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Chapter 7

A New Approach on the Modal KE 可 and the Relation Between the Aspectual and the Modal System in Archaic Chinese



Barbara Meisterernst

Abstract This investigation attempts to apply some of the hypotheses proposed with regard to a reconstructed verbal morphology in Archaic Chinese (Old Chinese) to the analysis of modal predication. The focus lies on the analysis of the morpho-syntactic constraints of the complement of the modal verb of possibility ‘可 *kě* ‘possible, can’ in Early and Late Archaic Chinese. The objective of the study is to shed some light on the relation between modality and aspect and its possible reflection in the morphology of the complement of KE during a time when the derivational morphology of Chinese was possibly still transparent for the speaker; even though it may not have been productive anymore. It will be proposed that the complement of KE always consists of a complex *vP* including the features causativity and resultativity. Both features can, but do not have to be reflected in the morphology of the verbs in the complement of KE.

Keywords Archaic Chinese Aspect Modality Morphology Resultativity

7.1 Introduction

This investigation attempts to apply some of the hypotheses proposed with regard to a reconstructed verbal morphology in Archaic Chinese (Old Chinese) to the analysis of modal predication. The focus lies on the analysis of the morpho-syntactic constraints of the complement of the modal verb of possibility 可 *kě* ‘possible, can’ in Early and Late Archaic Chinese; the variant 可以 *kěyǐ* will

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not be at issue in this study.¹ The strongest argument in favor of focusing on KE and excluding KE YI is that the former involves a change in the argument structure, but also in the aspectual structure of the complement verb, whereas the latter does not. The changes of argument and aspectual structure are two features that are supposedly reflected in the morphology of the verb in Archaic Chinese. The complement of KE is passivized or unaccusative as a rule (Pulleyblank 1995: 23; Liu 刘利 2000; Meisterernst 2008a), referring to a resultant state projected in the future. The internal argument of the complement verb, the patient or theme, raises out of *vP* and functions as the subject of the modal predicate. A second argument comes from the fact that in Early Archaic Chinese (EAC) and the earlier period of Late Archaic Chinese (LAC), KE is evidently more frequent than KE YI; this suggests that it may be the basic form.² Additionally, although both KE and KE YI at least to a certain extent allow the same verbs and types of verbs in their complement, many of the verbs attested with KE appear only in the later LAC period or in Early Middle Chinese in the complement of KE YI. At this time, any traces of a derivational morphology had certainly started to lose their transparency.

The objective of the study is to shed some light on the relation between modality and aspect and its possible reflection in the morphology of the complement of KE during a time when the derivational morphology of Chinese was possibly still transparent for the speaker; even though it may not have been productive anymore (see Schuessler 2007). It will be proposed that the complement of KE always consists of a complex *vP* including the features causativity and resultativity. Both features can, but do not have to be reflected in the morphology of the verbs in the complement of KE. Since the study focuses on the early relation between KE and its complement, a discussion of its particular semantic features in combination with negation, and its later developments as a deontic and epistemic modal marker are not included in the study.

7.2 The Modal Verb 可 可 in Archaic Chinese

In Archaic Chinese, two basic groups of pre-modal verbs can be identified, the modal verbs of possibility and the modal verbs of volition (e.g. Peyraube 1999; Liu 刘利 2000; Li 李明 2001; Meisterernst 2008a, b).³ The modal verbs of possibility constitute the basis of the modal system in Archaic Chinese (Early Archaic Chinese EAC (10th–6th c. BCE) and Late Archaic Chinese LAC (5th–2nd c. BCE)

¹Another variant with 與 *yǔ* > 可與 *kěyǔ* will also be excluded from the study. It is confined to a small number of verbs in its complement.

²Of the 79 instances of KE in the *Shijing* 19 (24%) involve YI, leading to the construction KE YI. Additionally, 6 instances show the combination of KE with the functional head 與 *yǔ*, in a function similar to YI.

³The more recent study on modal verbs by Wū 巫雪如, her unpublished PhD thesis, could unfortunately not be consulted yet.

and they are the first modal verbs that appear on a regular basis as modal auxiliary verbs expressing root modal values. They belong to the category of ‘first modals’ (Leiss 2008). The most important modal verbs of possibility in Archaic Chinese are the modal verbs 可 *kě* ‘possible, can’ and 能 *néng* ‘able, can’. Both modal verbs derived from lexical verbs and they remain attested in this function throughout the archaic period.

- (1)a. 有無父之國則可也。 | (zuǒzhuàn, huán 16.5.3) (LAC)

Yǒu wú fù zhī guó zé kě yě

Have not.have father GEN state then possible SFP

If there is a country without fathers, then it is possible.

- b. 能信不為人下，吾未能也。(zuǒzhuàn, zhāo 1.1.13) (LAC)

Néng xìn bù wéi rén xià, wú wèi néng yě

Able believe NEG be man__below, I NEG able SFP

Those who are able to believe are not below others; I am not able to.

According to Li 李明 (2001: xiv), in the Oracle Bone and in the Bronze Inscriptions the two modal verbs are only very infrequently attested. In the 詩經 *shījīng* (EAC), *kě* and *néng* already appear regularly as modal verbs followed by a verbal complement (see examples (2a. and b.)). Of the two, *kě* is more frequent.⁴

- (2)a. 牆有茨，不可埽也。中冓之言，不可道也。所可道也，言之醜也。

Qiáng yǒu cí, bù kě sǎo yě, zhōng gōu zhī yán,

wall have tribulus, NEG KE wipe SFP, middle secret. chamber GEN word,

bù kě dǎo yě, suǒ kě dǎo yě, yán zhī chǒu yě

NEG KE speak SFP, REL KE_speak SFP, word GEN

abomination SFP

On the wall there is a tribulus, it cannot be wiped away. The words in the middle chamber may not be talked about. Those that can be talked about are an abomination of speech. (shījīng 046/1A) (EAC)

- b. 靜言思之，不能奮飛。(shījīng, dà yǎ 026.5) (EAC)

Jìng yán sī zhī, bù néng fèn fēi

Quiet word think 3Obj, NEG NENG rise fly

In quietude thinking about it, I am not able to rise and fly away.

The basic semantic function of *néng* is to express participant-internal possibility, i.e. ability, whereas the basic function of *kě* is to express participant external circumstantial (root) possibility (Meisterernst 2008a). Besides the expression of external circumstantial possibility, *kě* can also express deontic modality in the context of negation and in rhetorical questions.⁵ A deontic reading of *néng* in the same syntactic contexts is much less frequent and appears later than with *kě*. But *kě*

⁴In the *shījīng*, 79 instances of *kě* can be counted in contrast to 29 instances of *néng*.

⁵All modal verbs including KE appear frequently in combination with negation and in rhetorical questions. These are the syntactic environments, which trigger their development into deontic

and *néng* also differ syntactically in two relevant ways. First, *kě* appears in a typical raising construction, whereas *néng* possibly functions as a control verb in LAC, which takes its subject as an argument.⁶ Evidence comes from the fact that the subject of *néng* and the subject of the embedded verb are identical. This is not the case with KE. The second syntactic difference between *kě* and *néng* is the fact that for *kě* different analyses are mandatory in AC depending on the presence or absence of the functional head 以 *yǐ*.⁷ These are:

- (a) 可 *kě* + *vP*: the complement verb is regularly passivized/unaccusative and refers to the prospective resultant state of a telic event; KE requires the internal argument of the complement verb to appear in subject position;
- (b) 可以 *kěyǐ* + *vP*: the complement verb retains its original argument structure; the functional head YI allows the external argument of the complement verb to appear in subject position; this can be the agent (causer) of a transitive verb, or the agent, or the experiencer (e.g. with adjectives or state verbs) of an intransitive verb.

The different analyses mandatory for the complement of *kě* depending on its syntactic structure are not available for the modal verb *néng*.⁸

At the end of the LAC and at the beginning of the Early Middle Chinese period (EMC, 2nd. c. BCE to 2nd c. CE), the stringent distinction between the complements of *kě* and of *kě yǐ* weakens considerably (see Meisterernst 2008a) and the complement of *kě* is not necessarily passivized any longer. The different constructions are exemplified in (3a.–c.).⁹ Example (3a) represents the first structure with the internal argument of the complement verb as subject of the modal predicate; (3b) represents the second structure with the external argument of the complement verb in subject position licensed by the functional head YI. (3c) represents the Early Middle Chinese innovation; the external argument can appear in subject position without being licensed by YI.

- (3)a. 匹夫猶未可動，而況諸侯乎! (*zhūāngzǐ* 4.2.1) (LAC)
 Pǐfū yóu wèi kě dòng, ér kuàng zhūhóu hū
 Commoner still NEG_{asp} KE move, CON rather feudal.lord
 SFP
If even a commoner cannot be moved, much less can a feudal lord!
- b. 子犯知齊之不可以動，(*guóyǔ jìnyǔ*) (LAC)
 Zǐ Fàn zhī Qí zhī bù kě yǐ dòng,

markers. KE in combination with double negation is particularly frequent and it is the predominant means to express strong obligation in LAC (Meisterernst 2017b).

