

Possibility modals in Late Archaic Chinese and the morpho-syntax of their complements: a view from First Phase Syntax

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Abstract: This chapter explores possibility modals in Chinese, unraveling the morpho-syntax of their complements through the lens of First Phase Syntax. In our analysis, we concentrate on the syntactic differences between the two basic possibility modals *kě* 可 and *néng* 能 in Late Archaic Chinese. We propose that although both modals are dynamic possibility modals hosted in the lexical layer, they differ in their syntax and in the event structure of the complement they select. The default complement of *kě* always refers to a result state and is unaccusative; in order to introduce the external argument of the complement verb, the functional morpheme *yǐ* 以 is required heading the causing event. By contrast, the default subject of a modal predication with *néng* is a causer or agent. We suggest that the morpho-syntactic changes within VP during the Early Middle Chinese period led to the weakening of the constraints on the complement of *kě* and the loss of overt marking of the *res*-head by affixation.

Keywords: Archaic Chinese, possibility modals, syntax, event structure, First Phase Syntax

1 Introduction

This paper discusses the syntactic differences between the two basic possibility modals *kě* 可 (with its variant *kěyǐ* 可以) ‘possible, can’ and *néng* 能 ‘able to, can’ of Late Archaic Chinese (LAC) (5th – 3rd c. BCE) within the framework of Ramchand’s (2008, 2016) First Phase Syntax. We propose that although both modals are dynamic possibility modals hosted in the lexical layer in the same position with respect to epistemic modals, tense, and aspect, they differ in the event structure of the complement they select. The default complement of *kě* is unaccusative, referring to a result state; the internal argument of the complement verb of *kě* has to appear in subject position. In order to introduce the external argument of the complement of *kě*, the functional morpheme *yǐ* 以, analyzed as head of an applicative phrase in Aldridge (2012), has to follow *kě*. This constraint does not exist for *néng*, which by default requires a causer or agent subject. In Early Middle Chinese (EMC) (2nd c. BCE- 2nd c. CE), the syntactic (and the semantic) distinctions between *kě* and *néng* start to disappear; i.e., the constraint on the complement of *kě* weakens and *YI* becomes less mandatory. We

propose that this is connected to the morpho-syntactic changes within VP during this period and the loss of overt marking of RESULT by affixation, due to which the difference between [+res] and [-res]-verbs becomes opaque. The examples in (1a-c) demonstrate the constraint on the complement of *kě* in LAC and its weakening in EMC. The example (1d) with the modal *néng* demonstrates that the applicative head YI does not have any effects on the argument structure of the complement verb of *néng*, it merely adds an applicative phrase to vP. This constraint will be discussed in more detail below.

- (1) a. 匹夫 猶 未 可 動，
Pǐfū yóu wèi kě dòng
Commoner still NEG_{asp} KE move
而 況 諸侯 乎！
ér kuàng zhūhóu hū
CON rather feudal.lord SFP
‘If even a commoner cannot be moved, much less can a feudal lord!’
(*Zhuāngzǐ* 4.2.1, LAC)
- b. 子犯 知 齊 之 不 可 以 動。
Zǐ Fàn zhī Qí zhī bù kě yǐ dòng
Zi Fan know Qi GEN NEG can YI move
‘Zi Fan knows that Qi cannot move.’ (*Guoyu Jinyu*, LAC)
- c. 臣 愚 以為 可 賜 爵
Chén yú yǐwéi kě cì jué
1SG stupid assume can bestow rank
關 內 侯，
guān nèi hóu
pass inner marquis
‘I am stupid, but I assume that you can / should bestow upon him a position and make him marquis of Guannei, ...’ (*Hanshu* 36: 1947, EMC)
- d. 能 以 禮 讓 為 國 乎？
Néng yǐ lǐ ràng wéi guó hū
NENG APPL rite yield make state QSFP
‘Will he (the prince) be able to rule the state with the proper rites and behavior?’ (*Lunyu, Li ren*, LAC)

We propose that the syntactic differences between the two basic possibility modals of LAC, *kě* and *néng*, extend to the selectional restrictions regarding their complements: both modals select full *v*Ps, i.e., VPs in the sense of Ramchand (2008), which maximally consist of three projections, an *Init(iation)*P, a *Proc(ess)*P, and a *Res(ult)*P. The required projections of the complement verb of *kě* are *proc*P and *res*P, whereas the required projections of the complement of *néng* are *init*P and *proc*P. In order to maintain the original argument structure of the complement of *kě*, i.e., to introduce the external argument, the functional head YI has to be inserted as the head of *init*P, similar to *v* in e.g., Hale and Keyser (1993) and subsequent work. When *néng* is followed by an YIP, this has its default applicative function, e.g., introducing an instrument.

Despite the fact that the two modals *kě* and *néng* differ considerably in their syntactic constraints, they both belong to the category of circumstantial modals, hosted in the lexical layer, the position of Modal2 (Coupé & van Kemenade 2008, Meisterernst 2020a). Following Hale and Keyser (1993) and Butler (2004), Coupé and van Kemenade (2008) propose two modal positions for Dutch, one in TP and one in *v*P; these can be seen in (2). Meisterernst (2020a) follows a proposal in Cormack and Smith (2002) using the scope of negation for the distinction between a Modal1 in the TP layer, hosting deontic modality, and a Modal2 in the lexical layer, hosting dynamic/circumstantial modality (see also Tsai 2015).

(2) [TP [**modal1** [*v*P Subject *v* [**modal2** [*Root*P Object Root]]]]] (Coupé & van Kemenade 2008: 7, ex. (16))

The distinction into two syntactically different modals, Mod1 and Mod2, corresponds to the cartographic hierarchy in Cinque (1999, 2004) according to which necessity modals precede possibility modals as in (3a). For LAC, we propose an adjusted cartography with a reduced number of functional projections in the TP or TAM (TenseAspectModality) domain as in (3b). The modals at issue in this paper are hosted in the lowest domain following epistemic adverbs such as *bì* 必 ‘certainly’, any of the possible markers in the TAM domain, *wh*-adverbials in both rhetorical and real questions, the latter referring to a manner or instrument, and they also follow negation.

