

# The formation of the *kě* 可 and *kě yǐ* 可以 constructions

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## Abstract

This paper aims to explain the formation of the *kě* and *kě yǐ* constructions in archaic Chinese. We analyze a number of examples from the pre-Qin era to refute previous hypotheses that the *kě* construction is formed by adding *kě* to a notional passive, fronting the object in an active sentence including *kě*, or *solely* by reanalysis. Subsequently, a verb-moving-backward hypothesis is proposed: *kě* is used in the underlying structure 'v-o' + *kě* to comment on an already known proposition 'v-o', then v is moved to the end to avoid the top-heavy problem. Similarly, this hypothesis also accounts for the *kě yǐ* construction: *kě* in the underlying structure 'yǐ-x-v-y' + *kě* is to comment on the serial verb structure 'yǐ-x-v-y', which is interchangeable with 'x-yǐ-v-y' forming 'x-yǐ-v-y' + *kě* where 'yǐ-v-y' is moved after *kě* to avoid the top-heavy problem. Moreover, the "verb moving backward" hypothesis provides new insights into the formation process of similar constructions (e.g., *nán* 难 'be difficult to v', *yì* 易 'be easy to v', *zú* 足 'be sufficient to v' constructions) in ancient Chinese, as well as the study of tough constructions.

## Keywords

*kě* construction – *kě yǐ* construction – verb moving backward – tough construction – top-heavy problem

## Résumé

L'objectif de notre recherche est d'analyser le développement de la structure passive *kě* en chinois archaïque. Nous analysons un nombre d'exemples de la période pre-Qin afin de réfuter les hypothèses selon lesquelles la structure *kě* a été formée en ajoutant *kě* à une structure passive notionnelle, ou en avançant l'objet d'une structure *kě* active, ou encore uniquement par ré-analyse. Nous proposons ensuite une hypothèse du déplacement verbal à droite ('verb-moving-backward'): *kě* est d'abord inséré dans une structure 'v-o' + *kě* afin de compléter une structure v-o déjà connue. Ensuite le verbe est reculé afin d'éviter le problème top-heavy. Cette hypothèse permet également d'analyser le développement de la structure active *kě yǐ*: dans la structure *yǐ*-x-v-y' + *kě*, *kě* est utilisé pour compléter la structure verbale en série *yǐ*-x-v-y, interchangeable avec x-yǐ -v-y. Dans la structure 'x-yǐ-v-y' + *kě*, *yǐ*-v-y est ensuite reculé après *ke* afin d'éviter le problème top-heavy. En plus, l'hypothèse de 'déplacement verbal à droite' ouvre de nouvelles perspectives sur le procès de formation de structures chinoises parallèles, par exemple *nán* 难 ('difficile'); *yì* 易 ('facile'); *zú* 足 ('suffisant'), et sur les tough constructions en général.

## Mots-clés

construction *kě* – construction *kě yǐ* – déplacement verbal à droite – tough construction – le problème top-heavy

## 1 Introduction

The *kě* construction has aroused great interest among linguists because of its particular features. Most studies have focused on its modality use (Liu 2000; Li 2001; Li 2004; Meisterernst 2008). Additionally, the verb following *kě* having a passive meaning has also attracted considerable attention (Ma 1898/1983; Bai 1997; Liu 2000; Li 2001; Wang 2005; Wang 2011; Ding & Zhang 2012). However, a more central issue has remained insufficiently investigated: how was the *kě* construction *formed*? Only two studies have attempted to explain this issue. Wang (2011) proposed that the *kě* construction is a middle voice,<sup>1</sup> by treating

1 The middle voice lies somewhere between the active and passive voices. Thus it is different from both to some extent. Jan-Wouter Zwart (1997) defined middle voice constructions by the following characteristics:

1. The external argument of the verb is not expressed.

the *kě* sentence as a whole. Yet, this study merely compared the syntactic and semantic characteristics of the *kě* construction with the definition of middle voice in English, while totally ignoring its formation process. By contrast, Ding & Zhang (2012) did attempt to characterize the formation process of the *kě yǐ* and *kě* constructions in terms of the “extraposition” and “tough-movement theories”, respectively.<sup>2</sup> Specifically, they argued that ‘v-o’ + *kě* is an underlying structure and ‘v-o’ as a whole is moved back (i.e., extraposition) in order to avoid the top-heavy problem.<sup>3</sup> Meanwhile, the conjunction *yǐ* should be added after *kě*, just as ‘it’ is added in English during this process. As for the formation of the *kě* construction, Ding & Zhang argued that it is the result of tough movement based on the *kě yǐ* construction. However, there are two problems with this thesis: the authors failed to demonstrate why *yǐ* should be added during the extraposition process; and if the *kě* construction is formed on the basis of the *kě yǐ* construction, then could *yǐ* be omitted in this process? Therefore, the formation of the *kě* construction has remained unsolved. This is discussed further in Section 3.3.

The research into the *kě* construction has always been associated with the *kě yǐ* construction. Concerning the relationship between them, Wang’s (2005) view may be taken as representative. He argued that (1) *kě yǐ* is the omission of *zhī* 之 (‘it’)<sup>4</sup> in *kě yǐ zhī* 可以之 (‘can use this’) before its lexicalization; (2) when *kě yǐ* was lexicalized as a compound word, then the *kě yǐ* construction

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2. The verb has active morphology.

3. The action denoted by the verb is predicated over by an adverb.

4. The verb is of the activity class, and the sentence as a whole is non-eventive.

Examples are given below:

(i) This book reads quickly.

(ii) This pen writes easily.

(iii) Bureaucrats bribe easily.

2. Extraposition is a mechanism of syntax that alters word order in such a manner that a relatively heavy constituent appears to the right of its canonical position. In this paper, we refer only to it-extraposition, such as the change in the following structure:

(i) [To please John] is easy. →

(ii) It is easy [to please John].

For more information, see Yoon-Suk Chung (2001: 60).

In formal syntax, tough movement refers to sentences in which the syntactic subject of the main verb is logically the object of an embedded non-finite verb, such as the change in the following:

(i) It is easy [to please John].

(ii) John is easy [to please].

3. A top-heavy sentence is a long subject sentence in which information is loaded at the beginning; e.g., ‘Finding John is difficult.’

4. *Zhī* 之 ‘it’ is a frequently used third-person pronoun in archaic Chinese.

had opposite syntax as compared to the *kě* construction. Wang summarized this *opposite syntax* as follows: (a) the verb following *kě* has a passive meaning, whereas the verb following *kě yǐ* has an active meaning; (b) the v following *kě yǐ* can take an object, whereas the verb following *kě* cannot.<sup>5</sup> Although Wang's opinion is commonly accepted, Liu (2000) and Li (2001) questioned point (1) because they did not find any example where *yǐ* takes an object (i.e., *kě yǐ zhī* 可以之). In our opinion, we feel that Wang's view is reasonable. As for the question of Liu (2000) and Li (2001), it will be explained in Section 4.1. Based on Wang's opinion, the *kě yǐ* in (1) is referred to as the *kě yǐ<sub>1</sub>* construction, while the *compound word* in (2) is defined as the *kě yǐ<sub>2</sub>* construction in this paper. Note that Wang's opinions are just descriptions of a phenomenon; he does not address the problem of how the constructions were formed.

In order to explain the unsolved questions concerning the formation of the *kě* and *kě yǐ* constructions, we propose a new hypothesis in this paper, named *verb moving backward*.<sup>6</sup>

## 2 The word *kě* and the *kě* construction

In this section, we introduce some contexts in which *kě* was used and summarize the features of the *kě* construction.

### 2.1 The main contexts in which *kě* was used<sup>7</sup>

In general, *kě* was frequently used in the following three contexts:

1. Agent + (*bù*) *kě*
2. 'V-O' + (*bù*) *kě*
3. Patient + (*bù*) *kě* + v

5 See section 4.2 for more details.

6 Before continuing the topic, we would like to introduce the corpus we use. In this paper, most examples are taken from eleven pre-Qin texts: *Shijing* 诗经 (1046 BC–771 BC); *Shangshū* 尚书 (772 BC–476 BC); *Zuozhuan* 左传 (468 BC–300 BC); *Guoyǔ* 国语 (475 BC–221 BC); *Lunyu* 论语 (480 BC–350 BC); *Mozǐ* 墨子 (490 BC–221 BC); *Mengzǐ* 孟子 (340 BC–250 BC); *Xunzǐ* 荀子 (475 BC–221 BC); *Zhuangzǐ* 庄子 (350 BC–250 BC); *Hanfeizǐ* 韩非子 (475 BC–221 BC); and *Zhànguócé* 战国策 (350 BC–6 BC). Four other texts will be mentioned when necessary: *Shishuō Xīnyǔ* 世说新语 (420 AD–581 AD); *Shāngjūnshū* 商君书 (475 BC–221 BC); *Guǎnzǐ* 管子 (475 BC–220 AD); and *Shǐjì* 史记 (109 BC–91 BC); *Gōngyángzhuàn* 公羊传 (206 BC–9 AD), *Zìzhì tōngjiàn* 资治通鉴 (1071 AD–1086 AD).