⁶An exact syntactic analysis of NENG has not been proposed yet and it is not at issue in this paper.

⁷Different analyses have been proposed, for instance Pulleyblank (1995), Liu 刘利 (2000), Meisterernst (2008a).

⁸For a discussion of the differences with regard to the modal 必 *bì* and the deontic modal verb 當 *dāng* see Meisterernst (2017a).

⁹For a discussion on the different analyses of this construction and the role of 以 *yǐ* see Meisterernst (2008a).

Zi Fan know Qi GEN NEG can move
Zi Fan knows that Qi cannot move.

- c. 「臣愚以為可賜爵關內侯 (*hànshū* 36: 1947) (EMC)
 chén yú yǐ wéi kě cì jué guān nèi hóu,
 I stupid assume can bestow rank pass inner marquis,
*I am stupid, but I assume that you can/should bestow upon him a position
 and make him marquis of Guannei, ...*

Another relevant characteristic of KE is that it is the most common way to code strong deontic modality in AC, i.e. it is the only means to express a strong obligation ‘must’. Mandatory for this function is that KE appears in combination with double negation: *kě* ‘NEG 可 (以) *kě*(yǐ) NEG vP’. In contrast to the affirmative construction with *kě*(yǐ), double negation + KE never express root possibility (Meisterernst 2008b; Meisterernst 2017b; Meisterernst forthcoming). The obligation reading derives from the logical identity of ‘it is not possible that not $p \supset \neg p$ ’ with ‘it is necessary that $p \supset p$ ’. Depending on the construction, the subject can be the direct addressee (2nd person), or another participant in the speech (see also Meisterernst 2017a). In example (4), KE appears in the passive/unaccusative construction. The patient/theme appears as the subject of KE, the agent is not overtly present in the structure.

- (4) 臣違君命者，亦不可不殺也。」 (*guōyǔ, lǚyǔ shàng*) (LAC)
 Chén wéi jūn mìng zhě, yì bù kě bù shā yě
 subject oppose ruler order REL, also NEG KE NEG
 kill SFP
A subject who opposes the order of his ruler must also be killed.

Based on the development of the modal system in LAC and EMC and inspired by studies on the modal system in the Germanic languages (e.g. by Abraham and Leiss 2008), a close relation between modality and the telicity features of the complement of modal verbs has been proposed in Meisterernst (2017a). Meisterernst (2017a) additionally suggests a connection between the loss of a possible derivational morphology in Chinese and the development of the system of deontic modal markers.

7.3 A Brief Overview on Modality and Aspect

7.3.1 *The Ge-Prefix in the Germanic Languages and Modality*

Abraham and Leiss’s (2008: xiii) in their studies on the TAM (tense-aspect-modality) system propose a strong and possibly universal convergence relation between root modal readings and perfective aspect or [+TELIC/ TERMINATIVE] verbs, and between epistemic readings and imperfective aspect or

[−TELIC/TERMINATIVE] verbs. According to them, this accounts for the different readings of modal verbs such as ‘must’ and ‘may’.¹⁰ Leiss (2008) connects the diachronic development of the articulate system of modal verbs in the Germanic languages to the loss of an earlier aspectual system in the Germanic languages (Leiss 2008): “Languages which have lost an elaborate aspect system tend to develop articles ... as well as a class of modals with deontic and epistemic meanings ...” Germanic modal verbs start to grammaticalize from preterite- presents, and, even more importantly for the present discussion, they tend to embed a perfective infinitive (see Leiss 2008: 18) marked by the perfective (resultative prefix *ge-*).¹¹ The feature of perfectivity always includes the future-projecting features typical in deontic modals (Leiss 2008: 19). Additionally, Abraham claims that even if modal readings are not directly and overtly caused by the aspectual structures of the embedded (infinitival) complement, they are still coded by aspect (2009: 251). The following two examples represent different functions of the *ge-* prefix in Old English; in a. it appears in a bare infinitive in the complement of a modal verb and b. in the imperative (cited from McFadden 2015). Both examples are future projecting and have a modal meaning.

(5)a. þæt menn hit gehyran mihton (coaelhom,+AHom_1:451.233)

That man it hear may

so that man may hear it

b. and þonne þū eft cymst, geoffra þine lac

(coaelhom,+AHom_16:19.2269)

And when you again come, offer your sacrifice

and when you come back, make your offering.

In contrast to Modern German and Dutch, where *ge-* is an integral part of the participle perfect and passive, the exact function of the *ge-* prefix in Old English is difficult to determine. Verbs with the *ge-* prefix evidently interact with aspect and aktionsart, argument structure and (lexical) semantics of the verb, but it is not entirely clear what their exact function was (McFadden 2015). According to a corpus study of Old English carried out by McFadden (2015: 9), 25.4% of the clauses show *ge-* on their main verb, particularly in contexts “suggestive of perfectivity/telicity and disfavored elsewhere”. McFadden presents examples of the *ge-* prefix appearing on a present participle, in *to*-infinitives, in finite forms, in bare infinitives, in imperatives and in past participles. Frequently verbs with a *ge-* prefix appear in the syntactic context of pre-modals, and the verbs HAVE and BE.

¹⁰For more discussion see Meisterernst (2017a) and Meisterernst (forthcoming). Telic (terminative verbs) include the endpoints of a situation in their structure. In Vendler’s (1967) classification, they are categorized as achievements and accomplishments. Atelic [−TERMINATIVE] verbs do not include an endpoint in their temporal/aspectual structure; these are states and activities. Meisterernst (2015, 2016) applies this framework to the analysis of the aspectual structure of pre-modern Chinese and proposes a location of the telicity features in the Inner Aspect Phrase following Travis (2010).

¹¹For a more extensive discussion and a comparison with Slavic languages see (Heindl 2009).

According to the data collected by McFadden, verbs with the *ge*-prefix are close to categorical in perfect contexts, accordingly McFadden proposes the function ‘resultative’ as a common function of the different occurrences of *ge*-prefixed verbs. He analyzes the *ge*-prefix as a *res(ultative)* head, following Ramchand’s (2008) verbal decomposition. It refers to a target state that holds at reference time, “...target states can be found in clauses with all kinds of tense and aspect, which is at least broadly in line with the distribution we observe for *ge*-” (McFadden 2015: 25). The resultative function of the *ge*-prefix was also proposed in van Kemenade and Los (2003) for various stages of Dutch and English. This proposal is clearly distinct, “from proposals that connect *ge*- to (outer) aspect, in particular Streitberg (1891)’s claim that it marks perfectivity” (McFadden 2015: 25), but it points to a functional similarity of the prefix *ge*- with parts of the reconstructed derivational morphology of Archaic Chinese.

Different from the other Germanic languages, in English the *ge*-prefix disappears almost entirely. The reasons for the decline of *ge*- in ME are far from clear according to McFadden. He claims that it is possible “that lexical verbs increasingly came to be able to realize the *res* head themselves, obviating the need for a separate realization by *ge*-. At some level this must ultimately be the case, since in

Ramchand’s system, verb roots that can appear in Accomplishments and Achievements in PDE [Present-Day-English] must be analyzed as covering the *res* head.” (McFadden 2015: 30) The same seems to be true to a great extent for LAC.

The weakening of the aspectual function of the *ge*-prefix can also be observed in Middle High German (MHG), where *ge*-verb complements frequently appear with the possibility modal verbs *mugen* ‘may’ and *kunnen* ‘can’ (both express possibility). From Old High to Middle High German there is a tendency for *ge*-verbs to appear in contexts independent of their aspectual reading (Behagel 1924, cf Heindl) (Heindl 2009: 124).

The brief discussion of the diachronic development of the *ge*-prefix in the Germanic languages reveals that its function can be compared, at least to a certain extent, to the derivational morphology related to aspectual meanings of Archaic Chinese; this is introduced in the next paragraph (see also Sybesma 1994; Meisterernst 2017a; Aldridge and Meisterernst 2018). Sybesma (1994) already noticed this relation; he compares the function of the Modern Mandarin aspectual marker *-le* to the Middle Dutch prefix *ge*-. Recently, Aldridge and Meisterernst (2018) propose that the source structures of the Modern Mandarin aspectual system develop after the loss of transparency of the archaic derivational morphology of the verb. The discussion also shows that verbs marked by the prefix *ge*- show a strong tendency to appear in the complement of modal verbs in the Germanic languages. The exact status of *ge*- as expressing either grammatical or lexical aspect, aktionsart in the different Germanic languages, is not entirely clear. The fact that it is almost mandatory in particular aspectual contexts argues for its being located in the outer aspect phrase, which hosts the grammatical aspect. On the other hand, an analysis as a resultative head (McFadden 2015) points to its location within the complex vP, i.e. its relation to the inner aspect phrase (following Travis 2010; see also Meisterernst 2016 for the Inner Aspect Phrase in pre-Modern Chinese). Perfectivity

and imperfectivity referring to the category grammatical aspect are located in the outer aspect phrase; the categories [+/-TELIC] referring to the lexical aspect, the aktionsart of the verb, are generated in the inner aspect phrase (see e.g. Travis 2010). An analysis of the *ge*-prefix as belonging to the inner aspect points to its close functional similarity to the derivational aspectual morphology of Archaic Chinese. For Archaic Chinese, it is difficult to propose the existence of the category grammatical aspect, due to the fact that the reconstructed morphology does not seem to be mandatory (see also Jacques 2016: 205). On the other hand, the marking of telicity features is typically considered as belonging to the derivational morphology (Kiefer 2010: 145); derivational morphology has also been proposed as typical for the Tibeto-Burman languages. Accordingly, Meisterernst (2016) proposes that the reconstructed aspectual morphology in Archaic Chinese is rather derivational than inflectional (for a similar view see also Xing and Schuessler, forthcoming); this contrasts to the proposals e.g. in Jin 金理新 (2006) and in Unger (1983).