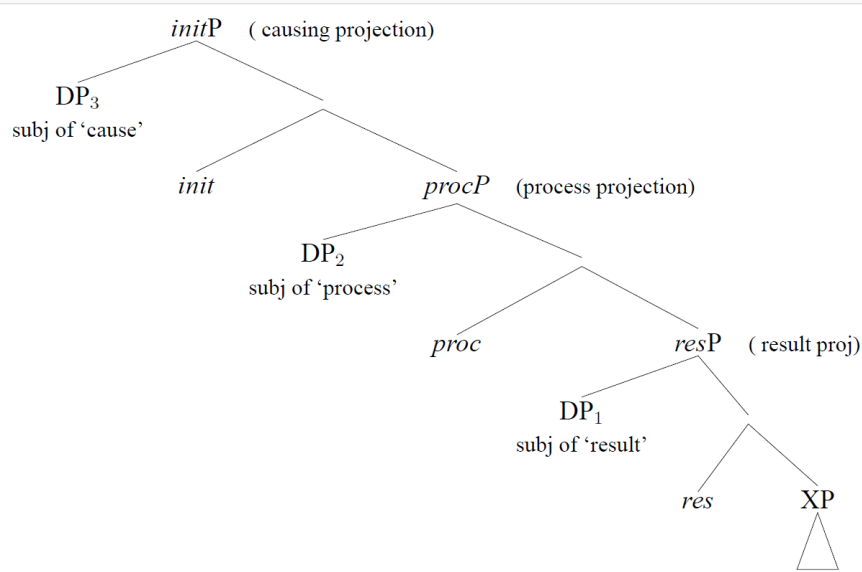
- (3) a. Mod_{epistemic} T(Past) T(Future) Mood_{irrealis} Mod_{necessity} Mod_{possibility} ... Mod_{root}
(cf. Roberts and Roussou 2002: 33)
- b. Mod_{epistemic} BI > TAM (fut *jiāng*/Asp/Mod_{deontic}) > PolRQ/Op_{NEG} > Modifier
how > Mod_{circumstantial}

Within the domain of circumstantial/ dynamic modality (Mod2), different shades of possibility are attested ranging from participant-external possibilities to participant-internal ability (v.d. Auwera & Plungian 1998). In LAC, these are represented in the semantics of *kě* (yǐ) and *néng*, respectively. *Kě* (yǐ) predominantly expresses participant-external root possibility values. *Néng*, on the other hand, basically expresses participant-internal ability. The semantics of both modals are directly reflected in their differences in syntax and in the event structure of the complements they select. Since *kě* in its original construction does not license a causer or initiator in its complement, an external source must enable the realization of the modalized event. In contrast, *néng* requires an agent or cause of the modalized event, i.e., an *Init(iation)P*; the enabling conditions of the event are participant-internal; this is the default feature of ability modals. The examples (1a) and (1d) demonstrate this difference: *kě* in (1a) expresses a possibility depending on external circumstances and conditions, whereas *néng* in (1d) expresses an ability internal to a volitional agent.

2 The Framework: Ramchand's First Phase Syntax

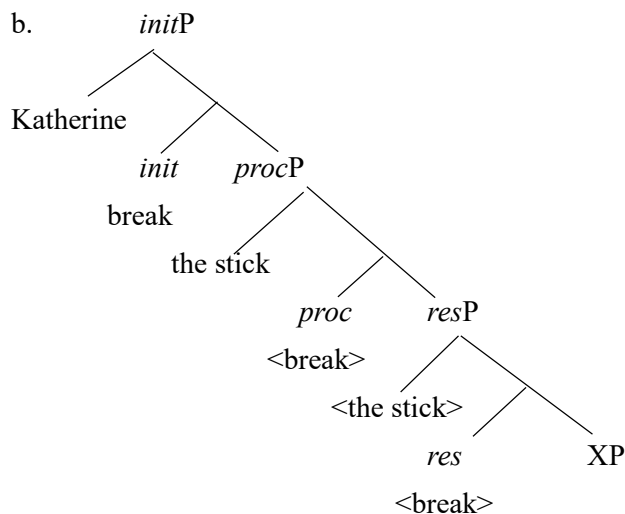
Before discussing the different syntactic constraints of the two possibility modals, we briefly introduce the claims made in Ramchand's (2008) First Phase Syntax, which are relevant in the present context. Ramchand (2008) provides a syntactic account of the telicity features of verbs, for which she distinguishes three different participant roles: 1) the Initiator, which is the direct argument related to the causing subevent (when it exists); 2) the Undergoer, which is the direct argument related to the process subevent; and 3) the Resultee, which is the direct argument related to the result state (when it exists) (Ramchand 2008: 33). The realization of these participant roles determines the aspectual features of *vP*, *VP* in her terminology. But not all potential arguments of predicates can be subsumed under this classification. This includes the arguments of stative verbs which do not affect the aspectual interpretation of the verb, and *PP* arguments which do not belong to the core arguments; these too have to be included in a typology of "the ingredients in the building up of the core event" (idem). In Ramchand's approach the grammatically relevant information comes from the interpretation of the syntactic structures the verbs participate in (Ramchand 2008: 38). This more explicitly accounts for the semantics of the respective event structures than previous approaches (Ramchand 2008: 39). The resulting event structure syntax contains three important sub-evental components: 1) a causing subevent, 2) a process denoting subevent and 3) a result state subevent. Each of these subevents is represented as its own projection, ordered in a hierarchical embedding relation (Ramchand 2008: 39).