Approximate dating of the texts based on *Zhōngguó zhéxuéshù diànzìhuà jìhuà* 中国哲学书电子化计划 'Chinese Text Project.' Accessed at the link <http://ctext.org/ens>.

7 Besides the main contexts discussed in the paper, there are some other rarely used constructions. However, we will not pursue this since they are not related to the topic discussed here.

It functions as an intransitive verb in both (1) and (2), and as an auxiliary verb in (3). These usages are explained below.

### 2.1.1 Intransitive verb meaning ‘to agree/to consent’

According to the early etymological and analytical dictionary *Shuōwénjiězì* 说文解字 ‘Explaining Graphs and Analyzing Characters’; 100AD, *kě* 可 is related to *kěn* 𠂔, which is a variant form of the character *kěn* 肯, meaning *tóngyì* 同意 ‘to agree/to consent.’ It normally describes whether somebody agrees or disagrees (i.e., to approve; to permit; to allow) with a previously mentioned action. See two examples below.

- (1)<sup>8</sup> 楚人伐郑，郑伯欲成。孔叔不可。(3rd year of Lord Xī, *Zuǒzhuàn* 左传)

*chǔ rén fá zhèng zhèng-bó yù chéng kǒng-shū*

chu people attack NAME Lord-Zheng plan pacification NAME

*bù kě*

NEG agree

‘The people of Chǔ attacked the state of Zhèng and Lord Zhèng planned to sue for peace. Kǒng Shū did not agree [to this].’

- (2) 仲欲立之，叔仲不可。(18th year of Lord Wén, *Zuǒzhuàn* 左传)

*zhòng yù lì zhī shū-zhòng bù kě*

NAME plan choose PRON NAME NEG agree

‘Xiang Zhong planned to choose [Lord Xuan] as King, [but] Shu Zhong did not agree [to this].’

Similar examples are found frequently in pre-Qin texts.

### 2.1.2 Intransitive verb meaning ‘to suit/to fit’

The meaning ‘to agree/to consent’ generated a semantic expressing the suitability of an action.<sup>9</sup> In such cases, *kě* is normally used to make a comment on a proposition (i.e., an action comprised by v and o). For example:

- (3) 臣之罪大，尽灭桓氏可也。(14th year of Lord Āi, *Zuǒzhuàn* 左传)

*chén zhī zuì dà jìn miè huán-shì kě*

my PART crime great completely eliminate Huán-family reasonable

*yě*

FIN

‘My crime is so serious that your majesty’s [plan to] eliminate the Huan family is completely reasonable.’

<sup>9</sup> The semantic change of *kě* from ‘to agree’ to ‘to suit/to fit’ is easy to infer.

- (4) 师而伐宋可矣。(11th year of Lord Xiāng, *Zuǒzhuàn* 左传)  
*shī ér fá sòng kě yǐ*  
 dispatch-troop and crusade NAME appropriate/fine/OK FIN  
 ‘The act of dispatching troops and attacking the state of Sòng is appropriate/fine/OK.’

In examples (3) and (4) we find that the comment on an action mainly focuses on the ‘v-o’ part (without notable agent),<sup>10</sup> with the sentences emphasizing *eliminating the Huán family* and *dispatching troops and attacking the state of Song*, respectively. Accordingly, we hypothesize the underlying structure of the *kě* construction as follows.

### The underlying structure of the *kě* construction

‘v-o’ + *kě*/bù *kě*: no agent<sup>11</sup>

In the examples mentioned above, *kě* is the core predicate expressing the suitability of an action. Concerning the function of *kě* in such case, it is normally defined as an adjective (Bai 1997: 211; Liu 2000: 82; Li, 2001: 72). However, we prefer to define it as an intransitive verb, since *kě* does not (and cannot) qualify simple nouns (i.e., there are no examples of *kě* + N). Although *kě* is defined as an intransitive verb in Chinese, however, its corresponding English translation is definitely an adjective (see the translations above).

10 Note that we find some cases where *kě* seems to be used to comment on a human subject rather than on a VP comprised of ‘v + o’. See an example below.

*Guān Zhòng jìng nuò, yuē: “gōng yù xiàng shéi.” Gōng yuē: “Bào Shūyá kě hū?”* 管仲敬诺，曰：“公谁欲相？”公曰：“鲍叔牙可乎？”‘Guān Zhòng respectfully answered and said: “Whom do you plan to assign the prime minister position to?” Lord Qíhuán said: “Is Bào Shūyá ok?” (i.e., “is Bào Shūyá suitable to become prime minister?”): (*Guīgōng* 贵公, *Lǚshì chūnqiū* 吕氏春秋)

In this example, we think ‘Bào Shūyá kě hū 鲍叔牙可乎’ should be ‘xiàng Bào Shūyá kě hū 相鲍叔牙可乎’. Therefore, *kě* in such a case comments on the VP ‘xiàng Bào Shūyá 相鲍叔牙 (i.e., assigning the prime minister position to Bào Shūyá)’ rather than the subject ‘鲍叔牙 (i.e., Bào Shūyá)’ only.

11 The structure ‘v-o’ + *kě* consists of ‘an action that will be commented on’ and the ‘appraisal verb’. We feel this structure conforms well to the frequently used topic–comment structure. It should occur at a very early stage, but there are no examples in *Shijing* 诗经 (the first anthology of poetry in ancient China), probably because of the style of that text (i.e., poetic). One more example from *Zuǒzhuàn* is provided here: *shuǐ shèng huǒ fá jiāng zé kě* 水胜火，伐姜则可。‘Water overcomes fire. [According to this], attacking the Jiāng is ok.’ (9th year of Lord Āi, *Zuǒzhuàn* 左传).

### 2.1.3 Auxiliary verb expressing root modality

*Kě* was commonly used as an auxiliary verb expressing modality in Archaic Chinese. According to Peyraube (1999), *kě* in Archaic Chinese is basically deontic. In his opinion, the epistemic reading emerged later in the Chinese language and probably derived from the deontic meaning. Furthermore, Meisterernst (2008) concluded that in the Han period *kě* predominantly expressed root possibility values; deontic values are mainly confined to the negative; and epistemic (evidential) values are almost non-existent and confined to verbs that license an evidential interpretation. After analyzing pre-Qin texts, we think that these conclusions are basically right: *kě* was non-epistemic in pre-Qin times. For convenience, we use the terminology “root modality” which is defined by Haan (1997: 7) as referring to a wider domain than deontic modality, namely, to all non-epistemic modal notions. Root modality may be divided into root possibility and deontic.

*Root possibility: indicating possibility ('can')*

- (5) 乃言底可績。 (*Shùn diǎn* 舜典, *Shàngshū* 尚書)

*nǎi yán dǐ kě jì*

your speech accomplished able yield-result

‘[The emperor said: “Come, Shun, in the affairs on which you have been consulted, I have examined your words], your words (i.e., wishes) will finally be realized.”’

- (6) 弗慎厥德，虽悔可追？ (*Wǔ zǐ zhī gē* 五子之歌, *Shàngshū* 尚書)

*fú shèn jué dé suī huǐ kě zhuī*

NEG careful be-short-of virtue although repent able chase-after

‘We have not been careful of our virtue; and though we repent, how could we redeem [the past]?’

*Deontic: indicating permission/obligation ('can = must/should')*

- (7) 时哉弗可失！ (*Tài shì shàng* 泰誓上, *Shàngshū* 尚書)

*shí zāi fú kě shī*

time PART NEG should lose

‘[Do you aid me, the One man, to cleanse forever all within the four seas.] Now is the time! It should not be lost.’ (Translation based on TLS)

- (8) 民可近，不可下。(Wǔ zǐ zhī gē 五子之歌, Shàngshū 尚书)  
 mín kě jìn bù kě xià  
 people should close NEG should look-down-upon  
 ‘[It was the advice of our great ancestor:] the people should be cherished,  
 not looked down upon.’
- (9) 吾亦不可复见吾君矣。(6th year of Lord Xuān, Gōngyángzhuàn 公羊传)  
 wú yì bù kě fù jiàn wú jūn yǐ  
 I also NEG can again meet my king FIN  
 ‘[Although because of this], I cannot [return to] face my king again.’