7.3.2 Derivational Morphology in Archaic Chinese

Although not all scholars agree on the assumption that Archaic Chinese actually had a kind of morphology by affixation, this investigation makes use of the reconstructions of derivational morphemes proposed in the literature.¹² It attempts to integrate the various proposals relating the Chinese morphological system to other Tibeto-Burmese languages by investigating the morphological structure of the verbs appearing in the complement of the modal verb *kě*.¹³

The previous section showed that the Germanic *ge*-prefix has functions related to telicity and to the resultative; similar functions have been proposed for the Archaic Chinese derivational morphology. The situation in the Germanic languages points to a close relation of these features with modal predicates. Additionally, both languages developed an intricate system of modal markers after the loss of aspectual morphology. As mentioned above, the complement of KE was passivized by default, thus referring to a resultant state projected in the future. This makes it semantically comparable to the PPPs (perfect and passive participles marked by the

¹²Discussions on a morphological system of Archaic Chinese are exacerbated by the Chinese writing system, in which phonological alternations are not necessarily marked. Additionally, the Chinese morphology disappeared much earlier than in e.g. Tibetan and Burmese; it had been entirely lost at the time of the earliest Tibetan written documents (6th c. CE). According to Schuessler (2007: 41), even one of the youngest derivational morphemes, i.e. the suffix **-s*, proposed in the literature (e.g. Jin 金理新 2006) as marker of the perfective aspect, had “become a general purpose device to derive any kind of word from another” in Archaic Chinese. For discussions on the existence of a morphological system in Chinese, see also Branner (2003), Harbsmeier (2016) to mention only a few.

¹³For relevant discussions see for instance Sagart (1999), Gassmann and Behr (2005), Jin 金理新 (2006), and Schuessler (2007).

prefix *ge-*) in the Germanic languages discussed e.g. in McFadden; these often appear in the complement of modal verbs, expressing root modality. For Archaic Chinese, predominantly two different derivational affixes have been proposed in the literature, which are supposed to express meanings comparable to those of the PPPs of the Germanic languages, (a) a suffix **-s* and (b) a prefix which causes a voicing alternation. These affixes were frequently connected to distinctions within the grammatical aspect, i.e. the perfective and the imperfective aspect, a distinction between transitive and intransitive verbs and/or causative and unaccusative verbs (see e.g. Jin 金理新 2006; Mei 梅祖麟 1988, 2015a, b; Wang 王月婷 2014). Contrastingly, Meisterernst (2016) proposes that the reconstructed morphology concerns the lexical aspect, aktionsart, rather than the grammatical aspect. The aktionsart morphology adds semantic features to the verb such as ingressiveity, terminativity, iterativity, etc. (Kiefer 2010: 145). This fits well the meanings proposed for a number of derivational affixes reconstructed e.g. in Sagart (1999). Two different derivational processes have been proposed for aspectual distinctions related to the resultative (e.g. Unger 1983; Huang 黃坤堯 1992; Jin 金理新 2006; Wang 王月婷 2014). These will be briefly discussed below.

1. The suffix **-s* (Haudricourt 1954; Downer 1959; Unger 1983; Sagart 1999; Jin 金理新 2006, etc.).

This suffix has been discussed under the label ‘derivation by tone change’ *shēng bié yì* 四聲別意, because it manifests itself in an alternation of the reading of words in any of the three tones of Middle Chinese (平聲 *píngshēng*, 上聲 *shǎngshēng*, and 入聲 *rùshēng*) with a reading in the 去聲 *qùshēng*. The *qùshēng* is supposed to have developed from a former derivational suffix **-s* which changed into *-h* and further into the *qùshēng* (Haudricourt (1954). The process most likely took place in different stages during the Archaic and in the Early Middle Chinese periods (beginning with the 2nd c. BCE). Based on transcriptional material, Pulleyblank (1983) claims that sibilant finals (the basis for the *qùshēng*, and accordingly any traces of a possible morphological marking by the **-s*—suffix) were certainly entirely lost by the end of the 4th century CE. Double readings and minimal pairs involving a cognate in the *qùshēng* are relatively frequent. Jin 金理新 (e.g. 2006: 317, 321, 325f), Schuessler (2007), and Xing and Schuessler (forthcoming) propose two basic functions of the suffix **-s*¹⁴: Schuessler (2007: 40–46) based on the earliest materials available proposes a function (a) to increase valency, and a function (b) to form new passive words. Jin 金理新 (2006) proposes (a) a transitivization function and (b) a deverbalization function (Jin 金理新 2006: 325). First, the ‘passive’ (or ‘deverbalization’) function is introduced, since it seems to be the one most likely to be found in the complement of KE.

¹⁴Schuessler and Jin 金理新 thus reduce the multiple functions proposed before in the literature, e.g. in Downer (1959), which seemed to suggest that any kind of word can be derived by this suffix. In a recent article Jacques (2016) proposed different origins for the **-s*—suffix of Old Chinese. It is very well possible that the affixes of Old Chinese have different origins, which merged due to sound changes.

(a) The suffix **-s* indicating the resultative (perfective) aspect

Jin 金理新 (2006) claims that the change from verb to noun is frequently subsumable under a change from the imperfective to the perfective aspect. The latter form, referring to a resultant state, has subsequently been employed as an adjective or a noun, to the effect that the perfective aspect often involves a deverbalization process, resulting in deverbal adjectives and nominals (Jin 金理新 2006: 323f); sometimes this process is reflected by different graphic variants.

- (6) verbs with a *qūshēng* variant resulting from a reconstructed suffix **s*—
- 治 *chí* (**r-de*) ‘govern’ <> 治 *zhì* (**r-de-s*) (Jin 金理新 2006: 511) well-governed
 - 過 *guō* (**kor*) ‘pass by’ <> 過 *guò* (**kor-s*) ‘exceed, transgress(ion)’ (Jin 金理新 2006: 322)¹⁵

The following example represents the verb *chí/zhì* in alternating readings: in (7a) it appears in the *píngshēng*, in b. it appears in its variant in the *qūshēng* reading. The variant with an **-s/*h* suffix evidently refers to an achievement and the state resulting from a preceding telic event, whereas the reading in (7a) is transitive and causative.

- (7a) 政以治民，刑以正邪。 (*zuǒzhuàn, yǐn* 11) (LAC)
 Zhèng yǐ chí(**r-de*(*dri*)) mǐn, xíng yǐ zhèng xié
 Government YI regulate people, punishment YI correct bad
The government is necessary in order to correct the people; the punishments are necessary to correct the bad.
- b. ... 使為左師以聽政，於是宋治。 (*zuǒzhuàn, xī* 9) (LAC)
 Shǐ wéi zuǒshī yǐ tīngzhèng, yúshì Sòng zhì(**r-de-s*(*dri^h*))
 Cause become *zuoshi* CON manage.government,
 —thereupon Song ordered
 ... *he made him Zuoshi and let him manage the government, and thereupon Song was well ordered.*

The same process of derivation is also attested in Classical Tibetan (Jin 金理新 2006: 325, 329). The suffix (OC **-s, *-h*) is probably related to the Tibeto-Burman suffix *-s* (Schuessler 2007: 42; Huang 黃坤堯 1992; Jin 金理新 2006, etc.); this was the most productive derivational affix in Classical Tibetan; it has obvious aspectual functions.¹⁶ Together with the past, it also appears in the imperative, i.e. in a clearly modal and future-projecting function.

¹⁵Schuessler (2007: 40) argues that “Word classes like ‘noun’ are unmarked in CH, hence tone C (*qūshēng*) does not make a noun out of a verb, as is often maintained.” Derived *qūshēng* nouns were, in fact, originally verb forms, e.g. ‘resultant state’ (Jin 金理新 2006), or passive forms [Schuessler (exopassives by tone the suffix **-s* = Tone C)] Wang 王月婷 also proposes an aspectual ‘perfective’ reading for *guò* in the *qūshēng*.

¹⁶This *-s* never occurs following coronal finals *dnlr s*. (In some older texts, a *-d* allomorph exists after coronal finals.)