(4)



According to Ramchand's definition, *initP* introduces the external argument in the outer causational projection, similar to *v* in e.g., Hale and Keyser (1993), Harley (1995), Kratzer (1996). The dynamic process is represented by *procP* (for process), and the result is represented by *resP*. In First Phase Syntax the category V is split into several projections, representing the maximal components which can contribute to it; however, importantly, not all of the projections have to be present in a verb. This accounts for the respective core argument roles of the event, providing a specifier position for the 'subject' or 'theme' of each subevent. The content of the event is provided in the complement position. Each subevent is itself complex and contains 'another 'mini-predication' with its own specifier and complement' (Ramchand 2008: 40). An example of a transitive *res* verb is in (5). In this example, the DP object represents both the undergoer and the resultee. The XP can be filled by a final result, or by a final location. In an unaccusative, the *init* head would not be available.

(5) a. Katherine broke the stick. (cf. Ramchand 2008: 75)



For verbs with a *res* head, which are relevant in the ensuing discussion on *kě*, Ramchand (2008) provides the following diagnostics.

- a) Resultant state or location PPs: describing the final location or final result of the RESULTEE-UNDERGOER in a dynamic event (Ramchand 2008: 75).
- b) Incompatibility with ‘for an hour’ in English (Ramchand 2008: 76). This constraint does not account for Chinese which allows durational adverbials with resultant states (Ernst 1987, Meisterernst 2015, 2023), but it can still provide evidence for a result reading.
- c) Anchoring of the event structure to tense (Ramchand 2008: 77f): a single lexical item identifies both *proc* and *res*, the event expressed is punctual. The verb identifies both an initiational state and the result state.

In a *res*-verb all three subevents must be interpreted as overlapping; the verb carries all three features on one lexical item and the process portion is reduced to a single instantaneous change. According to this definition, achievement verbs in Vendler (1967) have only one tense specification (2008: 78). Although Ramchand (2008: 40) assumes that *procP* is present in every dynamic verb, independent of the number of transitions, and including processes limited to one single minimal transition, in punctual verbs, both the *proc* and the *res* eventuality overlap and collapse into one single point on the time line. According to Ramchand (2008: 44) both “the initiation eventuality and the result eventuality are states ... in the *res* position, the state introduced by that head is interpreted as being causally implicated by the process.”

3 The modals of possibility *kě* and *néng*

The possibility modals *kě* and *néng* in LAC and EMC have been comprehensively discussed in the linguistic literature (e.g., Liu 2000; Li 2001; Peyraube 1999; Meisterernst 2008, 2019; Wu 2012). Semantically, they differ in that *kě*(*yǐ*) predominantly expresses circumstantial possibility, but also aptitude and permissibility; i.e., mainly participant-external values following van der Auwera and Plungian's (1998) terminology, whereas *néng* basically expresses participant-internal ability. This difference can be seen in (6a) with *kě* and in (6b) with *néng*.

- (6) a. 然 則 東 國 必 可 得 矣
 Rán zé dōng guó bì kě dé yǐ
 So then east land certainly can get SFP
 ‘.. and so the country in the east can certainly be obtained.’ (*Shiji*: 40, 1728, EMC)
- b. 事 父 母 能 竭 其 力
 Shì fù mǔ néng jié qí lì
 Serve father mother able exhaust POSS strength
 ‘In serving his parents, he is able to exhaust his strength, ...’
 (*Lunyu, Xue er*, LAC)

The most conspicuous difference between the two modal auxiliaries is that *kě* is a typical raising verb, which does not select a subject of its own, whereas *néng* is a control verb; i.e., the subject of *néng* and the subject of the embedded verb are identical.¹ Additionally, the subject of *néng* is agentive and volitional, whereas the default subject of *kě* + verb phrase is the theme of the complement verb.

3.1 The modal *kě*(*yǐ*)

In this section we briefly discuss the differences between *kě* and *kě yǐ* and propose a new analysis of YI as the head of an *initP* in the sense of Ramchand (2008). With *kě* alone, the internal argument of an originally transitive complement verb appears in subject position; i.e., the subject always has the role of theme as in example (7a). This resembles the passive construction with English *can*, which is employed “when the speaker cannot presuppose the willingness of the subject to carry out the proposition”

¹ In general, a correspondence of control and raising constructions to root or epistemic readings of modals is difficult to assume for Chinese (Lin and Tang 1995).

(Coates 1983: 96, see also Pulleyblank 1995). This does not necessarily account for Archaic Chinese as can be seen in example (6a). In (7b) with YI following *kě*, the transitive structure of the complement verb *dìng* ‘establish’ is retained and the internal argument appears in its default postverbal position.

- (7) a. 「社 稷 可 定 乎？」
 Shè jí kě dìng hū
 Earth.god Millet.god KE pacified QSPF
 ‘Can the gods of the earth and the millet be pacified.’ (*Guanzi, Da Kuang*, LAC)
- b. 官 四 分，
 Guān sì fēn
 Office four divide
 則 可 以 定 威 德
 zé kě yǐ dìng wēi dé
 then KE YI establish respect virtue
 ‘When the offices are divided in four ways, then one can establish respect and virtue.’ (*Guanzi, Bingfa*, LAC)

In addition to transitive verbs, intransitive and state verbs can appear in the complement of *kě*. Without the addition of the functional head YI, they are first coerced into a transitive reading, state verbs are coerced into a dynamic reading.² Subsequently, the internal argument of the derived transitive verb moves up to subject position; the original state or unergative verb becomes unaccusative.

The morpheme YI has multiple functions including those as a lexical verb ‘lead’ in Pre-Archaic and Archaic Chinese (AC) (14th – 3rd c. BCE), and as a lexical verb ‘use’ in LAC (Djamouri 2009: 8). According to Djamouri, YI also functions as a preposition

² Sometimes the comitative preposition/light verb *yǔ* 與 follows *kě*, which functionally differs considerably from YI. Whereas YI introduces the external argument, *yǔ* introduces a comitative adjunct and not the external argument; *kě* remains unaccusative (see also Unger 2019). It only appears in combination with verbs such as *yán* 言 ‘speak’ which permit a comitative adjunct in their argument structure. Accordingly, *yǔ* is less grammaticalized.