As seen in the above examples, when *kě* functioned as a modal auxiliary verb in Archaic Chinese, it often appeared in patient subject sentences (i.e., Examples 5, 6, 7, 8) and these cases are defined as the *kě* construction in this paper. Occasionally, *kě* is also found in agent subject sentences (i.e., Example 9), and this is treated as a special use since it is extremely unusual, appearing only in specific contexts (for more details, see Onishi 2008: 22–24) and very rarely in pre-Qin texts (relatively higher frequencies are found after the Han dynasty).<sup>12</sup> Below, we summarize the basic features of the *kě* construction.

## 2.2 Features of the *kě* construction

Many scholars have recognized that the *kě* construction has passive meaning because the role of the subject accords with the role of the object of the *v* (see examples above). Besides this passive meaning, however, the *kě* construction has three additional features:

1. the *kě* construction is not compatible with an agent (i.e., an agent can never be found in the *kě* construction);<sup>13</sup>
2. the *v* in the *kě* construction is never followed by an object, not even the anaphoric *zhī*; and
3. the *kě* construction never co-occurs with passive meaning markers, such as *wéi* 为, *jiàn* 见, *yú* 于 and so on.

12 Example (9) is the earliest example in which *kě* appears in an agent subject sentence when functioning as a modal verb. More examples can be found in texts dating from the Han dynasty. Wang (2005), Yao (2003) and Onishi (2008) all argued that these examples featured the omission of *yǐ* in the *kě yǐ* construction.

13 Although we have already defined the *kě* construction as “patient subject”, this does not automatically mean that the agent should be excluded. In fact, in many “patient subject” sentences, the agent can be inserted in other places by using prepositions (e.g., *yú* 于). Therefore, the absolute absence of an agent should still be considered as an important feature of the *kě* construction.



These features have prompted scholars to reflect on the following questions:

- Why does the *kě* construction have these special features?
- How was the *kě* construction formed (i.e., how was the modality function of *kě* generated)?

We attempt to answer these questions below.

### 3 How was the *kě* construction formed?

The special features of the *kě* construction should be correlated to its formation process. Here, we first discuss the limitations of earlier hypotheses (Sections 3.1, 3.2 and 3.3, below) relating to the formation of the *kě* construction and then propose a new hypothesis (Section 3.4).

#### 3.1 Adding the modal auxiliary verb *kě* into a notional passive

In Chinese grammars, notional passive is often referred to as the PV structure sentence: without overt passive marker as well as without agent or anaphor *zhī* 之. See example (10) below.

- (10) 宜阳效，则上郡绝；河外割，则道不通。(Sū Qín liè zhuàn 苏秦列传, Shǐjì 史记)

yí-yáng xiào zé shàng-jùn jué hé-wài gē zé dào bù  
NAME offer then NAME cutoff NAME divide then road NEG  
tōng

unimpeded.

‘If the Yí-yáng region surrenders, then Shàng-jùn will be cut off; if the region outside the Yellow River is divided, then the roads will be impassable.’

Zhang (2010) suggested that the *kě* construction is a notional passive. We believe this may be unjustified, since it rests on the assumption that the *kě* construction was formed by adding the modal auxiliary verb *kě* to a notional passive. However, this was unlikely because: Firstly, Liu (2006) concluded that only stative verbs and a small number of action verbs that imply a result<sup>14</sup> may be used in a notional passive construction. However, the verb in the *kě* construction is not related to any result. Secondly, the notional passive mainly

14 The stative verb is the verb which expresses a state, such as *ruò* 弱 ‘be weak’ in Example (10), while the action verb that implies a result is a verb that describes an action but also implies a result, such as *gē* 割 ‘cede’/ *xiào* 效 ‘offer’/ *jué* 绝 ‘cut off’ in Example (10).

focuses on the *status* of the subject after it is disposed of or affected by *v*, while the *kě* construction focuses on the *possibility* and *suitability* to dispose of *a thing* (i.e., the subject/topic). Thirdly, if the *kě* construction is formed by adding a modal auxiliary verb to a notional passive, then the question remains: how did the modality functions of *kě* develop? Moreover, if the modal auxiliary verb *kě* can be inserted into a notional passive, why is it not inserted into other types of sentences? Therefore, we feel that the *kě* construction is not formed by the addition of *kě* to a notional passive.

### 3.2 *Reanalysis*

When discussing syntactic change, Langacker (1977: 58) defined reanalysis as “a change in the structure of an expression or class of expressions that does not involve any immediate or intrinsic modification of its surface manifestation.” The theory of *reanalysis* is commonly used in grammaticalization studies of Chinese. Regarding the passive, many passive markers are thought to have formed through reanalysis. We use *yú* 于 as an example here.

*Yú* was initially a verb meaning ‘to go’ which was always followed by a locative object in inscriptions on Oracle Bones.

- (11) 王寅卜，王于商。(合 33124)

*rén-yǐn bǔ wáng yú shāng*

time divine king go NAME

‘Divination was made at the time of Rényǐn for the king going to Shāng.’

Then it was reanalyzed as a locative preposition (i.e., ‘to go to’ > ‘to/towards’) in the serial verb construction (i.e., *bù/wǎng* 步/往 ‘go’ + *yú* 于 ‘go to’ + locative noun).

- (12) 辛酉卜，争贞：今日王步于敦。(合 7957)

*xīn-yóu bǔ zhēng zhēn jīn rì wáng bù yú dūn*

time divine NAME divine now today king go go NAME

‘Divining at Xīnyóu, Zhēng predicted: “Today, the king will go to Dūn.”’

Subsequently, its prepositional function indicating location further developed into indicating dative, comparative and even agentive (for more details, see Peyraube 1989; Wei 1993; Mei 2004; Guo 2005). When *yú* indicates agentive, it is commonly treated as a passive marker. This process is shown in Examples (13) and (14).

- (13) 王立於沼上。(Mèngzǐ jiàn Liáng Huì wáng 孟子见梁惠王, Mèngzǐ 孟子)  
 wáng lì yú zhǎo shàng  
 king stand PRE pond above  
 'The king was standing above a pond.'
- (14) 劳心者治人，劳力者治于人。(Téng wén gōng zhāng jù shàng 滕文公章句上, Mèngzǐ 孟子)  
 láo xīn zhě zhì rén láo lì zhě zhì yú rén  
 fatigue mind NOM rule people fatigue labor NOM rule PASS people  
 'Those who work with the intellect govern others; those who work with physical power are governed by others.'

According to the discussion above, we know that the so-called passive marker *yú* is mainly the result of reanalysis (i.e., from verb to a preposition). Among the prepositional functions, it is treated as a passive marker when it introduces an agent.

Regarding *kě*, it is commonly thought that the modality use is derived from its intransitive verbal use in the *kě* + *v* structure in which *kě* is reanalyzed from an intransitive verb to an auxiliary modal verb (Liu 2000; Li 2001; Ding & Zhang 2012). We agree with this opinion, but this explanation ignores the following important questions: how can *kě* co-occur with another *v* and why it has so many special features. Therefore, we think it is not *solely* reanalysis, which is responsible for the formation of the *kě* construction. Many scholars have recognized that the formation of the *kě* construction is related to some sort of movement, with the prevailing opinion being that it is formed by object fronting. However, as we explain in Section 3.3, we feel that this hypothesis is insufficient.

### 3.3 *Object fronting*

According to the object fronting hypothesis, the formation of the *kě* construction is related to a movement. For example, Zhu (2003) clarified why the *v* following *kě* cannot take any object, as the object has already been moved to the beginning as the patient subject. The scholars who hold this opinion explicitly or implicitly argue that a movement occurs from A to B, and then to C. Three simple structures illustrate this:

- A. 伐宋可。(cf. Examples 3–4)  
*fá sòng kě*  
 attack name suitable/ok  
 'Attacking the state of Sòng is acceptable.'

- B. 可伐宋。 (cf. Example 9)  
 kě fá sòng  
 can attack name  
 ‘Someone can attack the state of Sòng.’
- C. 宋可伐 (cf. Examples 5–8)  
 sòng kě fá  
 name can attack  
 ‘The state of Sòng can be attacked.’