(8)

	Present	Past	Future	Imperative
‘finish’	<i>Sgrub</i>	<i>Bsgrubs</i>	<i>Bsgrub</i>	<i>Sgrubs</i>

According to Saxena (1997: 288), the Tibetan morphological aspectual system is still largely attested in the first documents in Written Tibetan, i.e. in *Dunhuang* manuscripts from the 6th century. First traces of its decay can already be perceived in these texts, though. In Classical Tibetan, the consistent morphological marking of tense/aspect was already lost and the same structure is used for the imperfective and the perfective aspects (Saxena 1997: 291). Saxena concludes (1997: 304) that

the loss of the tense/aspect system coincides with the development of a new periphrastic construction expressing distinctions formerly marked by the tense/aspect morphology. Although the new Tibetan structures are somewhat different from the new aspectual structures developing in Chinese, the emergence of a new aspectual system at the beginning of the Early Middle Chinese period, can similarly be connected to the loss of former aspectual morphology in Archaic Chinese. This has been proposed in Meisterernst (2016) and in Aldridge and Meisterernst (2018).

According to the default structure of the complement of the modal verb KE at issue in this paper, we should expect to find verbs with the resultative **-s*—suffix on a regular basis in the complement of KE. However, the data suggests that although the verbs in the complement of KE frequently have a *qùshēng* reading, they do not necessarily belong to the verbs traditionally connected with a passive, perfective or resultative reading. Quite a number of these verbs rather seem to

belong to the category of transitivity verbs, displaying an increase of valency (Schuessler 2007; Xing and Schuessler forthcoming). Accordingly, the transitivity suffix **-s*—will also be introduced briefly in this paragraph.

(b) The suffix **-s* indicating an increase of valency

Some of the verbs showing an increase of valency appear as one part of introvert-extrovert pairs according to Schuessler (2007), and Xing and Schuessler (forthcoming). The introvert variant frequently has a *shǎngshēng* reading, resulting from a former **-ʔ*—suffix, whereas the extrovert variant has a **-s*—suffix resulting in an increase of valency, usually from transitive to ditransitive verbs. Schuessler’s terminology is inspired by Mei 梅祖麟 (2000: 339, cf. Xing and Schuessler), who classifies these categories as endodirectional and exodirectional. This corresponds to a certain extent to Jin’s 金理新 (2006: 360f) classification of the valency increasing **-s*—suffix as the ‘giving’ (施予 *shīyǔ*) derivation¹⁷; this derivation constitutes one of Jin’s 金理新 major derivational classes of the **-s*—suffix. It applies to many verbs with an outward reading such as verbs of giving, helping etc. According to Jin 金理新 (2006), the verbs of ‘giving’ are derived from the verbs of ‘receiving’ by the suffix **-s*. Consequently, verbs with a ‘receive, obtain’ (得到

¹⁷Jin 金理新 provides a number of different functions for the transitivity **-s*—suffix. These will be discussed when relevant with regard to the verbs in the complement of KE at issue in this paper.

dédào) reading do not appear with an *-s—suffix. This clearly indicates that the verbs to which the *-s—suffix can attach are subject to particular constraints. The verbs of receiving can with certainty be classified as non-causative, but Jin 金理新 claims that the verbs of giving derived by an *-s—suffix are also not necessarily causative verbs; they are frequently ditransitive verbs. Jin 金理新 proposes that the ‘giving’ function of the *-s—suffix is an extension of its function with non-agentive verbs (受事動詞) (Jin 金理新 2006: 366); in Jin’s 金理新 terminology these are accusative verbs.

Two verbs taken from Xing and Schuessler (forthcoming) represent the valency increasing function of the suffix *-s, more will be discussed below.

- (9) a. 買 *mǎi* *mrêʔ tr. ‘to buy’
 b. 賣 *mài* *mrê-s tr. (‘to let buy’): ‘to sell’
- (10) a. 視 *shì* *giʔ tr. ‘to look at’
 b. 示/視 *shì* *gi-s tr. (‘to let someone look at sth.’): ‘to show’

Another category relevant in the present discussion is the voiceless-voiced alternation of the initial consonant; it semantically resembles the function of the resultative/perfective function of the *-s—suffix.

2. The voiceless (imperfective)—voiced (perfective) alternation of the root initial possibly caused by a former sonorant nasal prefix or by the causative prefix *s- (Karlgrén 1933; Mei 梅祖麟 1988; Baxter and Sagart 2014, etc.), constitutes the ‘derivation by a voicing alternation’ *qīng zhuó bié yì* 清濁別意. The voicing alternation is reflected by tonal differences and/or by differences in the initial consonant in Modern Mandarin. This kind of derivation is much less frequent than the one by tone change.

(11) Verbs with an alternation between a [-voice] and a [+voice] initial

Transitive variant Intransitive, unaccusative (ergative) variant

- a. *bài pāj^h* 敗 destroy *bài baj^h* 敗 destroyed (unaccusative)
 b. *zhé tǎi^{at}* 折 break *shé dǎi^{at}* 折 broken¹⁸
 c. *jiàn kēn^h* 見 see *xiàn xēn^h* 見 be visible

Baxter (1992: 218, following Pulleyblank 1973) attributes the voicing effect to a pre-initial element *h—provisionally reconstructed for words with a cognate with a voiceless initial. Mei 梅祖麟 (2015a, b) on the other hand proposes that a causative

¹⁸The Middle Chinese reconstructions follow Pulleyblank (1991). The verbs are being discussed below.

prefix *s- is responsible for a devoicing effect on an originally voiced initial.¹⁹ This alternation of voiced-voiceless initials had already been connected to different verbal functions ‘intransitive/passive–transitive’ in the *Jīngdiǎn shìwén* (6th c. CE) by Lu 陸德明 (550–630). The proposed functions are similar to the aspectual alternations assumed for the more frequent suffix *-s, the source of the ‘derivation by tone change’. According to Xing and Schuessler (forthcoming) the voicing alternation creates a new word which can be connected to an endopassive meaning. They claim that “This initial voicing is a catch-all morpheme for derivations that are the opposite of exo-active, i.e. non-extrovert and non-active, hence, for the nonce, this label “endopassive”.” Example (12) represents the voicing alternation with the verb *bài* 敗 ‘defeated, defeat’, one of the verbs discussed e.g. in Mei 梅祖麟 (2015a, b) and in Xing and Schuessler (forthcoming) [also discussed in Huang 黃坤堯 (1992), and Wang 王月婷 (2014)]. The voiced variant is unaccusative, characterized by a theme subject, passive according to Wang 王月婷 (2014: 269); unaccusative verbs are typical telic (achievement) verbs compatible with the perfective aspect. The voiceless variant is transitive and causative.

- (12)a. 蔡人怒，故不和而敗。(zuǒzhuàn, yǐn 10) (LAC)
 Cài rén nù, gù bù hé ér bài(*blad-s, ħprats)
 Cai man angry, there NEG harmonize CON defeated
The people of Cai were angry, and therefore they were not in harmony and were defeated.
- b. 惠公之季年，敗宋師于黃。(zuǒzhuàn, yǐn 1) (LAC)
 Huì gōng zhī jì nián, bài(*plads-prats) Sòng shī yú Huáng
 Hui duke GEN last year, defeat Song army at Huang
In the last year of Duke Hui, he defeated the Song army at Huang. (see also Jin 2006: 83f)

Due to its function to derive a resultative or passive meaning, verbs with a voiced initial should be expected to appear regularly in the complement of KE.

7.4 The Morpho-Syntactic Structure of the Complement of KE

Although the reconstructed Chinese morphology certainly differs from the morphology of the Germanic languages, the relation of the Germanic *ge-* prefix with resultativity and telicity is useful to shed some light on the functions of the derivational morphology in Archaic Chinese, also with regard to modal predicates.

As already mentioned above, according to Abraham and Leiss (2008), there is a close relation between event structure and modal predication, particularly with regard

¹⁹For arguments against Mei’s 梅祖麟 proposal see (Jin 金理新 2006: 52f, 109), briefly discussed in Meisterernst (forthcoming), and Xing and Schuessler (forthcoming).

was the selection of all verbs, which appear in the complement of KE in the *shījīng*, the *shàngshū*, the *zuǒzhuàn* and the *guōyǔ*. These instances were checked against the entire corpus in a second step. Reading variants rely to a great extent on the proposals made in Jin 金理新 (2006) and in Schuessler (2007), but other materials are included as well. The most representative verbs were selected for discussion in this paper.