- i. 不 仁 者 可 與 言 哉？
 Bù rén zhě kě yǔ yán zāi
 NEG benevolent REL can YU talk SFP
 ‘Those who are not benevolent, can they be talked with?’
 (*Mengzi* 48A, LAC)

from Early Archaic Chinese (EAC) (10th – 6th c. BCE) on. Contrastingly, Aldridge (2012) analyzes YI as applicative head. In this discussion, we propose that the YI following *kě* is different from the applicative YI, and that its sole function is to license the external argument and to add a causing projection (*initP*) to the event structure of the complement verb of *kě*. Following the insertion of YI the internal argument has to remain in its local domain, since the position of the subject is already occupied by the external argument introduced by YI. This is shown in the (almost) minimal pairs from LAC in example (8). Aldridge (2019) shows that only one DP can move to the specifier of CP, where it receives nominative case. Based on examples such as (8a-c), *kě* has sometimes been characterized as a passivizing morpheme in the literature, but this does not explain the modal functions of *kě*. Additionally, since no agent is available in the structure with *kě*, its complement is better labelled as unaccusative than as passive (Perlmutter 1978, Rappaport Hovav & Levin 2000, Ramchand 2008). (8a) shows the contrast between *kě* and *kě yǐ* with the (existential) verb *yǒu* 有 ‘have, possess’, which appears as a dynamic verb ‘possess, take into possession’ in this construction. (8b) shows the same contrast with the state verb *dà* 大 ‘big’;³ (8c) shows the usually intransitive (unergative) dynamic verb *chū* 出, which, however, can also appear in a transitive construction as in the second clause of the example. The analysis is in (9).

- (8) a. 道 不 可 有
 Dào bù kě yǒu
 Dao NEG KE have
 ‘The Dao cannot be obtained/taken into possession.’
 (*Zhuangzi* 73.25.79, LAC, cf. Unger 2019: 483)
- a’. 則 可 以 有 之
 Zé kě yǐ yǒu zhī
 Then can YI have OBJ
 ‘Thus one can have it.’ (*Zhuangzi* 84.29.91, LAC, cf. Unger 2019: 483)
- b. 鼻 大 可 小 , 小 不 可 大 。
 Bí dà kě xiǎo xiǎo bù kě dà
 Nose big can small small NEG can big
 ‘If the nose is big, it can be made small; if it is small, it cannot be made big.’ (*Hanfeizi* 8.23, LAC)

³ (8b’) seems to have an epistemic reading, induced by the stative complement of *kě yǐ* (Abraham and Leiss 2008). Epistemic readings of *kě yǐ* have to be coerced by an appropriate syntactic context in LAC (Meisterernst 2008).

- b'. 范叔 之 教， 可 以 大。
 Fán shú zhī jiào kě yǐ dà
 Fan shu GEN teaching can YI great
 ‘The teaching of Fan Shu may be great.’ (*Guoyu, Jinyu* 6, LAC)
- c. 事 可 出， 出 之！
 Shì kě chū chū zhī
 Affair can go.out go.out OBJ
 ‘If the affair can be put into motion, put it into motion!’ (*Shiji*: 124; 3187, EMC)
- c'. 其 人 曰：「 可 以 出 矣。」
 Qí rén yuē kě yǐ chū yǐ
 POSS person say can YI go.out SFP
 ‘His man said: “You can go out.”’ (*Guoyu, Luyu xia*, LAC)

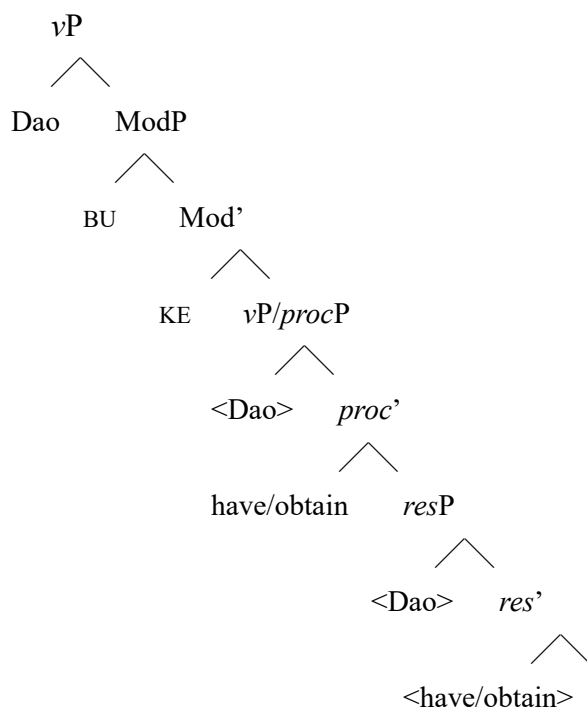
Due to the particular constraints on the internal structure of the complement of *kě*, we propose that the modal *kě*, which does not select any arguments of itself, selects a full *vP* (VP in the sense of Ramchand 2008) (see (4) above). The required projections in the complement of *kě* are *procP* and *resP*. Meisterernst (2019) demonstrates in a representative study of 250 complement verbs of *kě* that 34% of them are morphologically marked unaccusative result verbs, either characterized by a *qusheng* reading, which results from an **-s* suffix, or by voicing alternation in Middle Chinese. Meisterernst (2019, 2023) propose that the **-s* suffix may have been the overt marking of the *res* head; voicing alternation might have had a similar effect. Some examples of this are in (10).

With the originally transitive verbs *dìng* ‘establish’ in (7), and *yǒu* ‘possess’ in (8a), (9a), in the complement of *kě*, the internal argument of the complement verb, the resultee, is re-merged in the Spec of *procP*, from where it moves to Spec, *vP* containing ModP, and further up to Spec, CP/TP. This analysis is straightforward with dynamic transitive verbs, which include a *procP* and a *resP*. In order to retain the original structure of the transitive verb with an agent/causer subject, the functional head YI has to be inserted as head of *initP*, which hosts the external argument (overt or covert) in its specifier; this can be seen in (9a’).