Obviously, this hypothesis is a copy of the hypothesis of the *tough construction*<sup>15</sup> in English. However, there exists the following difference: a dummy subject ‘it’ is used in the B structure in English, while there is an agent subject in Chinese (see Example 9).<sup>16</sup> Moreover, several problems arise when it is used to explain the *kě* construction in Chinese. Firstly, there are far fewer examples of B than either A or C. If A is a problematic structure (i.e., top heavy) and B is the solution to that problem, then we would expect B to appear more frequently than A, not vice versa. Secondly, B appears later than both A and C.<sup>17</sup> Of course, one would expect B to appear later than A, but it should not appear later than C. Thirdly, both A and C are incompatible with an agent, while B is compatible with an agent. Fourthly, if the hypothesis of the change from A to B and then from B to C were correct, then B would constitute the same well-formed construction as C. So why does C have overwhelming dominance when compared to B? Accordingly, we strongly dispute the object fronting hypothesis and instead present a new theory: verb moving backward.

### 3.4 *Moving the core verb of the action backward*

We hypothesize that the backward movement of the verb occurred from A to C:

- A. 伐宋可。 (cf. Examples 3–4)  
 fá sòng kě  
 attack name suitable/ ok  
 ‘Attacking the state of Sòng is OK.’

15 See note 3 for more details.

16 Although it is very rarely found in Archaic Chinese, it becomes more common from the Han Dynasty onward. See more explanations in footnote 12.

17 See more explanations in footnote 12.

## c. 宋可伐。 (cf. Examples 5–8)

sòng kě fá

name can attack

‘The state of Sòng is OK to be attacked.’ > ‘The state of Sòng can be attacked.’

With respect to the tough construction, Postal (1971) did not posit an intermediate derivational stage involving extraposition (i.e., Example B in Section 3.3), either. Postal’s movement analysis applies directly to the structure with a sentential subject (i.e., example A in section 3.3). It replaces the sentential subject with an embedded object N, moving the remaining portion of the embedded clause to the end of the V in the matrix sentence. That is, C derives directly from A without the intervening B.<sup>18</sup> Our conclusion is similar to Postal’s, and thus provides material for the typological study of the tough construction. Accordingly, we summarize the formation of the *kě* construction as follows:

### The formation of the *kě* construction

‘V-O’ + *kě* → O + *kě* + V

This hypothesis (i.e., movement directly from A to C) clearly explains how *kě* can co-occur with another V. After the backward movement of V, the function of *kě* as a matrix verb is definitely weakened. Then, *kě* is gradually reanalyzed as a modal auxiliary verb, because:

1. *kě* is immediately followed by a verb (e.g., *kě* + fá 伐 ‘attack’);
2. If ‘something is *suitable* to be done’ (i.e., A), this suggests that ‘something is *allowed* to be done’ (i.e., C), or ‘something *can* be done’ (i.e., C).

Heine & Kuteva (2002) have provided two grammaticalization paths for the words that mean ‘to be fitting/to be suitable’ from a typological perspective:

1. suitability > ability;
2. suitability > obligation.

After investigating the *kě* modal auxiliary verb, we offer a third possibility:

3. suitability > permission.

Besides explaining how *kě* can co-occur with another V and how *kě* is reanalyzed as a modal auxiliary verb, another advantage of this hypothesis is that it can explain almost every feature of the *kě* construction.

18 Note that the evidence of the developing process from A to C is not diachronically obvious, since A has a top-heavy problem that will be automatically solved by transferring to C. Therefore, the fact that A is relatively rare is also reasonable since A is a problematic (i.e., top-heavy) structure.

### 3.5 *The advantages of the verb moving backward hypothesis*

This hypothesis can explain all four features of the *kě* construction.

Firstly, why is the *kě* construction always a patient subject sentence? Because the object of *v* remained in its original position while *v* moved backwards. With respect to the rare agent subject cases, we think this should be regarded as a function that developed after *kě*'s modality function had been established.

Secondly, why is the agent always absent? According to the verb moving backward hypothesis, there is no agent in the underlying structure 'v-o' + *kě*. Furthermore, the intransitive *kě* is used to comment on the suitability of an action. Therefore, it is reasonable to interpret that this action in the *kě* construction is *non-eventive*: That is, the projected action has not yet occurred. Hence, the agent is not important; and in many cases the agents are not clear (see also Meisterernst 2008).

Thirdly, why can the *v* after *kě* not take any object, including the anaphoric *zhī*? According to Dong (2005), when the object has high accessibility<sup>19</sup> in the context, it normally recurs in the form of the anaphoric *zhī* 之 in Archaic Chinese, while it is often an *empty category* in modern Chinese. See the difference between examples (15a) and (15b).

- (15) a. 子曰：‘丘也幸，苟有过<sub>i</sub>，人必知之<sub>i</sub>。’ (Shù ér 述而, Lúnyǔ 论语)  
 zǐ yuē qiū yě xìng gǒu yǒu guò<sub>i</sub> rén  
 Confucius say name PART lucky if have mistake people  
 bì zhī zhī<sub>i</sub>  
 definitely know it  
 ‘Confucius said: “I am so fortunate; if [I] have made a mistake, people will certainly know it.”’

The corresponding modern Chinese is (15 b).

- (15) b. 孔子说：“我真幸运，如果有错<sub>i</sub>，人家一定会知道 [empty category]<sub>i</sub>。”  
 Kǒngzǐ shuō wǒ zhēn xìng-yùn rú-guó yǒu cuò rén-jīa  
 name say I really lucky if have mistake people  
 yí-dìng huì zhī-dào  
 definitely will know  
 ‘Confucius said: “I am so fortunate; if [I] have made a mistake, people will certainly know it.”’

19 Dong (2005) does not define the notion *kě jí xìng* 可及性 ‘accessibility’ clearly. We assume that the phrase mainly refers to the clarity of the object of the verb. So, in Example (15a),

In the case ‘N, *kě* + V’, N is obviously a high-accessibility object, i.e., the V-O relationship of N and V can be easily identified. See Example (16 a) below.

- (16) a. 天作孽，犹可违；自作孽，不可逭。(Tàijiá 太甲, Shàngshū 尚书)  
 tiān zuò niè yóu kě wéi zì zuò niè bù  
 heaven make calamity still may avoid self make calamity NEG  
 kě huàn  
 may escape  
 ‘Calamities sent by Heaven may be avoided; but there is no escape from those brought on by oneself.’ (Translation based on TLS)

If Dong’s (2005) theory is correct, then an example like (16 b), i.e., the anaphoric *zhī* appearing after *wéi* 违 ‘avoid’ and *huàn* 逭 ‘escape’ respectively, should be acceptable.

- (16) b. ★天作孽<sub>i</sub>，犹可违[之]<sub>i</sub>；自作孽<sub>i</sub>，不可逭[之]<sub>i</sub><sup>20</sup> (constructed sentence)  
 tiān zuò niè yóu kě wéi zhī zì zuò niè  
 heaven make calamity still may avoid it self make calamity  
 bù kě huàn zhī  
 NEG may escape it  
 ‘Calamities sent by Heaven may be avoided; but there is no escape from those brought on by oneself.’

However, such a sentence is not attested.

Why is the verb in the *kě* construction not allowed to take any object element, including the anaphoric *zhī*, in Archaic Chinese? We think this is related to the second point above: the absence of an agent. Jiang (2012) concludes that sentences such as Example (15 a) often have an agent between the patient and the verb, such as *rén* 人 ‘people.’ Even when there is no obvious agent, it can be recovered in the interpretative process. In other words, the presence of the object of V implies the existence of the agent of V, and vice versa. However, according to our hypothesis, no agent is allowed in the *kě* construction. Thus, it is justified that the anaphoric object *zhī* is not allowed after V.

Fourthly, why is *kě* indispensable in the *kě* construction? This is because, besides the modal auxiliary verb function, *kě* has absorbed the syntactic fea-

the clarity of the object of verb *zhī* 知 is very high, which means that readers can infer the object (i.e., *guò* 过 ‘mistake’) of *zhī* 知 very easily.

20 In this paper “★” means that this sentence is a constructed sentence.

ture of the construction (i.e., movement from A to C). This is supported by two facts: (1) *kě* is incompatible with other passive meaning markers in the pre-Qin era<sup>21</sup> (also see the third point in Section 2.2); (2) if *kě* were omitted, this would probably result in a misunderstanding of the semantic role. The higher the degree of animacy of the patient, the less acceptable is the omission of *kě*. We rephrase Example (8) as (17) below.