The study is based on ca. 250 verbs, which appear in the complement of KE.²⁴ About a third of these verbs (85) have a *qūshēng* reading in Middle Chinese. All verbs with a *qūshēng* reading in MC are included in this calculation, independently of whether an alternative reading exists or not. This is based on the stipulation that the *-s—suffix may generally reflect traces of an old derivation, even if the suffixed form is the only form that survived. As Schuessler (2007: 46) shows, a derived verb could become an independent, e.g. transitive verb of its own accord. The figures clearly show that a morphological marking of the resultative or of the passive is not mandatory in Archaic Chinese. Evidence for this comes from the fact that the marking of the complement of KE, which is passivized/unaccusative as a rule, and thus refers to a resultant state projected in the future, is not obligatory; the suffix does not attach freely to any verb in the complement of KE. All kinds of verbs can appear in the complement of KE. The only requirement is that they allow an internal argument in their structure, which—as the theme/patient—raises to subject position preceding KE (see also Pulleyblank 1995: 23). In the following example from the *shījīng* variants involving a *qūshēng* reading have been proposed for two of the three verbs, i.e. for 掃 *sǎo*, OMC *sũʔ/h (Schuessler 2007; Jin 金理新 2006)²⁵, and for 道 *dào*, OMC *lũh, LH dou^{C26} (Schuessler 2007). The simplified structure of the second clause of example (15) is represented in b. The presence of KE forces the internal argument of the verb to rise to subject position: the resultative/unaccusative meaning is derived from the transitive/causative; the structure of the complement of KE is always derived and involves movement of the inner argument out of vP.

(15)a. 牆有茨，不可埽也。中冓之言，不可道也。所可道也，言之醜也。

Qiáng yǒu cí, bù kě sǎo yě, zhōng gòu zhī yán,
wall have tribulus, NEG KE wipe SFP, middle secret.

chamber GEN word,

bù kě dǎo yě, suǒ kě dào yě, yán zhī chǒu yě

NEG KE speak SFP, REL KE_speak SFP,

__word GEN abomination SFP

On the wall there is a tribulus, it cannot be wiped away. The words in the middle chamber may not be talked about. Those that can be talked about are an abomination of speech. (shījīng 046/1A)

²⁴The number of verbs which also appear with KE YI is considerably lower.

²⁵The reconstruction is taken from Schuessler's (2007) Simplified Old Chinese.

²⁶LH refers to Late Han in Schuessler (2007) and C to the *qūshēng*.

- b. [CP zhōng gòu zhī yán_i [ModP bù kě [VP [cause dǎo_k [become/result t_k [VP t_k t_i yě]]]]]]
 [CP word of the mid chamber_i [ModP NEG pos [VP [cause speak [become/result
 t_k [VP t_k t_i yě]]]]]]]

Thus, the basic requirement for the complement of KE seems to be that it has an internal argument, which can rise to subject position. Genuine unaccusative and unergative intransitive verbs have to add an additional internal argument to the structure introduced by a non-overt causer. The verb 動 *dòng* in example (16) is a typical activity verb. It is quite common in the complement of KE (21x). It predominantly functions as an unergative motion verb which is atelic without the addition of a directional complement. Schuessler (2007) reconstructs OMC *dōŋʔ ‘to move, set in motion, shake’ (tr.) and gives intransitive and transitive glosses. In the example below in the complement of KE, it appears in the telic, inchoative reading ‘set in motion’, focusing on the initial point of the activity. The internal argument ‘the commoner’, who is being set in motion, appears as the subject of the modal predicate. The verb does not have a *qùshēng* reading in Middle Chinese. The simplified structure of *kě dòng* can be seen in b. In moving up to vP, the verb has to check its telicity and cause features in order to obtain the required resultative reading. The internal argument has to move up to the specifier position of CP.

- (16)a. 匹夫猶未可動，而況諸侯乎! (*zhuāngzǐ* 4.2.1)
 Pǐfū yóu wèi kě dòng, ér kuàng zhūhóu hū
 Commoner still NEG_{asp} KE move, CON rather feudal.
 lord SFP
If even a commoner cannot be moved, more less can a feudal lord!
- b. [CP Pǐfū_iyóu [AspP wèi [ModP kě [VP [cause t_i dòng_k [IAsp (become/result) t_k [VP t_k t_i]]]]]]]
 [CP common man_i [AspP not [ModP pos [VP [cause t_i move_k [IAsp (become/result) t_k
 [VP t_k t_i]]]]]]]

7.4.1 Verbs with a *Qùshēng* Reading in the Complement of KE

In the following section, some verbs, which appear in the complement of KE will be discussed. They are all characterized by a *qùshēng* reading as their only reported or as an alternative reading. A considerable number of these verbs belong to the ‘giving’ category according to Jin 金理新 (2006); they are exoactive in Schuessler’s system. However, the actual analyses of the function of the *-s—suffix, may differ depending on the respective scholar. All these verbs are evidently telic, referring to accomplishments with an agentive or causative subject in the default construction. In the complement of KE, they always refer to a resultant state. As already mentioned, Jin 金理新 (2006: 266) claims that the function of the suffix

*-s is an extension of its function with non-agentive verbs (受事動詞 *shòushì dònghcí*, accusative verbs in Jin's terminology). This can to a certain degree be compared to the situation in the Germanic languages. Van Kemenade and Los (2003: 111) in their discussion of resultative prefixes in the Germanic languages propose that, although they represent a highly grammaticalized stage, they still show recoverable traces of their former function in resultative predicates. "... the prefix adds telic aktionsart (showing its origins as a Change-of-state predicate) and transitivity ...". A similar process can be assumed of Archaic Chinese. However, the establishment of the sources of the grammaticalization of the derivational morphology in Chinese is certainly even more difficult than in a language such as English.

(1) Telic transitive verbs

Example (17) presents two verbs which are subsumed under the category of 'giving' derivation marked by the *-s—suffix in Jin 金理新 (2006). In a., in the combination of the verbs 救藥 *jiù yào*, only the first verb is a *qūshēng* word. *Jiù* 'save, rescue' is by default a transitive agentive verbs, it is relatively frequently attested as the complement of KE (28x) in the unaccusative/passive reading 'saved', which refers to a resultant state.²⁷ Jin 金理新 (2006: 364) analyzes it as a telic verb, which includes the final point of receiving. Schuessler (2007), by contrast, proposes a classification of *jiù* as an exopassive, a derivation from 究 *jiū* 'search, investigate' >> 'having been successfully searched for' (OMC *k(r)ju-s). The verb 用 *yòng* in (16b) is a very frequent example of the same category in the complement of KE; it basically never appears in the complement of KE YI.²⁸ It is reconstructed by Jin 金理新 (2006) as *h-doŋ-s*²⁹ 'use, employ', and by Schuessler (2007) as OMC **loŋh*. Schuessler (2007) relates it etymologically to 庸 *yōng loŋ* 'to use, employ, need' and classifies it as transitive. Jin 金理新 proposes that the suffix serves to indicate an outward directed telic 'giving' event (Jin 金理新 2006: 368). Accordingly, for one of the two verbs discussed in this example, different analyses have been proposed for the reconstructed suffix, a telic, outward directed function and a passivizing function. However, both functions can be subsumed under the telicity function and the functions typical for resultativity (see van Kemenade and Los 2003).

- (17)a. 多將焯焯，不可救藥。 (*shījīng dāyǎ* 254/4) (EAC)
 Duō jiāng xiāoxiāo, bù kě jiù yào

²⁷It also appears in its transitive default function in the complement of KE YI.

²⁸A search in the Academia Sinica *shànggǔ* corpus shows 152 hits. Sometimes several instances are subsumed under one hit; this means that the actual number of occurrences may be higher. A number of the texts belong to the Early Middle Chinese period and not to the archaic (early or late) Chinese period. The same search with 可以 *kě yǐ* results in only one hit.

²⁹It appears as a derivation of 用 *h-doŋ* according to Jin (idem).

Much FUT noise, NEG KE save cure
If you are bringing about noises to this huge extent, then you cannot be saved or cured.

- b. 「吾不可用也已。」 (zuǒzhuàn, dīng 4) (LAC)

Wú bù kě yòng yě yǐ
 I NEG KE employ SFP SFP
I cannot be employed [anymore].

Verbs of ‘teaching, advising’ also seem to fall under the discussed category, although this classification has not necessarily been proposed for them. 教 jiào ‘teach’ is discussed in Jin 金理新 (2006: 57) under the category of voicing alternation. By default, Jin analyzes it as an agentive verb related to and contrasting with 效 xiào ‘imitate, follow’.³⁰ Schuessler (2007) proposes a similar analysis: xiào is marked by a voiced initial (OMC *grâuh) and it constitutes the endopassive derivation of the transitive jiào (OMC *krâuh). The verb 訓 xùn (OMC *huns) is semantically and syntactically similar to jiào. Jin 金理新 (2006: 124) assumes that it may be a causative derivation of 順 shùn ‘follow, agree’. Schuessler (2007) does not propose an etymological relation between these two verbs. Similar verbs include the verb 諫 jiàn (Jin 金理新 (2006: 419) reconstructs *klan-s) ‘admonish’, and 誨 huì (Schuessler (2007) reconstructs OMC *hm^əh) ‘instruct’. These verbs are semantically very similar to the verbs listed under the ‘giving’ derivation in Jin (2006: 350f), i.e. they are telic accomplishment verbs in their default structure.

- (18) 若民煩, 可教訓。 (guóyǔ 17, chǔyǔ shàng) (LAC)

Ruò mǐn fán, kě jiào shùn
 If people exert oneself, KEG teach instruct
If the people exert themselves, they can be taught and instructed.