The situation is slightly different when the verb in the complement of *kě* is intransitive, either a state or unergative, and does not have an internal argument in its original structure as *xiǎo* ‘small’ and *dà* ‘big’ in (8b, 9b), and *chū* ‘go out’ in (8c). In

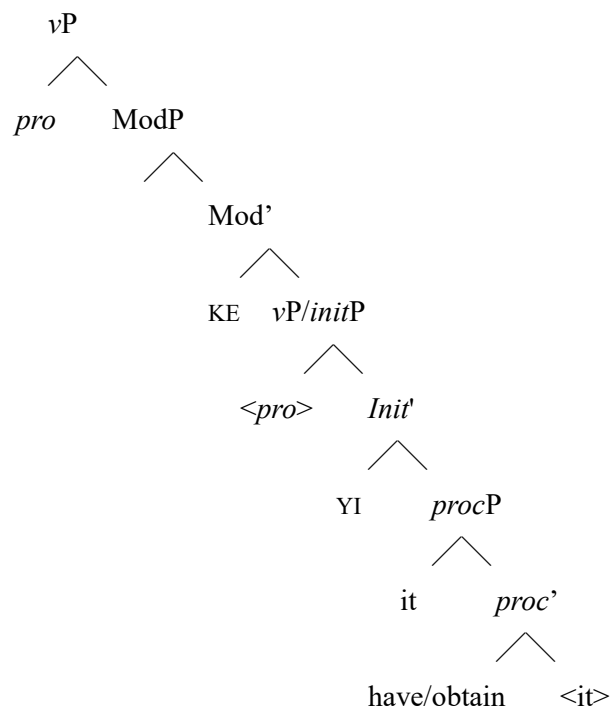
order to make a result reading visible, simple intransitives such as the state verbs in (8b) first have to add a causation projection (*initP*) ‘make sth. small/big’; i.e., they require an internal argument in the Spec of *resP*. The same accounts for unergative verbs as in (8c). State verbs, additionally, have to obtain a telic dynamic reading changing the simple state into a target state. The original *initP* is canceled, since the structure with *kě* does not license an external argument; it in fact does not license any arguments. This explains why the original semantics of *kě* is confined to participant-external possibility readings; participant-internal possibility, i.e., ability readings require an initiator with an inherent ability/volition. After the original *initP* is canceled, the internal argument of the derived causative moves to subject position, resulting in a new unaccusative construction. The derived structures of the intransitive state and the unergative verbs are similar to that of the transitive verbs in (9a, a’).⁴ Similar to transitive verbs, the functional head *YI* has to be introduced in order to license the original external argument. This process can be seen in (9b, b’) for an originally intransitive state verb.

(9) a. 道不可有 ‘Dao NEG KE have’ ‘the Dao cannot be obtained’

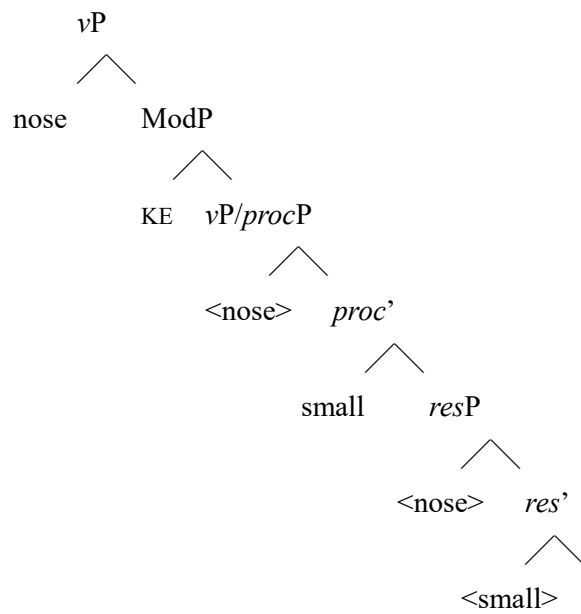


⁴ This analysis differs from the analysis of *kě yǐ* in Meisterernst (2008) and also from the new analysis in Meisterernst (2019), in which a causative phrase had been assumed. It also differs from the analysis proposed in Wu (2012: 241), who is mostly interested in a distinction between what she labels *kě+yǐ_{prep}* structure and the disyllabic verb *kěyǐ*.

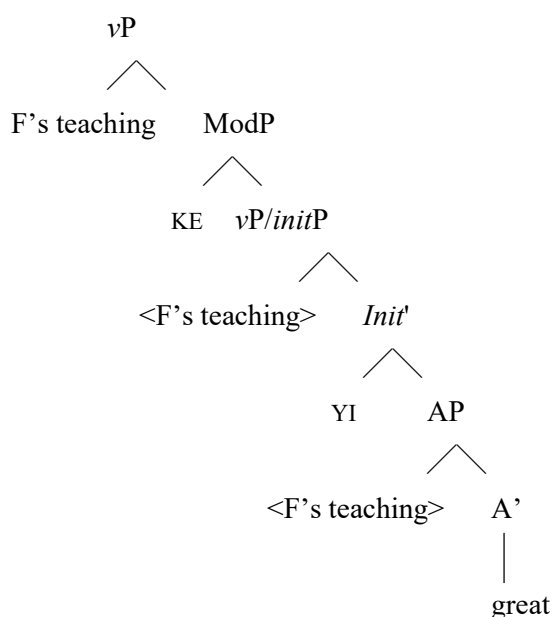
a'. 則可以有之 ‘then *pro* can YI have OBJ’ ‘Thus one can have it.’



b. 鼻大可小, ‘nose big can small’ ‘If the nose is big, it can be made small.’



b'. 范叔之教，可以大。 'teaching can YI great' Fan Shu's teaching may be great.'



In contrast to dynamic unergative verbs, state verbs do not have an agentive subject. Nevertheless, Ramchand (2008: 106) proposes an *initP* for states as the only projection in a stative VP; the head of *init* can take a DP/NP or an AdjectiveP as its complement.⁵ Examples with state verbs in the complement of *kě yǐ* are quite infrequent, though. Based on the preceding analysis, we propose that in the *kě yǐ* construction the functional head in *initP* YI assigns the external argument, which is not licensed in the *kě* + VP construction. The external argument, which can be a causer, an agent, or an experiencer, subsequently moves up to Spec, CP/TP. Since in the *kě yǐ* construction the subject position in CP/TP is occupied by the external argument, the internal argument is prevented from moving out of vP. It stays in its default position within VP and the original argument structure of the complement verb of *kě(yǐ)* remains intact. No such constraint is involved with the modal *néng*, which shares its subject with the complement verb.