(17) ★ 民近，不下。(constructed sentence)

*mín jìn bù xià*

people close NEG look-down-upon

'People should cherish [it], but not look down upon [it].'

The omission of *kě* would definitely result in a misunderstanding of the semantic relationship: *mín* 民 'people' will probably be interpreted as an agent, see translation in (17).

To sum up, in archaic Chinese, *kě* is not only a modal auxiliary verb, but also implies a construction feature that is related to its formation process. In addition to explaining the formation of the *kě* construction, this hypothesis also works for explaining the formation of the *kě yǐ* construction (see Section 4, below).

#### 4 How was the *kě yǐ* construction formed?

Similar to the *kě* construction, the *kě yǐ* construction has attracted considerable scholarly attention. Recently, it has been treated simply as a counterpart of the *kě* construction in terms of their syntactic features (see Section 1). However, we believe that this approach ignores the differences between *kě yǐ*<sub>1</sub> and *kě yǐ*<sub>2</sub>, with insufficient attention paid to the respective formation processes of *kě yǐ*<sub>1</sub> and *kě yǐ*<sub>2</sub> constructions. To address this problem, we highlight the differences between them and describe them separately. First, we demonstrate that the verb moving backward hypothesis for the *kě* construction is similarly useful for the *kě yǐ*<sub>1</sub> construction (see in section 4.1). After that, we show that the *kě yǐ*<sub>2</sub>

21 *Kě* is used together with other passive meaning patterns from the Song dynasty onwards, e.g., *Qíyǒu sānshí nián tiān zǐ kě wéi rén suǒ zhì hū* 岂有三十年天子而可为人所制乎? 'How could it be that someone who is a prince for thirty years can be controlled by [other] people?' (*Zī zhì tōng jiàn* 资治通鉴). We believe this indicates that *kě* in the pre-Qin era was not only a pure modal auxiliary verb but that its function also showed traces of its formation process. Therefore, the *kě* construction always implies a passive meaning itself.



construction originated from the *kě yǐ*<sub>1</sub> construction based on three additional conditions (see in section 4.2).

#### 4.1 *Moving backward of the core verb of the serial verb construction* *'yǐ-x-v-Y' and the formation of the *kě yǐ*<sub>1</sub> construction*

*Yǐ* is very rarely used independently as a verb; rather, it is nearly always the first verb in a serial verb construction. Moreover, the examples *'yǐ-x' + kě* and *x, kě yǐ* (i.e., *yǐ* as a verb) are not attested. Therefore, we believe that the formation of the *kě yǐ*<sub>1</sub> construction is related to the *yǐ-x-v-Y* serial verb construction, meaning 'taking/using a tool to do an action' rather than the verb *yǐ* meaning 'take/use' only. Therefore, the underlying structure of the *kě yǐ*<sub>1</sub> construction is summarized below:

#### The underlying structure of the *kě yǐ*<sub>1</sub> construction

*'yǐ-x-v-Y' + kě*

According to the hypothesis for the *kě* construction, we demonstrate the formation process of the *kě yǐ*<sub>1</sub> construction as follows: *kě* is used to comment on the serial verb construction *yǐ-x-v-Y* (without notable agent), which can be changed into *x-yǐ-v-Y* due to the special feature of *yǐ*;<sup>22</sup> then, *yǐ-v-Y* as a whole is moved back in order to avoid the top-heavy problem, with *x* remaining at the beginning. See the whole process from Examples (18) to (20), below.

(18) 以杞封鲁犹可。(29th year of Lord Xiāng, *Zuǒzhuàn* 左传)<sup>23</sup>

*yǐ qí fēng lú yóu kě*

use>INS NAME enfeoff NAME still OK

'Using the state of Qí to enfeoff the state of Lú is still acceptable.'

22 In archaic Chinese, *yǐ-x-wéi-Y* is interchangeable with *x-yǐ-wéi-Y*. For example, the sentence *qiū yǐ wéi qī* 秋以为期 'taking autumn as the date' first appeared in *Shījīng*, and Zhèng Xuán 郑玄 explained it as *yǐ qiū wéi qī* 以秋为期 'taking autumn as the date' in his commentary *Shísānjīng zhùshù, Máoshī zhèngyì* 十三经注疏, 毛诗正义. For further discussions, see Guo (1997) and Pan (2000: 80–81).

23 Similar examples can be frequently found in texts. Just like the *kě* construction, we think *kě* used alone in the response sentence also refers to the action *'yǐ x v Y'* rather than '*x*' alone. For example, *Wáng dé dí rén, jiāng yǐ qí nǚ wéi hòu*. *Fù Chén jiàn yuē: "bù kě."* 王德狄人, 将以其女为后。富辰谏曰: "不可。" 'The king, feeling grateful for the service, planned to make the daughter of their chief his queen.' Again Fù Chén remonstrated, saying that this is not suitable. (*Zhōuyǔ* 周语, *Guóyǔ* 国语). *Bù kě* 不可 here comments on the planned action *yǐ qí nǚ wéi hòu* 以其女为后 'make the daughter of their chief his queen' rather than *qí nǚ* 其女 'the daughter of their chief'.

- (19) 靖以待命犹可，动必忧。(25th year of Lord Zhāo, *Zuǒzhuàn* 左传)<sup>24</sup>

jìng yǐ dài mìng yǒu kě dòng bì yōu

quiet use>INS wait-for fate still OK move sure trouble

'Lit. Taking 'quiet' [as the way] to wait for one's fate is still acceptable; if moving, it surely brings trouble.' > 'Waiting for one's fate in peace is still acceptable; [however,] if one takes action, this will surely lead to trouble.'

- (20) 钟声不可以知和。(Zhōuyǔ 周语, *Guóyǔ* 国语)

zhōng shēng bù kě yǐ zhī hé

bell sound NEG OK use>INS know harmony

'Lit. Taking the sound of a bell [as the instrument] to know harmony is not suitable.' > 'Knowing harmony through the sound of a bell is not suitable. > The sound of bell cannot be used [as an instrument] to know harmony.'

The formation process of the *kě yǐ*<sub>1</sub> construction is summarized as follows:

#### The formation process of the *kě yǐ*<sub>1</sub> construction

a: [*yǐ*<sub>v</sub>-*x*<sub>p</sub>-*v*-*y*] + *kě*→

b: [*x*<sub>p</sub>-*yǐ*<sub>v</sub>-*v*-*y*] + *kě*→

c: *x*<sub>p</sub> + *kě* + [*yǐ*<sub>v</sub>-*v*-*y*]: no agent, no anaphoric *zhī*<sup>25</sup>

Similar to the *kě* construction, we refute several hypotheses. Firstly, *contra* Li (2004: 113–114), the *kě yǐ* construction is not formed by adding *yǐ* to the *kě* construction, because the two constructions have totally opposite syntactic features (see more details in Section 1). Secondly, the *kě yǐ*<sub>1</sub> construction was not formed by adding *kě yǐ*<sub>1</sub> in an active sentence, since *kě yǐ*<sub>1</sub> is not a compound word initially. Thirdly, the *kě yǐ*<sub>1</sub> construction was not formed by fronting the object, since the example *kě* + '*yǐ*-*x*-*v*-*y*' (i.e., corresponding to B in Section

24 Another example, *shú yǐ wéi tài zǐ ér kě* 孰以为太子而可 'Taking whom as the princess then is OK?' (*Mòzǐ* 墨子).

25 We use the lower-case *abc* here to distinguish this process from the *ABC* process mentioned in Section 3.3. Note that stage *b* (cf. Example 19) is indeed not so common.

However, it is quite possible since the exchange between *yǐ* *x* *v* *y* and *x* *yǐ* *v* *y* is quite justified. Similar to the *kě* construction, the evidence for the process from *a* to *c* is not diachronically obvious, since *a* has a top-heavy problem that will be modified by transferring directly to *c*. Therefore, the fact that *a* is relatively rare is understandable since *a* is a problematic (i.e., top-heavy) structure. The subscripts 'v' and 'p' denote 'verb' and 'patient' respectively, so *yǐ*<sub>v</sub> means *yǐ* is a verb, while *x*<sub>p</sub> means *x* is a patient.