Another early example, which may belong into this category, is the verb 載 zài ‘carry’, discussed in Jin 金理新 (2006: 31) under the category of deverbalization. He proposes the alternative readings *tje-s, *dje-s in a verb-noun derivation; the *-s suffix is not discussed as indicating a meaning related to telicity. Schuessler (2007) relates zài (OMC *ts^ə) ‘initiate, start work’ etymologically to 栽 / 哉 zāi (OMC *ts^ə) ‘plant, begin’. The qùshēng reading is clearly telic according to this reconstruction. The verb 哀 āi in (19) is discussed below in example (29).

- (19) 薪是穫薪, 尚可載也; 哀我憚人, 亦可息也。 (shījīng xiǎoyǎ 203.3) (EAC)

Xīn shì huò xīn, shàng kě zài yě;
 Firewood_this huò firewood, still KE_load SFP
 āi wǒ dàn rén, yì kě xī yě
 pity 1PPr toil man, also KE rest SFP
*When we make firewood out of this huò firewood, it can still be carried;
 when we pity our toiling people, they can also be given a rest.*

³⁰In an example where it appears in the complement of kě, he analyzes it as having a theme subject (Jin 金理新 2006: 57).

The examples in (20) represent the transitive emotive verbs 懷 *huái* ‘worry’, 愛 *ài* ‘love’, and 畏 *wèi* ‘fear’. Emotive verbs are usually not telic, but when appearing in the complement of KE they refer to the result of a directed agentive event with the theme of the emotive event as the subject of the modal predicate. An early example appears in the *Shījīng*. The emotive verb 懷 *huái* does not seem to have a reported *qùshēng* reading. The verb 畏 *wèi* occurs relatively frequently in the complement of KE.³¹ Schuessler (2007), and Xing and Schuessler (forthcoming) relate it etymologically to 威 *wēi* (OMC *ʔui >> OMC *ʔuih). They analyze the *qùshēng* reading as a passive form, which subsequently can be used as a transitive verb.³² The verb 愛 *ài* (OMC *ʔʰəts) is not very frequent in this construction. In b. the modal meaning is clearly deontic, although the modal predicate itself is not negated. In LAC, deontic readings usually depend on a combination with negation; in this example, it is probably triggered by the negation following the modal predicate. The example is from one of the late parts of the *shàngshū*, probably dating from the early middle Chinese period.

- (20)a. 仲可懷也；父母之言，亦可畏也。(shījīng, guófēng, zhèng) (EAC)
 Zhòng kě huái yě; fù mǔ zhī yán, yì kě wèi yě
 Zhong KE care SFP; father mother GEN word,
 _also KE fear SFP
You Zhong can be loved, but the words of father and mother can also be feared.
- b. 可愛非君。可畏非民?(shàngshū, 3.13.3) (EMC)
 kě ài fēi jūn, kě wèi fēi jūn
 KE love unless ruler, KE fear unless people
Can anyone but the ruler be loved [most], can anyone but the people be feared [most]? The ruler has to be loved most, the people have to be feared most.

The verbs 問 *wèn* ‘ask’ and 謂 *wèi* ‘call’ in the examples in (21) belong to the category of ditransitive verbs, which frequently appear in the *qùshēng* reading. According to Xing and Schuessler (forthcoming), in *wèn*, OMC *məns ‘to ask’, the suffix is valency-increasing, marking a causative verb (maybe: ‘let me hear about it’ (Xing and Schuessler). This causative verb is etymologically related to 聞 *wén/wèn*; the *qùshēng* reading of *wén* is the endopassive derivation of the *píngshēng* variant ‘hear’ > ‘to be heard’ (see for an example (25c.). Jin 金理新 (2006: 356) discusses it under the label ‘non-agentive (accusative in his terminology)’ verbs (*shòushi dòngci*). The verb 謂 *wèi* is extremely frequent (605x in total), and it almost never appears in the complement of KE YI. Jin 金理新 does not mention it. Schuessler (2007) reconstructs OMC *wəts, ‘to say, call, be called’, which according to Wang

³¹The search of *wèi* in the AS *shànggǔ* corpus results in 41 hits, many of them in the earlier texts, *huái* has 9 hits, also including earlier texts, *ài* has 7 hits, almost exclusively in later texts.

³²A more comprehensive discussion of the two verbs appears in Xing and Schuessler (forthcoming).

王力(1982: 456, cf. Schuessler 2007: 513) is a cognate of 云 *yún* ‘speak’. The verb *wèi* is subject to particular syntactic constraints in LAC; these may account for the variety of constructions it is attested with. Only one example is presented below.³³

(21)a. 鼎之輕重, 未可問也。 (*zuǒzhuàn, xuān* 3) (LAC)

Dǐng zhī qīngzhòng, wèi kě wèn yě

Tripod GEN weight, NEG KE ask SFP

The weight of the tripods is something that may not be asked about.

b. 「宋宣公可謂知人矣。 (*zuǒzhuàn, yǎn* 3) (LAC)

Sòng Xuān gōng kě wèi zhī rén yǐ

Song Xuan duke KE called know man SFP

Duke Xuan from Song can be called [someone who] knows human nature.

(2) Resultant state verbs

The verbs discussed in this section belong to the category of derivation by tone change, for which e.g. Unger (1983) and Jin 金理新 (2006) propose an aspectual reading, i.e. a perfective reading 完成 *wánchéng*; in Schuessler’s system this corresponds to a passive reading. Meisterernst (2016, 2017a) and Aldridge and Meisterernst (2018) propose a resultative or a telic reading for the same suffix. Although quite a number of verbs were classified as belonging to this category e.g. in Jin 金理新 (2006), they do not seem to be particularly frequent in the complement of KE. Since the complement of KE is unaccusative/passive as a rule, and accordingly refers to a resultant state, this picture is somewhat contrary to expectation. One of the most typical verbs of this category, the verb *zhī*, represented by example (22a) (see also ex. (6) and (7) above) appears relatively frequently in the complement of KE (54x). Schuessler (2007) reconstructs OMC *dləh for the resultative reading ‘well governed’, for which he cites Downer (1959: 287). Even more frequent is the verb 知 *zhī* ‘know’ in the complement of KE in example (22b).³⁴ Jin 金理新 (2006: 326) discusses *zhī* and its cognate 智 *zhì* (*r-ti, r-ti-s) under the categories perfective and deverbalization. Schuessler (2007) reconstructs OMC *tre and *treh *zhì*, and labels 智 *zhì* as exopassive ‘what is known’. According to the reconstructions, the *qùshēng* reading should possibly be the preferred reading of *zhī* in the complement of KE. However, according to a comment on *kě zhī* in the *Jīngdiǎn shìwén* (Lu 陸德明 1985: 1275), Lu 陸德明 proposes the *píngshēng* reading. The modal predicate is negated by the aspectual modal negative marker 未 *wèi*; *wèi* requires a predicate, which allows a telic reading; it frequently negates achievement predicates (see Meisterernst 2008b, 2015). The verb 具 *jù* ‘provide’ in (22c) is also labeled as perfective in Jin 金理新 (2006: 330) (*d-go-s); he relates it

³³For an extensive discussion of 可謂 *kě wèi* see Liu 刘利 (2000: 86f). He additionally discusses the verb 勝 *shèng* ‘conquer, be victorious’ (2000: 101f), which also frequently appears in the complement of *kě*, but which is left out in the present discussion. Both verbs are characterized by the fact that they can be followed by another VP in the complement of KE.

³⁴239 hits in the AS *shànggǔ* corpus, of those (25) in combination with *yǐ* 以 = *kě yǐ*.

to 俱 *jū* (*d-go). Schuessler (2007) proposes the same etymology and reconstructs OMC *goh ‘be together, complete’ for *jù* and OMC *ko ‘both, all’ for *jū*.

(22)a. 勢治者，則不可亂；而勢亂者，則不可治也。 (*hán fēi zǐ* 40.05.02) (LAC)

Shì zhì zhě, zé bù kě luàn;

Situation ordered REL, then NEG KE chaotic;

ér shì luàn zhě, zé bù kě zhì yě

CON situation chaotic REL, then NEG KE ordered_SFP

If the political situation is ordered, then it cannot be put into chaos; if it is in chaos, it cannot be ordered.

b. 「未可知也。」 (*zuǒzhuàn chéng* 16) (LAC)

Wèi kě zhì yě

NEG_{asp} KE known SFP

It cannot be known (yet).

c. 今寡君在行，未可具也。 (*zuǒzhuàn, xiāng* 9) (LAC)

Jīn guǎ jūn zài xíng, wèi kě jù yě

Now lonely prince__be.at travel, NEG_{asp} KE provided SFP

Our ruler is on an expedition now, it cannot be provided (yet).

The verb 易 *yì* (a) ‘easy’, (b) ‘change’ in the following examples also appears under the category of perfective verbs in Jin 金理新 (2006: 327). He proposes that the adjective ‘easy’ is derived from the verb ‘change’ which has a *rùshēng* reading *h-dig ‘change’ leading to *h-dig-s ‘be easy, at ease, neglect’ (Schuessler 2007). Schuessler connects the meaning ‘change’ etymologically to 移 *yí* ‘to change, alter’. *Yì* appears in both meanings in the complement of KE.

