions. The focus should be turned to the non-overlapping parts of the three types of modality, which requires teaching and learning activities that can raise learners’ awareness of the differences between the

| Prototypical examples | Bordering examples | Enabling conditions / Speaker-oriented modality (focusing on the speaker’s evaluation of the enabling conditions of an event or the speaker’s directives) | Agent-oriented modality (focusing on the conditions on the agent to complete an event) |
|-----------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| 这个聚会我能来。       | 他可能帮上忙吗？    | 我们可以开始上课了。                                                                                                         | 我要一杯可乐，可以吗？                                           |
| 我要一杯可乐，可以吗？| 他可以帮上忙吗？    | 这套公寓可能对他很合适。                                                                                            | 这套公寓可能对他很合适。 |
| 他可能帮上忙吗？      | 他可能帮上忙吗？    | 今天的考试可能比较难。                                                                                         | 今天的考试可能比较难。 |
| 学生也可能自己决定。 | 学生也可能自己决定。| 天气挺好的，怎么能下雨？                                                                                 | 天气挺好的，怎么能下雨？ |
|                       |                     | 虽然不常见到，但真的可以说错、写错、看错、听错。                                                             | 虽然不常见到，但真的可以说错、写错、看错、听错。 |

### Table 8

**Prototypical and Bordering Examples for the Three Types of Modality**

**Prototypical Examples**

| Prototypical examples | Bordering examples | Enabling conditions / Speaker-oriented modality (focusing on the speaker’s evaluation of the enabling conditions of an event or the speaker’s directives) | Agent-oriented modality (focusing on the conditions on the agent to complete an event) |
|-----------------------|--------------------|--------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| 这个聚会我能来。       | 他可能帮上忙吗？    | 我们可以开始上课了。                                                                                                         | 我要一杯可乐，可以吗？                                           |
| 我要一杯可乐，可以吗？| 他可以帮上忙吗？    | 这套公寓可能对他很合适。                                                                                            | 这套公寓可能对他很合适。 |
| 他可能帮上忙吗？      | 他可能帮上忙吗？    | 今天的考试可能比较难。                                                                                         | 今天的考试可能比较难。 |
| 学生也可能自己决定。 | 学生也可能自己决定。| 天气挺好的，怎么能下雨？                                                                                 | 天气挺好的，怎么能下雨？ |
|                       |                     | 虽然不常见到，但真的可以说错、写错、看错、听错。                                                             | 虽然不常见到，但真的可以说错、写错、看错、听错。 |

**Bordering Examples**

**Agent-oriented modality** (focusing on the conditions on the agent to complete an event)

**Enabling conditions / Speaker-oriented modality** (focusing on the speaker’s evaluation of the enabling conditions of an event or the speaker’s directives)

**Epistemic modality** (focusing on possibility or probability of an event)
three types of modality. Helping learners understand the essential features of the three types of modality represented by 能 nèng, 可能 kěnéng, and 可以 kěyǐ can help them select the most appropriate word to use based on the situation and the modality to be expressed. Second, syntactic analysis and frequency information might be useful in dealing with overlaps or bordering cases in teaching. For example, to express the speaker-oriented modality ‘permission,’ both 可以 kěyǐ and 能 nèng can be used. However, the use of 能 nèng in this function is less frequent (2% of the total uses of 能 nèng in the CCL data set), compared with the use of 可以 kěyǐ (6% of the total uses of 可以 kěyǐ in the CCL data set), and mainly occurs in the negative form 不能 bù nèng ‘cannot.’ Another example is that although 可以 kěyǐ can be used to indicate the epistemic modality ‘possibility,’ this function is extremely limited, representing only 2% of the total uses of 可以 kěyǐ in the corpus data. The majority of the modal uses of 可以 kěyǐ focus on the enabling conditions. Thus, when teaching Chinese modality, teachers can incorporate the frequency information and suggest that the learners should not consider 可以 kěyǐ as the first choice to express ‘possibility.’ As Verspoor and Tyler (2009) point out, it is necessary to inform teaching by collecting usage-based information about how native speakers choose among an array of linguistic resources to convey a particular perspective, and how these resources are conventionally used to create a particular interpretation. They suggest, “Taking a usage-based perspective might help students realize that even though their word choice, sentence structure, or essay organization may not be incorrect in a technical sense, it may vary enough from the target L2 prototype” (Verspoor & Tyler, 2009, p. 169).

This study has several limitations. First of all, most of the well-preserved and available pre-Qin (before 221 BCE) texts are philosophy works. The Analects (论语, r. 480 BCE-350 BCE) and other texts used to study the early uses of the target linguistic forms are restricted to literary-philosophical discussions, as compared to the various types of genres available in the modern CCL corpus. Secondly, this study did not explore the relationship between modality and temporality. Specifically, the following questions are worth pursuing: Is the ‘possibility’ marker 可能 kěnéng predisposed to a future time reference when no other time reference is present? How does the use of 能 nèng, 可能 kěnéng interact with the use of 会 huì ‘can, will’? Do the four target words 能 nèng, 可能 kěnéng, 可 kě, and 可以 kěyǐ interact with time references in the same way? If not, what do the differences suggest, and how can the finding be utilized in promoting more accurate teaching and learning of Chinese modality? Answers to these questions will advance research on Chinese modality to higher levels and benefit the teaching and learning of modality in CFL classrooms.

Abbreviations

ASSOC = associative
CL = classifier
CRS = current relevant state (了 le)
GEN = genitive
NOM = nominalizer

Annotations

焉 yān: a sentence-final particle expressing affirmation. (Examples 2, 14)
而 ér:
1. a grammatical maker expressing an assumption. (Example 4)
2. a conjunction meaning ‘and.’ (Example 5)
3. a conjunction connecting an adverbial element to a verb. (Example 25)

也 也
yě:
1. a sentence-final particle denoting affirmation. (Example 4)
2. a sentence-final particle indicating a judgement. (Examples 15, 17)
3. a particle used in the middle of a sentence, marking off a sentence element about which there is to be a statement. (Example 16)

所  suǒ: a structural particle forming a nominal construction. (Examples 14, 25, 26)

矣  yǐ: a sentence-final particle, similar to le. (Examples 16, 17, 19)

者  zhě: a particle after a word, phrase or clause to mark a pause, as in giving definitions or comments. (Example 17)

将 jiāng: a preposition used in the same way as bǎ. (Example 25)

Note
1. The examples from the Analects are in traditional Chinese characters in accordance with the original forms of the characters in the book. The examples from the modern Chinese corpus of CCL are in simplified Chinese characters.

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汉语中的“能”、“可能”、“可”和“可以”——基于历时语料库的用法探析

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摘要
这项研究分析与中文情态相关的四个表达形式：“能”、“可能”、“可”和“可以”。它们在语义上有相似之处，对以汉语为第二语言的学习者构成巨大挑战。通过研究历时语料，本研究发现“能”、“可能”和“可以”的功能大致分为三类：“能”表达以行为者为导向的情态；“可能”表达认知判定情态；“可以”表达使能条件或以说话人为导向的情态。这三种类型的边界划分有重叠之处，因此，对以汉语为第二语言的学习者而言，选择最恰当的表达形式具有挑战性。“可”由于其独特的句法特征，例如存在于被动语态结构和固定短语中，而需要特殊对待。本研究结果有助于更准确地教授和学习这四个情态词。

关键词
情态，中文情态标记，语料库，历史发展，类型

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