3.3) is not attested, either. Moreover, even if there were an object fronting process, the formation of the *kě yǐ*<sub>1</sub> construction would raise another question: why is the object of *yǐ* (i.e., *x*) fronted while the object of the second *v* (i.e., *y*) is never fronted? Therefore, regarding the formation of the *kě yǐ*<sub>1</sub> construction, we believe that the object fronting process is highly unlikely. By contrast, the verb moving backward hypothesis seems eminently plausible.

When *yǐ* is interpreted as a full verb, the *kě yǐ*<sub>1</sub> construction is still a type of *kě* construction: the only difference is that the verb *yǐ* is followed by another *v*-*O* element, while *v* in the *kě* construction is not. Thus, the *kě yǐ*<sub>1</sub> construction retains all of the characteristics of the *kě* construction.

- The subject *x* is a patient subject whose semantic role equals the semantic role of the object of the verb *yǐ*.
- No agent of the verb *yǐ* is found.
- No object of verb *yǐ* is found.
- No anaphoric *zhī* 之 of verb *yǐ* is found.

Therefore, the question raised by Liu (2000) and Li (2001) that no object and no anaphoric *zhī* can follow *yǐ* is well explained here.

Note that the verbal use and the prepositional use of *yǐ* are so closely related that it is difficult to distinguish between these two usages. However, while it is not easy to tell one from the other, there is no doubt that *yǐ* functioned as both the verb ‘to use’ and the preposition ‘with’ in the pre-Qin era (Guo, 1997). Therefore, the shift from verbal use to instrumental use is feasible. When *yǐ* is treated as a preposition,<sup>26</sup> the role of *x* also accords to the role of the object of *yǐ*. This process is summarized as follows.

### The extensional structure of *kě yǐ*<sub>1</sub>

$x_{\text{instr}} + k\check{e} + y\check{i}_{1\text{ prep}} + v + (y)$ : no agent, no *zhī* after *yǐ*<sup>27</sup>

26 Note that the preposition *yǐ* is not merely an instrumental preposition, but also expands to become a preposition indicating location or condition. See Examples (1) and (2), below:

(1) *Héng mén zhī xià kě yǐ qī chí* 衡门之下，可以栖迟。 ‘At the bottom of the simple gate; can [we] rest [at this place].’ > ‘[People] can rest at the bottom of the simple gate.’ (*Shījīng* 诗经)

(2) *fū zǐ bèi zhī yǐ, qí zhāo mù yòu jìn, kě yǐ dé guó* 夫子被之矣，其昭穆又近，可以得国。 (*Guóyǔ* 国语) ‘Prince Zhou already has such virtue, and additionally his seniority in the family hierarchy is close to King Jin, it is accepted based on [these conditions] to obtain the state (i.e., become the king of this state).’ > ‘[Prince Zhou] can obtain this state (i.e., become the king of this state) because he already has such virtue and his seniority in the family hierarchy is close to King Jin.’

However, we will not pursue this here since it is not directly related to the topic in this paper.

27  $x_{\text{instr}}$  and  $y\check{i}_{1\text{ prep}}$  represent that *x* is an instrument, while *yǐ*<sub>1</sub> is a preposition.

Likewise, *yǐ* never takes an anaphoric object, even though the preposition–object relationship is apparent. According to our explanation, the phenomenon observed by Liu (2000) and Li (2001) should not be taken as a reason to refute Wang’s (2005) view, but indirectly supports our verb backward moving hypothesis. However, in many cases, the subject (i.e., *x*) is an agent of *v* but not the object of *yǐ*—designated *kě yǐ*<sub>2</sub> in this paper. As for the formation of the *kě yǐ*<sub>2</sub> construction,<sup>28</sup> we believe this was formed on the basis of *kě yǐ*<sub>1</sub> under three additional conditions, as is explained below.

#### 4.2 *Three conditions for the development from kě yǐ<sub>1</sub> to kě yǐ<sub>2</sub>*

The three additional conditions are the following: the decline of the prepositional function of *yǐ* as an instrumental marker (i.e., *kě yǐ*<sub>1</sub> developing into a compound word), the congruence of an instrument subject and an agent subject (i.e., causing the replacement of an instrument subject by an agent subject), and the need to break through the limitations of the *kě* construction (i.e., causing *kě yǐ*<sub>2</sub> to be used with a higher frequency). These conditions are discussed in detail below.

##### 4.2.1 Decline of the prepositional function of *yǐ* as an instrumental marker

We think that the decline of the prepositional function of *yǐ* owing to two facts.

Firstly, the process of the backward-movement of *yǐ* *vy* should have already neutralized the prepositional function of *yǐ* to some degree because of the elongated distance between *yǐ* and the instrument. The reason is obvious: The longer the distance between the two related elements, the more difficult it is to identify the relationship between them (Lu 2004: 5). We take (21 a) as an example.

- (21) a. 其木可以为棺，可以为车。(Chéng mǎ 乘马, Guǎnzǐ 管子)  
 qí mù kě yǐ wéi guān kě yǐ wéi chē  
 its tree OK PRE make coffin OK PRE make cart  
 ‘Woods [on the high mountains] can be made into coffins and carts.’

The deep structure of (21 a) should be (21 b) below.

28 Pulleyblank thought that the instrument subject can directly be extended to an agent subject. For example, *wáng kě yǐ shā rén* 王可以杀人. ‘Using the king to kill a person is OK.’ → ‘The king can kill a person.’ (Pulleyblank 1995: 23–24). In his opinion, the original mean-

- (21) b. ★以其木为棺 + 可, 以其木为车 + 可。 (constructed sentence)

*yǐ qí mù wéi guān kě yǐ qí mù wéi chē kě*

using its tree make coffin OK using its trees make cart OK

'Lit. [As for mountains], using its woods to make coffin is OK, [using its woods] to make a cart is OK.'

In the deep structure (i.e., 21 b), *yǐ* is a typical instrumental marker.<sup>29</sup> After the movement (i.e., 21 a), the prepositional function of *yǐ* is weakened to some extent since the distance between *yǐ* 以 and *mù* 木 'woods' is further away in the deep structure.

Secondly, when *x* is a body part, then it is not conventionally analyzed as an instrument of *yǐ* since it is an element with agentive feature. Therefore, we believe that the prepositional function of *yǐ* in such cases will be further weakened. In other words, the prepositional meaning of *yǐ* in *shǒu kě yǐ wéi guān* 手可以为棺 'the hands can be used to make coffin' should be weaker than in *mù kě yǐ wéi guān* 木可以为棺 'the wood can be used to make a coffin.'

Accordingly, we summarize the first condition below.

#### First condition for the transition from *kě yǐ<sub>1</sub>* to *kě yǐ<sub>2</sub>*

(1) when '*yǐ*-*v*-*Y*' is moved backward, then the prepositional function of *yǐ<sub>1</sub>* as instrumental marker is weakened to some degree; (2) if *x* is a body part of a person or an animal, then the prepositional function of *yǐ<sub>1</sub>* is further weakened.

1.  $X_{\text{body part}} + kě + yǐ_{\text{Iprep}} + V + (Y)$ : no agent, no *zhī* after *yǐ*  
→
2.  $X_{\text{body part}} + kě-yǐ_1^{30} + V + (Y)$ : no agent, no *zhī* after *yǐ*

Two accompanying results are that (1) *kě yǐ* could be treated as a compound word and (2) the *instrument object* of *yǐ* can be reanalyzed as the *instrument subject* of *v*. We explain this by taking (22 a) as an example.

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ing is 'the king may be used to kill a person,' later it is reanalyzed as 'the king may be the agent of killing a person.' We think Pulleyblank's observation is interesting; however, interpreting the 'king' as an instrument is somewhat farfetched.

29 Interpreting *yǐ* in the deep structure as a verb meaning 'to use' is possible. However, interpreting it as a typical instrumental marker is justified, too.

30  $X_{\text{body part}}$  means that the element *x* is a body part. *Kě-yǐ<sub>1</sub>* is dashed in between so as to show that it is a kind of compound word.

- (22) a. 马，蹄可以践霜雪。(Mátí 马蹄, Zhuāngzǐ 庄子)  
 mǎ tí ké yǐ jiàn shuāng-xuě  
 horse hoof can PRE tread frost-snow  
 'As for the horse, its hoof can be used to tread on frost and snow.'

The deep structure of example (22 a) should be (22 b) below.