(23)a. 「國無小，不可易也。」 (*zuǒzhuàn xī* 22) (LAC)

Guó wú xiǎo, NEG KE yì 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.

b. 則若性命肌膚之不可易也。 (*xúnzǐ* 31.2.4) (LAC)

Zé ruò xìng mìng jī fū zhī bù kě yì yě

Then be.like nature fate muscle skin GEN NEG KE

change SFP

then this is like [the fact] that the inborn nature of muscles and skin cannot be changed.

The two verbs 量 *liáng* and 料 *liào* ‘measure’ in example (24) are not discussed in Jin 金理新. They are semantically very similar. Schuessler (2007) follows the general distinction between noun and verb of 量 *liáng/liàng* and reconstructs OMC *raŋ ‘measure, vs. OMC *raŋh noun ‘a measure’. For the synonym *liáo/liào* 料, Unger (p.c.) proposes a similar tone alternation without indicating any difference in meaning. Unger (1983) claims that a considerable number of verbs exist, which show either tone or voicing alternations without any reported change of meaning (see also Downer 1959). He assumes that these alternations have purely aspectual functions, in the case of *liào*, the *qùshēng* reading would accordingly refer to a

resultant state (perfective in Unger's system). Schuessler (2007) includes only in the *qùshēng* reading OMC *riauh for the verb 'to measure' in his reconstructions.

(24)a. 國未可量也。』 (zuǒzhuàn xiāng 29) (LAC)

Guó wèi kě liàng yě

State NEG_{asp} KE measured SFP

[Such a] state cannot be measured out.

b. 仲山父諫曰：「民不可料也！」 (guōyǔ zhōuyǔ shàng) (LAC)

Zhòngshān fù jiàn yuē: mǐn bù kě liào yě

Zhongsan father remonstrate say: people BU NEG

counted SFP

Father Zhongshan remonstrated and said, "The people may not be counted."

If we accept the *píngshēng* reading for *liào* in (24b) and the *qùshēng* reading for *liáng* in a., the verbs in this category contrast in a non-*qùshēng* reading in the transitive or intransitive (agentive) form and a *qùshēng* reading in the unaccusative or passive/resultative form. This distinguishes this category of verbs from those in the first category, which are characterized by a *qùshēng* reading in their transitive form.³⁵ According to the reconstructions in Schuessler (2007), the verb *jiù* in example (17), the verb *wèi* in (20a. and b.), and the verb *wèn* in example (21) may also belong to the category of verbs with a resultative reading derived from a non-*qùshēng* cognate. Intransitive verbs with a *qùshēng* reading in the complement of KE seem to be almost non-existent. The data confirms the distinction between two predominant functions of the Archaic Chinese *-s—suffix: (a) marking transitivity, and (b) marking resultativity and related meanings. The verbs in the complement of KE are by default telic, referring to the resultant state of a previous event, i.e. of an accomplishment or an achievement. More research has to be carried out, but a tentative conclusion of the presented data could be that a main function of the *-s—suffix was to express or to derive resultativity; telicity and transitivity constitute default features of resultativity (see van Kemenade and Los (2003)). Both functions are derived in a [+TELIC] head in the Inner Aspect Phrase in vP. Remnants of these original functions were probably still transparent in Archaic Chinese, but it can be assumed that particularly the aspectual functions had already become entirely opaque at the time of Lu 陸德明 in the 6th and 7th c. CE.

³⁵As Jacques (2016) points out, it cannot be excluded that the reconstructed *-s—suffix actually results from different sources.

7.4.2 Verbs with a Voicing Alternation in the Complement of KE

The following verbs all belong to the category of verbs with a voicing alternation in Middle Chinese, i.e. an alternation of voiced and voiceless initials. This alternation supposedly has a function similar to the derivation by tone change; i.e. the derivation of a meaning related to resultativity. As can be expected, these verbs also appear in the complement of KE. The verbs 敗 *bài* (see also example (11) ‘defeat, destroy’ and 壞 *huài* ‘destroy’ in example (25) are confined to the complement of KE; they never appear in the complement of KE YI. However, this does not seem to be a constraint on verbs with a voicing alternation. Meisterernst (forthcoming) suggested that the differences between the voicing alternation and the derivation by tone change can possibly be analyzed as a contrast between a causative–anticausative alternation on the one hand (voicing alternation), and a transitive/causative–resultative alternation [change of tone (i.e. by the *-s—suffix)] on the other. An argument for the anticausative analysis comes from the fact that the verbs, which appear in the voicing alternation apparently do not allow the introduction of an agent in their structure; this is a typical feature of anticausatives. More research has to be conducted to support or to refute this hypothesis. The verb *bài* is reconstructed *blad-s, *ɸprats in Jin 金理心 (2006). According to Xing and Schuessler (forthcoming), the voicing alternation particularly appears on *qùshēng* verbs like *bài*, in order to passivize them. This goes back to Downer (1959: 263, cf. Xing and Schuessler), who provided a list of those verbs. The verb *huài* in b., reconstructed in Jin 金理新 (2006: 84) *Glur-s and *qlur-s, and in Schuessler (2007) as OMC *krùih and *grùih, is very similar to *bài*; the voiced form is endopassive according to Schuessler. The third example of this group is the pair 見 *jiàn* ‘to see, visit’ OMC *kêns and 見/現 *xiàn* OMC *gêns ‘to appear, show up in c.’³⁶ It appears frequently in the complement of KE (123x, 23x with KE YI), referring to the result of the transitive event ‘see’. This suggests a reading *xiàn* in c. This is supported by the fact that one commentary in the *JDSW* (Lu 陸德明 1985: 1204) actually reports this reading in the complement of KE. In c. we also find an instance of the resultative reading of *wén*, *wèn* ‘be heard’. The verbs discussed in this section all have as their common feature a transitive/causative *qùshēng* reading and a resultative, possibly unaccusative reading with a voiced initial. Identical to the verbs discussed in the previous section, they all display an alternation between accomplishment and achievement. In the complement of KE, they by default have an achievement reading.

- (25)a. 「宋師不整, 可敗也。 (*zuǒzhūn zhuāng* 10) (LAC)
 Sòng shī bù zhěng, kě bài yě
 Song army not orderly, KE defeat SFP
The Song army is not well organized, it can be defeated.

³⁶This verb is not discussed in Jin 金理新 (2006).

- b. 『天之所支，不可壞也。 (*guóyǔ, zhōuyǔ xià*) (LAC)
 Tiān zhī suǒ zhī, bù kě huài yě
 Heaven GEN REL__support, NEG KE destroy SFP
Who Heaven supports cannot be destroyed.
- c. 道不可聞，聞而非也；道不可見，見而非也；道不可言，言而非也。
 Dào bù kě wèn, wèn ér fēi yě;
 Way NEG KE heard, heard CON not.be SFL;
 dào bù kě jiàn/xiàn, xiàn ér fēi yě;
 way NEG KE see/visible, visible CON not.be SFP
 Dào bù kě yán, yán ér fēi yě
 Way NEG CAN talk, talk CON not.be SFP
*The DAO cannot be questioned; being questioned it is not the DAO; the
 DAO cannot be visible, being visible, it is not the DAO; the DAO cannot be
 talked about, being talked about it is not the DAO. (zhuāngzǐ 22.8.10) (LAC)*

7.4.3 Verbs with Non-*qùshēng* Readings in the Complement of KE

As already mentioned, although a considerable number of verbs in the complement of KE have a *qùshēng* reading as their only, or as one alternative reading, about two thirds of the verbs appearing in the complement of KE do not have a *qùshēng* reading in Middle Chinese. Of these a few representative and frequently attested verbs are briefly discussed below.

(1) Genuine event verbs

Example (26) represents the verb 獲 *huò* ‘receive’ **h-qag* (Jin 金理新 2006: 365), a genuine event verb, which does not have a *qùshēng* reading. This verb belongs to the ‘receiving’ 得到 *dédào* category in Jin 金理新 (2006), which constitutes the opposite of the ‘giving’ category discussed above. This category is characterized by the fact that the verbs do not appear in the *qùshēng*.³⁷ According to Jin 金理新 (2006: 365f), the verbs of the receiving category are inward directed and the verbs of the ‘giving’ category are outward directed (see also Mei 梅祖麟 1980, and Schuessler (2007). Whereas the verbs in the ‘receiving’ category can belong to any tonal category apart from the *qùshēng*, the *qùshēng* is typical for the verbs of the giving category. The verbs of both categories are clearly telic, but they differ in their argument structure. The verb *huò* is a telic achievement verb by default; in the complement of KE it is unaccusative/passivized referring to a future resultant state, its internal argument appears as the subject of the modal predicate.

³⁷Schuessler (2007) reconstructs an OMC **wak(h)* or **wrak(h)* for a nominal derivation of the verb ‘trap’.

- (26) 好惡不愆，城可獲而民知義所，(zuǒzhuàn zhāo 15) (LAC)
 hào wù bù qiǎn, chéng kě huò ér mǐn zhī yì suǒ,
 like dislike NEG mistake, city KE take CON people
 know justice place ...