In order to support our proposal, we discuss a few verbs in the complement of *kě* which are morphologically marked for RESULT; the examples are again presented in minimal pairs, if available (see Meisterernst 2019, 2023). The marking of result also supports the claim that the complement verbs of *kě* have to be dynamic leading to a result state. For most of the verbs in the complement of *kě*, no parallels with *kě yǐ* are

⁵ In Ramchand (2018), the highest projection hosting the external argument is an EventP (*Evt*), different from *InitP* at the edge of the First Phase. This head introduces the utterance situation with linguistic content in order to convey the event (Ramchand 2018: 80f). In our analysis here, we follow Ramchand (2008) and assume that the external argument is hosted in *InitP*. For the time being this seems to be sufficient for the analysis of Chinese, which does not have any verbal agreement features.

attested, which argues for their special status. All verbs in (10) are transitive; the verb in (10b) has an intransitive and a transitive reading ‘easy, light’ or ‘take easy, take lightly’. For all verbs an *-s suffix has been reconstructed, for which Meisterernst (2019, 2023) propose that it might be the overt realization of the *res* head. The only *-s suffixed verbs in the corpus of 250 representative verbs (Meisterernst 2019) for which parallels with *kě yǐ* are attested are *jiào* 教 ‘teach’ in (10c) and *dìng* 定 ‘establish’ in (10d). In all cases, the introduction of YI in the structure licenses an external argument which would otherwise be excluded from the complement of *kě*. The analysis in (9a’) can account for all these examples.⁶

- (10) a. 仲 可 懷 也； 父 母 之 言，
Zhòngg kě huái yě fù mǔ zhī yán
Zhongg KE care SFP father mother GEN word
亦 可 畏 也。
yì kě wèi(*ʔuj-s) yě
also KE fear SFP
‘You Zhong can be loved, but the words of father and mother can also be feared.’ (*Shijing, Guofeng, zheng*, EAC)
- b. 國 無 小， 不 可 易 也。
Guó wú xiǎo bù kě yì(*lek-s) yě
State not.have small NEG KE take.lightly SFP
‘A state may not have any that is smaller, but it cannot be taken lightly.’
(*Zuozhuan, Xi 22*, LAC)
- c. 若 民 煩， 可 教 訓。
Ruò mín fán kě jiào(*s.kʰraw-s) shùn
If people exert.oneself KE teach instruct
‘If the people exert themselves, they can be taught and instructed.’
(*Guoyu 17, Chuyu shang*, LAC)
- c’. 愚 者 不 知， 不 可 以 教 民。
Yú zhě bù zhī bù kěyǐ jiào mín
Stupid REL NEG know NEG KE YI teach people
‘The stupid ones are not knowledgeable; they cannot/may not instruct the people.’ (*Guanzi, Cheng ma 5*, LAC)

⁶ The reconstructions are from Baxter and Sagart (2014).

- d. 「社 稷 可 定 乎？」
 Shè jí kě dìng(*N-tʰeŋ-s) hū
 Earth.god Millet.god KE pacified QSPF
 ‘Can the gods of the earth and the millet be pacified.’ (*Guanzi, Da Kuang*, LAC)

- d'. 官 四 分，
 Guān sì fēn
 Office four divide
 則 可 以 定 威 德
 zé kě yǐ dìng wēi dé
 then KE YI establish respect virtue
 ‘When the offices are divided in four ways, then one can establish respect and virtue.’ (*Guanzi, Bingfa*, LAC)

The examples discussed demonstrate the difference between *kě* and *kě yǐ* in LAC. The modal *kě* does not have any arguments of itself, which argues for its status as a fully grammaticalized modal already in Archaic Chinese (Roberts and Roussou 2003). The insertion of the morpheme YI as head of *initP* hosting the external argument allows the complement verb to keep its original argument structure; i.e., the YIP is part of the subevent structure of the complement of *kě*. This is different from the applicative head YI in the complement of *néng*, which does not have any impact on the core argument structure of the verb. However, with the insertion of YI, the semantic differences between *kě* and *néng* decrease to a certain extent, although participant-external readings remain dominant.

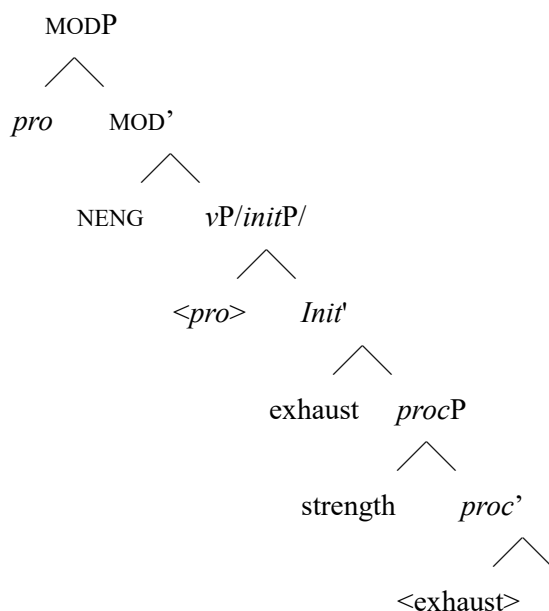
3.2 The modal *néng*

In this section, we briefly introduce the modal *néng* and show how it differs syntactically from the modal *kě*. The readings proposed for *néng* in the literature (Liu (2000) include different kinds of circumstantial possibility (objective, logical, inferred); the participant-internal ability reading seems to be the basic reading in AC (Li 2004: 223), though. The latter requires a [+ANIMATE] subject. Liu (2000) also proposes a volitive reading, which requires a [+HUMAN] subject. According to Portner (2009), abilitative and volitive meanings are closely connected in that they both select an agent or cause as their subject (Hackl 1998; cf. Portner 2009: 197). The subject of a volitive modal is assumed to be “willfully involved in the event or events described by the main predicate” (Portner 2009: 200); it is able to choose and to control the performance of the situation expressed by the embedded verb (also Xie 2012: 390). This is borne out