- (22) b. ★ 以蹄践霜雪 + 可。(constructed sentence)  
 yǐ tí jiàn shuāng-xuě ké  
 using hoof tread frost-snow ok  
 'Lit. Using its hoof to tread the frost-snow is ok.'

Yǐ in the deep structure (i.e., 22b) is obviously an instrumental preposition. However, its prepositional function declines in (22 a) because of two reasons: (1) yǐ 以 is distant from tí 蹄 'hoof' after the movement and (2) tí 蹄 'hoof' is a body part with agentive feature. Just because of the decline of the prepositional function of yǐ, kě yǐ could be treated as a compound word and the *instrument object* tí 蹄 'hoof' of yǐ can be reanalyzed as the *instrument subject* of v jiàn 践 'tread.' In our opinion, this is the very beginning of the development from kě yǐ<sub>1</sub> to kě yǐ<sub>2</sub>. Based on this condition, we go on discussing the second condition: the replacement of an *instrument subject* with an *agent subject*.

4.2.2 The congruence of an instrument subject and an agent subject  
 When the x<sub>body part</sub> i.e., initially an *instrumental object* of yǐ, evolves as an *instrumental subject* of the matrix v, then it can be easily replaced by an agentive subject (i.e., the possessor of the body part). See alternative subjects between instrument and agent below.

- (23) 目<sub>instrumental subject</sub> 视威仪之礼。(Yuèshū 乐书, Shǐjì 史记)  
 mù shì wēi yí zhī lǐ  
 eyes watch impressive dignified PART rite  
 'The eyes watch the dignified rites.'

- (24) ★ 臣<sub>agentive subject</sub> 视威仪之礼。(constructed sentence)  
 chén shì wēi yí zhī lǐ  
 I watch impressive dignified PART rite  
 'I watch the dignified rites.'

In examples (23) and (24), the alternative relationship between body part and agent subjects is clear.<sup>31</sup> This is the same for the case including *kě yǐ*. Two examples are listed below.

- (25) 足<sub>instrumental subject</sub> 可以遍行天下。 (*Xìng'è* 性恶, *Xúnzǐ* 荀子)  
*zú kě yǐ biàn xíng tiān-xià*  
 feet OK PRE all-over walk world  
 'Feet can walk all over the world.'

- (26) ★人<sub>agentive subject</sub> 可以遍行天下。 (constructed sentence)  
*rén kě-yǐ biàn xíng tiān-xià*  
 people can all-over walk world  
 'People can walk all over the world.'

In example (25), *zú* 足 'feet' could be recovered as instrumental object of *yǐ* to some extent. However, as already elaborately illustrated in Section 4.2.1, it is quite probably reanalyzed as an instrumental subject. Then, *rén* 人 'people' as an alternative can replace it as a subject resulting in example (26) because of the congruence of an instrument subject and an agent subject. Based on the above discussion, we summarize the second condition as follows.

### Second condition for the transition from *kě yǐ<sub>1</sub>* to *kě yǐ<sub>2</sub>*

When the instrument subject is a body part of a person or an animal, then the agent (i.e., the possessor of the body part) can replace it in the subject position.

1.  $X_{\text{body part}} + k\check{e}\text{-}y\check{i}_1 + V + Y$   
 $\rightarrow$
2.  $X_{\text{person/animal}} + k\check{e}\text{-}y\check{i}_2 + V + Y$ <sup>32</sup>

The motivation for this development is that the agent is the possessor of the body parts. Onishi (2008: 35–38) made a similar conclusion: as the agent and the body part have some relations with 'one uses oneself' (i.e., 'I use my eyes'),

31 In modern Chinese, this is also common. For example, *yǎnjīng kàn hēibǎn* 眼睛看黑板 'Lit. Your eyes look at the blackboard' and *nǐmen kàn hēibǎn* 你们看黑板 'you look at the blackboard'.

32  $X_{\text{body part}}$  means x is a body part, while  $X_{\text{person/animal}}$  means x is a person or an animal. Both *kě-yǐ<sub>1</sub>* and *kě-yǐ<sub>2</sub>* are dashed in between in order to show that they are kind of compound words.

thus the instrument can represent the user (i.e., agent) and the agent implies the instrument to some degree.

Bearing this in mind, we analyze Example (22 a) furthermore as (27) below.

马，蹄可以践霜雪。(See transcription in example 22a)

→

(27) ★马可以践霜雪。(constructed sentence)

*mǎ ké-yǐ jiàn shuāng-xuě*

horse can tread frost-snow

‘The horse can tread on frost and snow.’

*Mǎ* 马 ‘horse’, the possessor of *tí* 蹄 ‘hoof’, definitely can replace *tí* 蹄 ‘hoof’ as a new subject designating an unproblematic sentence.<sup>33</sup> Typologically, the relationship between instrument and agent is attested by the fact that the same marker is used for Russian, Sanskrit (Lyons 1968), and other languages (Nilsen 1973). According to the discussion in Sections 4.2.1 and 4.2.2, we summarize the development of *kě yǐ* (i.e., *kě yǐ*<sub>1</sub> and *kě yǐ*<sub>2</sub>) as below.<sup>34</sup>

- **First stage:** typical *kě yǐ*, e.g., *qí mù ké yǐ wéi guān, ké yǐ wéi chē* 其木可以为棺，可以为车。‘Woods on the high mountains can be made into coffins and carts.’ (See gloss in Example 21a)
- **Second stage:** weakening of the prepositional function of *yǐ*, and the instrument object is reanalyzed as an instrument subject, e.g., *tí ké yǐ jiàn shuāng xuě* 蹄可以践霜雪 ‘its hoof can be used to tread on frost and snow.’ (See gloss in Example 22a)
- **Third stage:** replacement of the instrument subject with an agent subject resulting in *kě yǐ*<sub>2</sub>, e.g., *mǎ ké yǐ jiàn shuāng xuě* 马可以践霜雪 ‘the horse can tread on frost and snow.’ (See gloss in Example 27)

33 Note that we have already proved that the prepositional function of *yǐ* is weakened and it is possible to analyze *kě yǐ* as a compound word in section 4.2.1.

34 Onishi assumes a transition from the first to the third stage without mentioning the second stage. Therefore, the disadvantage of his hypothesis is the following: since it does not explain how the prepositional function of *yǐ* declines, *yǐ* is still a preposition indicating instrument. Accordingly, this hypothesis faces two problems: (1) If *yǐ* is still a preposition indicating an instrument, then how can we treat the instrument object of *yǐ* as a subject of the matrix *v*? (2) If the instrument object is not reanalyzed as the subject of the matrix of *v*, then the agent cannot replace the instrument object in the subject position. In sum, although there is an overlap of the motivation (i.e., body part has both agentive and instrumental features) for the two conditions and the diachronic evidence of the development



As such, the *kě yǐ*<sub>2</sub> construction can be characterized in the following way:

- An agent subject (i.e., *x*) of the matrix *v* cannot be recovered as the object of *yǐ*
- The matrix *v* is followed by an object.

Subsequently, the actual demand of a counterpart of the *kě* construction promotes *kě yǐ*<sub>2</sub> developing into a popular construction.

#### 4.2.3 Practical need to break through the limitations of the *kě* construction

As mentioned earlier, the *kě* construction has several special features: obligatory patient subject; incompatibility with an agent; no object after *v*; and no anaphoric *zhī* after *v*. In sum, the use of the modal auxiliary verb *kě* is restricted to sentences with passive meaning. This is quite different from the modal auxiliary verb that can be used in both active and passive sentences in other languages (e.g., English). As such, on a practical communicative level, a counterpart<sup>35</sup> is needed that could be used in an active sentence to break through the limitations of the *kě* construction.

As discussed above, there are the following features of the *kě yǐ*<sub>2</sub> construction: *v* following *kě yǐ*<sub>2</sub> can take an object, and the subject is an agent. Moreover, *kě yǐ*<sub>2</sub> as a compound word is semantically identical to *kě*. Therefore, *kě yǐ*<sub>2</sub> is a good counterpart (i.e., semantically identical but opposite in terms of syntax).

Precisely because of the need to break through the limitations of the *kě* construction, the *kě yǐ*<sub>2</sub> construction became more popular since the time of the *Guóyǔ*. One example is presented below.

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of *kě yǐ* from the second to third stages is not so clear, we think it is quite important to clarify the second stage.

- 35 According to Li (2004), *néng* was used as a modal verb from as early as the sixth century BC. Moreover, it was normally used in active sentences. See the difference between examples (1) and (2).

(1) *tiān zuò niè, yóu kě wéi, zì zuò niè, bù kě huàn* 天作孽，犹可违；自作孽，不可违。 (Tàijiǎ 太甲, *Shàngshū* 尚书) ‘Calamities sent by Heaven may be avoided; but there is no escape from those brought on by on.’

(2) *tiān néng chú qù zhī* 天能除去之。 ‘Heaven can remove the disaster.’ (Tiānzhì 天志, *Mòzǐ* 墨子)

However, although *kě* and *néng* are good counterparts in syntax, they are quite different in semantics (see Cai 2009). Generally, we think *kě* is more subjective while *néng* is more objective. Therefore, we do not consider *néng* a good counterpart of *kě*.

- (28) 若临大事，其可以贤于臣。(Jīnyǔ 晋语, Guóyǔ 国语)<sup>36</sup>  
 ruò lín dà shì qí ké-yǐ xián yú chén  
 if encounter great event he can wiser PRE I  
 ‘When [he] faces the great event, he can be wiser than me.’

Note that both *kě* and *kě yǐ*<sub>1</sub> are found in the earliest text *Shījīng*, while *kě yǐ*<sub>2</sub> is not. This diachronic evidence (i.e., *kě yǐ*<sub>2</sub> appeared later than *kě yǐ*<sub>1</sub>) also indirectly supports our hypothesis (i.e., *kě yǐ*<sub>2</sub> is formed based on *kě yǐ*<sub>1</sub>).<sup>37</sup> On the basis of the above analysis, we summarize the third condition for the transition as follows.

### Third condition for the transition from *kě yǐ*<sub>1</sub> to *kě yǐ*<sub>2</sub>

The practical demand to break through the limitation of the *kě* construction

X<sub>person/animal</sub> + *kě yǐ*<sub>2</sub> + V + (Y)<sup>38</sup>

Summing up Section 4, we believe that the *kě yǐ*<sub>1</sub> construction is still basically the *kě* construction, and the *counterpart* relationship between *kě* and *kě yǐ* mentioned in Section 1 only refers to the *kě* & *kě yǐ*<sub>2</sub> constructions. Considering the essential difference between *kě yǐ*<sub>1</sub> and *kě yǐ*<sub>2</sub>, we conclude the following.

1. The object of *yǐ* can be recovered in *kě yǐ*<sub>1</sub> rather than in *kě yǐ*<sub>2</sub>.
2. The subject should be interpreted as a kind of instrument or condition of *yǐ* in *kě yǐ*<sub>1</sub> whereas as an agent of V following *kě yǐ*<sub>2</sub>.
3. The *kě yǐ*<sub>1</sub> is not a compound word while *kě yǐ*<sub>2</sub> is.

Since *kě yǐ* underwent the development from *kě yǐ*<sub>1</sub> to *kě yǐ*<sub>2</sub>, the function of *yǐ* is quite complex and scholars have expressed different opinions. He (1986: 153) regarded *yǐ* in the *kě yǐ* and *zú yǐ* constructions as conjunction rather than preposition as no example of *kě yǐ* in which *yǐ* is followed by an object is attested in *Zuǒzhàn*. Zhu (2003: 53) supported He's opinion to some extent:

36 A detailed context is provided here for clarification:

Qí Xī cí yú jūn wèi, gōng wèn yuē: “Shú kě?” Dui yuē: “chén zhī zǐ Wú kě ... ruò lín dà shì, qí kě yǐ xián yú chén.” 祁奚辞于军尉，公问焉，曰：“孰可？”对曰：“臣之子午可。...。若临大事，其可以贤于臣。” [When] Qi Xi resigned his military position, Lord Jin Dao asked: ‘Who is suitable [to succeed to the position]?’ He answered: ‘My son Zi Wu is suitable [...] He can do better than me when facing important events.’

37 According to Zhu (2003: 20), there are 20 examples of ‘*kě* + *yǐ*’ in *Shījīng* and *Shàngshū*. In 18 of these *yǐ* should be interpreted as a preposition (i.e., the *kě yǐ*<sub>1</sub> construction), while in 2 it should be interpreted as *hé yǐ* 何以 ‘how, why’. In other words, there is no *kě yǐ*<sub>2</sub> construction in *Shījīng* and *Shàngshū*.

38 X<sub>A</sub> represents that X is an agent of V, and *kě yǐ*<sub>2</sub> here is a compound word.

*Yǐ* in the compound word *kě yǐ* (i.e., *kě yǐ<sub>2</sub>*) could be derived from both the preposition and the conjunction. Jing (1998: 37) stated that *kě yǐ* is a coordinate construction in which the semantic of *kě* equals *yǐ*. Zhang (1997: 54) thought that the *yǐ* in *kě yǐ* is not derived from the instrumental preposition but is just a marker without meaning. Liu (1999: 575) concluded that there is no convincing explanation of the nature of *yǐ* in *kě yǐ* until now. We think that our hypothesis contributes to four aspects: (1) it is the first try to explain how *kě* and *yǐ* co-occur in a sequence; (2) it convincingly answers the question why *yǐ* never takes an object and (3) it clearly shows the interpretation of the nature of *yǐ* should depend on *kě yǐ<sub>1</sub>* and *kě yǐ<sub>2</sub>*, respectively; (4) it demonstrates how *kě yǐ<sub>1</sub>* developed into *kě yǐ<sub>2</sub>*.

We also note that, from the beginning of the Han dynasty, the ‘counterpart’ relationship between the *kě* construction and the *kě yǐ<sub>2</sub>* construction has not been strictly applied and they are interchangeable in some instances. This is why ever more exceptions are found in *Shǐjì* (see Chi 2004). We believe this happened because *kě yǐ<sub>2</sub>* developed into a compound word, and it mainly expressed deontic modality,<sup>39</sup> just as *kě* did.

## 5 Conclusion

*Kě* is a modal auxiliary verb with full semantic rather than a passive marker in the *kě* construction. With respect to the formation of the *kě* construction, we refute the following hypotheses: (1) The *kě* construction is formed by adding *kě* to a notional passive; (2) The *kě* construction is formed by fronting the object in an active sentence including *kě*; (3) The *kě* construction is formed solely by reanalysis.

We have provided a new hypothesis to explain the formation process of the *kě* construction: the underlying structure is ‘v-o’ + *kě*, in which *kě* expresses the suitability of the action v-o. The v is then moved backward to avoid the top-heavy problem, which results in the *kě* construction o + *kě* + v. Accordingly, every feature of the *kě* construction (i.e., obligatory patient subject; incompatibility with agent; no object after v; no anaphoric *zhī* after v) is explained.

In particular, this hypothesis helps to explain the formation of the *kě yǐ* construction: *kě* is used to comment on the serial verb construction ‘yǐ-x-v-y’—meaning ‘using/taking something to do something’—and the underlying

39 In modern Chinese, *kě yǐ* has assumed all of *kě*’s functions. Two factors have contributed to this: both *kě* and *kě yǐ* indicate modality and the trend of disyllabification.

structure is 'yǐ-x-v-y' + *kě*, which can be changed to 'x-yǐ-v-y' + *kě* since yǐ-x-v-y is interchangeable with x-yǐ-v-y in archaic Chinese. Simply by imitating the rule of the formation of the *kě* construction, the object of yǐ (i.e., x) remains at the beginning of the sentence, while all of yǐ-v-y is moved backward to avoid the top-heavy problem. Interpreting yǐ as a verb meaning 'to use/to take' is justifiable only at the initial stage, as it quickly developed into a preposition—indicating instrument. Irrespective of whether yǐ is a verb or a preposition, the subject N can be interpreted as the object of yǐ; we define this as *kě* yǐ<sub>1</sub>. Using *kě* yǐ<sub>1</sub> as a base, *kě* yǐ<sub>2</sub> was formed because of three conditions: (1) The decline of the prepositional function of yǐ as an instrumental marker, (2) the congruence between an instrument subject and an agent subject within a specific context; and (3) the need to break through the limitations of the *kě* construction. Scholars have rarely bothered to differentiate between *kě* yǐ<sub>1</sub> and *kě* yǐ<sub>2</sub>, yet we feel that this distinction is crucial for the study of the *kě* yǐ construction.

Moreover, the verb moving backward hypothesis provides new insights into explaining the formation of similar constructions (e.g., the *nán* 难 'difficult to v' / *yì* 易 'easy to v' / *zú* 足 'sufficient to v' constructions) in ancient Chinese, as well as into typological studies of the tough construction.

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