by most of the complements of *néng* which are predominantly activity and accomplishment verbs with an agent/cause subject. In this respect *néng* differs from the participant-external modal *kě* in its basic construction, which selects a theme as its subject. This shows that the syntactic constraints of the two modals are reflected in their semantics. Verbs with experiencer or theme subjects receive a coerced reading when fused with *néng*. Examples for genuine participant-internal possibility, i.e., ability are in (11); both the verbs *gù* 固 ‘secure’, and *jié* 劫 ‘exhaust’ are telic verbs with agentive subjects. In (11c) the complement of *néng* is a causativized state verb; the subject of the modal functions as the causer of the event expressed in the complement. Although not marked for temporality, the situation is evidently located in the past, and it demonstrates that the modal is within the scope of tense-aspect. The analysis of the default structure of *néng* and its complement is in (11d).

- (11) a. 夫 能 固 位 者，
Fú néng gù wèi zhě
DEM able secure position REL
必 度 於 本 末。
bì duó yú běn mò.
MOD consider PREP root end
‘Someone who is able to secure the throne must consider it from both ends.’ (*Zuozhuan, Zhuang 6, LAC*)
- b. 事 父 母 能 竭 其 力
Shì fù mǔ néng jié qí lì
Serve father mother able exhaust POSS strength
‘In serving his parents, he is able to exhaust his strength, ...’
(*Lunyu, Xue er, LAC*)
- c. 父 義和， 丕 顯 文、 武，
Fù Yihé pēi xiǎn Wén Wǔ
Father Yihe great evident Wen Wu
能 慎 明 德， 昭 登 於 上。
néng shèn míng dé zhāo dēng yú shàng
able careful illuminate virtue brightness ascend at above
‘Father Yihe, great and evident were Wen and Wu, they were able to carefully illuminate virtue, its brightness rose high.’ (*Shiji: 39, 1667, EMC*)

- d. 事父母能竭其力 serve father mother able exhaust POSS strength
 ‘In serving his parents, he is able to exhaust his strength,’



In example (12), the unaccusative verb *sǐ* 死 ‘die’, which by default selects a theme subject appears in the complement of *néng*; this coerces the reading of *sǐ* into the agentive reading ‘go into/face death [for someone]’.

- (12) 二 三 子 若 能 死 亡，
 Èr sān zǐ ruò néng sǐ wáng
 Two three son if able die exile
 則 如 違 之。
 zé rú wéi zhī
 then be.like oppose OBJ
 ‘If the two or three gentlemen are able to go into death or exile, then it is like opposing him.’ (Zuozhuan, Zhao 13, LAC)

Néng can also have a non-agentive [-HUMAN/ANIMATE] subject, usually referring to an instrument, labeled disposition reading in Xie (2012: 392, 402). Disposition modality expresses the inherent capacity, function, or property of an inanimate entity (Xie 2012: 392, 402). This function of *néng* is already available in LAC as in example (13a); it still exists in Modern Chinese (Li 2004: 152). The thematic role of instrument is different from that of an agent, the default role of the subject of *néng*; however, instruments can well function as causers as, e.g., in English *The key opened the door*. In Ramchand’s (2008) framework there is no syntactic difference between sentient and non-sentient causers, although they may be perceived differently by humans and

animacy hierarchies play an important role in the syntactic realization of participant roles. (Ramchand 2008: 54 and references therein). Even with a [-HUMAN/+INSTRUMENT] subject, *néng* still expresses participant-internal modality. This is particularly evident, when the subject refers to a part or aspect of a [+HUMAN] agent/causer as in (13a). In any case, the instrument in subject position functions as initiator of the modalized event; i.e., syntactically, modal predicates with *néng* with an instrument and with a causer/agent subject are identical. The instrumental external argument in subject position in (13a) is different from the instrumental adjunct introduced by the applicative head YI in examples (13b, c).⁷ The latter is also different from the *initP* headed by YI introducing the external argument in the structure with *kě yǐ*. The applicative phrase with YI has no impact on the argument structure of the complement of *néng*.

- (13) a. 心 能 制 義 曰 度。
 Xīn néng zhì yì yuē dù
 Heart able determine righteous say measure
 ‘If the heart is able to determine righteousness one calls it “right measure”.’
 (*Zuozhuan, Zhao 28, LAC*)

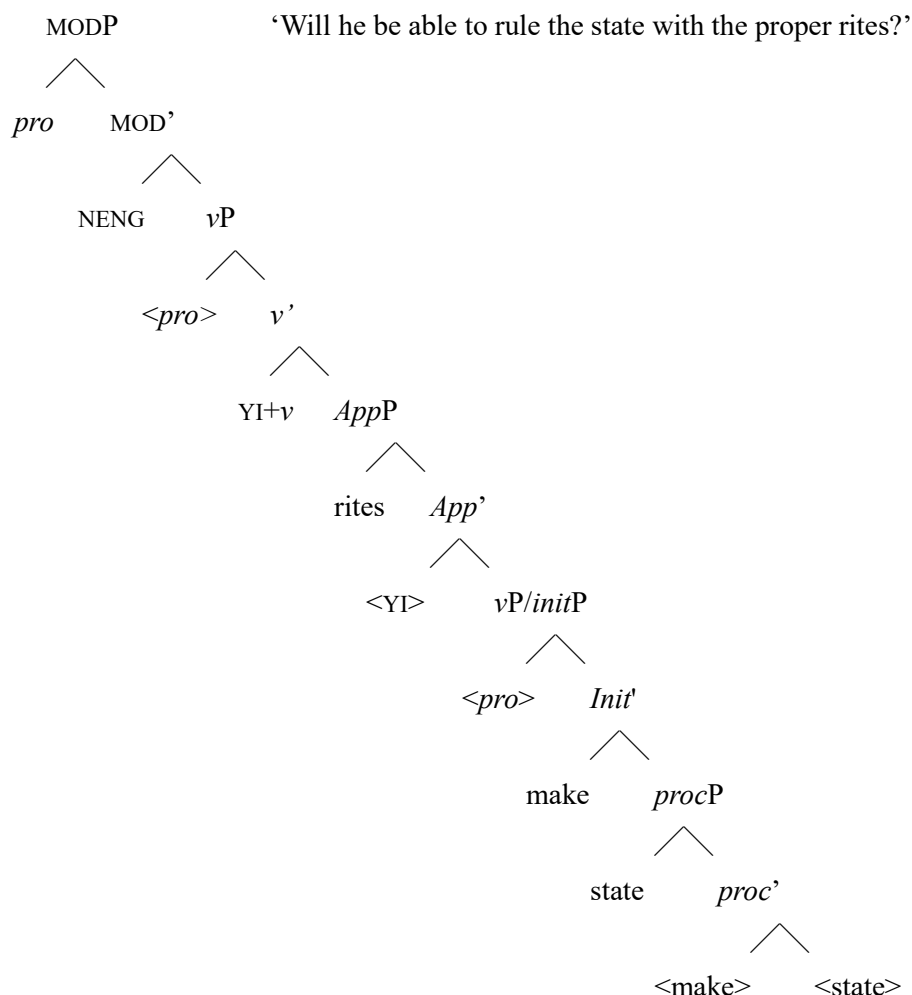
- b. 能 以 禮 讓 為 國 乎？
 Néng yǐ lǐ ràng wéi guó hū
 NENG APPL rite yield make state QSFP
 ‘Will he (the prince) be able to rule the state with the proper rites and
 behavior?’ (*Lunyu, Li ren, LAC*)

- c. 唯 有 德 者，
 Wéi yǒu dé zhě
 Only have virtue REL
 能 以 寬 服 民，
 néng yǐ kuān fú mín
 NENG YI generosity subdue people
 ‘Only those who have virtue are able to subdue the people with
 generosity.’ (*Zuozhuan, Zhao 20, LAC*)

⁷ YI is frequently labelled as an instrumental preposition in LAC (e.g. Djamouri 2009a: 9).

The analysis of the applicative structure of the examples (13b, c) in (14) follows Aldridge (2012). The applicative phrase headed by YI takes a full *vP* with an *initP* as its complement. The complement verb of *néng* is remerged in *init'*.

(14) 能以禮讓為國乎? ‘NENG APPL rites yield make state QSFP’



4 Conclusion

This brief discussion provides a novel analysis of the differences between the constructions with *kě* and *kě yǐ* on the one hand and with *néng* on the other. We propose that *kě* itself does not license any arguments; it selects a dynamic, unaccusative complement including a *res*-projection. The internal argument of VP moves up to subject position in CP; no external argument is available in the structure. The relevant projections of VP in the complement of *kě* are *procP* and *resP*. The lack of *initP* distinguishes the complement of *kě* from achievement verbs such as ‘arrive’ in the Vendlerian tradition, which may include an *initP* (see Ramchand 2008: 78f). In order to

retain the original argument (and event) structure of the complement of *kě*, the functional head YI which licenses the external argument has to be inserted. We propose that YI in *kě yǐ* is the realization of *initP* with transitive and intransitive verbs. In EMC, the constraints on *kě(yǐ)* weaken due to the loss of the morphological marking of *res* on the verb and to the changes induced in *vP* by this loss. Different from *kě*, *néng* shares its external argument with its complement verb; *néng* does not induce any changes in the argument or event structure of its complement. In contrast to *kě*, the complement of *néng* has to include an *initP* and a *procP*; the insertion of an applicative phrase with YI does not affect the argument and event structure of the complement of *néng*. This is, two different analyses of YI are proposed in this discussion: in *kě* YI+*vP/VP*, YI functions as the head of *initP*, whereas in the construction with *néng*, it functions as an applicative head which takes a full *vP/VP* as its complement. In EMC, the syntactic (and the semantic) distinctions between *kě* and *néng* start to disappear; i.e., the constraint on the complement of *kě* weakens and YI becomes less mandatory. We propose that this is connected to the morpho-syntactic changes within VP during this period and the loss of overt marking of the *res*-head by affixation, due to which the difference between [+*res*] and [-*res*]-verbs becomes opaque. Additionally, a possible distinction between causative and non-causative verbs disappears. This hypothesis is supported by the fact that at the end of LAC, the First Phase, the *vP* domain is subject to considerable changes. These include the increase of disyllabic verbs, in which both the *proc* and the *res* head are expressed by separate roots of the kind ‘stab-kill’, causative constructions with an overt causative light verb, and new resultative constructions (Meisterernst 2023). During this period, the former verbal morphology became opaque to the language learner and was replaced by new, more analytic structures (Aldridge and Meisterernst 2018), a diachronic process well attested cross-linguistically (e.g. Robert & Roussou 2003). Furthermore, the syntactic constraints on the complements of the modals which started to grammaticalize at the end of the LAC period are less strict than those of the AC modals *kě* and *néng*. The new modals equally permit verbs which include maximally all three projections *initP*, *procP*, and *resP*. This accounts, for instance, for the possibility modal *dé* 得 ‘manage to, can’, a circumstantial modal hosted in the lexical layer (Mod2) and for the deontic modals *dāng* 當 ‘should’ and *yīng* 應 ‘should, ought’, hosted in the TAM zone. These modals grammaticalized to different degrees from lexical verbs (Meisterernst 2020a, b) at the end of the LAC period and they permit both *proc-res*, and *init-proc* verbs in their complements, irrespective of their being hosted in the lexical or the functional layer. However, in general, the complements of modals in the functional layer, the TAM zone, are apparently subject to less strict constraints than the complements of modals in the lexical layer.

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