If I do not make any mistakes in my liking and disliking, the city can be taken and the people know where the place of justice is...

The following verbs do not appear in Jin 金理新 (2006) in any context, which seems to be relevant in the present discussion. The verbs in (27a–c) are *rùshēng* words.³⁸ The verb 擊 *jī* ‘beat, strike’ in example (a) has been reconstructed in Schuessler (2007) as OCM **kek*; the verb 殺 *shā* ‘to kill’ as OCM **srât*, and the verb 滅 *miè* ‘extinguish, destroy’ as OCM **miet*. The first three verbs in example (27) show some semantic similarities; they are telic, referring to agentive accomplishments or achievements and in the complement of KE, they are unaccusative/passivized. Their internal argument appears as the subject of the modal predicate. The verb 止 *zhǐ* in d. appears in Jin 金理新 (2006: 223) under the category ‘denominalization’. Schuessler (2007) presents the same etymology: OCM **təʔ* ‘foot > heel’ > ‘settle, stop’ as Jin 金理新 (2006). *Zhǐ* is also evidently telic; it occurs mostly as an intransitive/unergative verb with an agentive subject. However, the basis for the unaccusative/passivized reading in the complement of KE is a transitive reading; in this function it is frequent in the complement of KE (43x). The transitivity of the complement in c. and d. is marked by the negative marker 弗 *fú*; the original function of *fú* is to mark transitive verbs according to Djamouri (1991) (see also example 17d). Since *kě* cannot be analyzed as transitive in the modal construction,³⁹ the verb in the complement of KE must be responsible for the choice of the negative marker.⁴⁰

³⁸Jacques (2016) presents one example from Old Chinese, for which Sagart (2004) proposed an applicative suffix **-t*, which serves to increase valency. Although it cannot be excluded entirely that some final stops may have been morphologically relevant, this will not be pursued here.

³⁹David Branner pointed out the fact that *kě* occasionally appears as a transitive verb. He kindly provided the following example with translation:

(i) 行伯非賢晉文之能因時順宜隨而可之 (*Yue Jueshu* (越絕書 越絕篇敘外傳記))

‘Carrying out hegemonic rule is not a matter of sageliness. Because of the fact that Mǎn of Tsins was able to adapt to the times and to what people considered right behavior, as a result he made it permissible.’

However, in this example, *kě* clearly appears as a lexical verb, an adjective, which by default can be transitivized in either a causative or a denominative/putative sense in LAC. (See for instance Feng 2014). See also the discussion of *bì* in the complement of KE in example (28).

⁴⁰This poses an interesting question with regard to the scope of the negative marker in modal predicates. The fact that *fú* would not be expected to negate KE, which is not transitive at any accounts, suggests that it is the verb in the complement of KE, which determines the choice of the negative marker. This would also have consequences on the interpretation of modal predicates negated by the aspectual negative marker 未 *wèi* and it would possibly change the analysis proposed e.g. in Meisterernst (2008b).

- (27)a. 晉師可擊也。(zuǒzhuàn xiāng 9) (LAC)
 Jìn shī kě jī yě
 Jin army KE attack SFP
The Jin army can be attacked.
- b. 臣違君命者，亦不可不殺也。」(guóyǔ, luyǔ shàng) (LAC)
 Chén wéi jūn mìng zhě, yì bù kě bù shā yě
 subject oppose ruler order REL,
 __also NEG KE NEG kill SFP
A subject who opposes the order of his ruler must also be killed.
- c. 終為不義，弗可滅已。(zuǒzhuàn zhāo 31) (LAC)
 Zhōng wéi bù yì, fú kě miè yǐ
 End do NEG righteous, NEG_{tr} KE onliterate SFP
... in the end, [the fact that] his doings were not righteous cannot be obliterated.
- d. 則國家從之，弗可止也已。(zuǒzhuàn chéng 2) (LAC)
 Zé guó jiā cóng zhī, fú kě zhǐ yě yǐ
 Then state family follow 3Obj, NEG_{tr} KE stop SFP SFP
Then state and family follow it, it cannot be stopped.

The verb 必 *bì* in example (28) has been reconstructed as OMC *bit ‘be necessary, must’. (Schuessler 2007). As a stative verb, it is different from the preceding verbs. Additionally, it is attested as a modal verb. However, it frequently appears in the complement of KE (41x). In order to obtain the correct reading in an unaccusative/passive construction, it has to be causativized first: ‘necessary, certain’ >> ‘make/consider certain, secure’. This is a regular syntactic process for state verbs/adjectives in Archaic Chinese, exemplified by the examples in b. and c. This synthetic process of causativization ceases to be productive in Early Middle Chinese, when more analytic structures start to develop (see for instance Feng (2014), Huang (2014)).

- (28)a. 今亂本成矣，立可必乎？(zuǒzhuàn mǐn 2) (LAC)
 Jīn luàn běn chéng yǐ, lì kě bì hū
 Now chaos root complete SFP, enthronization KE
 secure SFP
Now that the roots of the chaos are complete, can your enthronization [still] be secured?
- b. 其移兵寡人必矣。(zhànguó cè 18.2.5) (LAC/EMC)
 qí yí bīng guǎrén bì yǐ
 GEN move soldier lonely.man certain SFP
... that he is moving his army against me is sure.
- c. 眾人以不必必之。(zhuāngzǐ 32.3.2) (LAC)
 zhòng rén yǐ bù bì bì zhī
 masses people YI NEG necessary necessary 3Obj
The common people consider the non-necessary as necessary (inevitable).

Another stative verb is the verb *āi* 哀 ‘mourn, pity’ in example (29). It is not attested in the complement of KE YI. Jin 金理新 (2006: 288) reconstructs it with a **h*-prefix, which according to him marks intransitivity. Schuessler (2007) reconstructs OMC *ʔ^həj ‘to pity’. According to Schuessler’s gloss and to its occurrence in the complement of KE, it obviously also has a transitive reading; this reading is attested in example (18).

- (29) 九世之卿族，一舉而滅之，可哀也哉！ (zuǒzhuàn xiāng 25)
 Jiǔ shì zhī qīng zú, yī jǔ ér miè zhī, kě āi yě zāi
 Nine generation GEN minister clan,
 ___one rise CON destroy 3Obj, KE pity SFP SFP
A minister in the ninth generation, and one blow destroys him, this/he can really be pitied.

The examples in this section demonstrate that the complement of KE does not have to be marked by any derivational morphology related to resultant state or passive readings. It also does not have to be marked for transitivity. On the other hand, the examples demonstrate that the default complement of KE is telic, whether marked by a respective derivational affix or not. For atelic verbs to appear in the complement of KE a change of state has to be visible in the temporal structure of the verb, and for intransitive verbs a cause head has to introduce an additional internal argument. The argument structure of the verb, i.e. the existence of an internal argument and the telicity features of a verb are closely related.⁴¹

7.5 Analysis and Concluding Remarks

The investigation shows that the complement of KE always consists of a *v*P and not of a VP; a complex CAUSE—BECOME structure involving a [+TELIC] head in the Inner Aspect Phrase and an internal argument are required. The [+TELIC] head can be realized by an aspectual affix or it can be empty. In (30) the simplified analyses for complement verbs with a transitivizing suffix [a., from ex. (17b)], with a resultative suffix [b, from 22a.), and without any morphological marking (c., from 3a. 16a.) are presented. The structure of the little *v*P is similar in all three cases. The suffix overtly realizes the BECOME/RESULT feature necessary for the change of argument and aspectual structure required in the complement of KE. The verb has to move up to *v*P in order to check the resultative feature in the Inner Aspect Phrase and the cause feature. The internal argument has to move out of VP up to CP.

- (30)a. 吾不可用
 [CP Wú_i [ModP bù kě [vP [cause t_i yòng_k [IAsp (result (s) [+TELIC]) t_k [VP t_k t_i]]]]]]
 [CP I_i [ModP not pos [vP [cause t_i employ(ed)_k [IAsp (s = result) t_k [VP t_k t_i]]]]]]

⁴¹For a discussion on this issue in LAC and EMC see Meisterernst (2016).

b. 則不可治

[_{CP} zé pro_i [_{ModP} bù kě [_{VP} [_{cause} t_i zhì_k [_{IASp} result (s) [+TELIC] t_k [_{VP} t_k t_i]]]]]]]
 [_{CP} pro_i [_{ModP} not pos [_{VP} [_{cause} t_i order(ed)_k [_{IASp} (s = result) t_k [_{VP} t_k t_i]]]]]]]

c. 匹夫猶未可動

[_{CP} Pǐfū_i yóu [_{AspP} wèi [_{ModP} kě [_{VP} [_{cause} t_i dòng_k [_{IASp} (become/result) t_k [_{VP} t_k t_i]]]]]]]
 [_{CP} common man_i [_{AspP} not [_{ModP} pos [_{VP} [_{cause} t_i move(d)_k [_{IASp} (become/result) t_k [_{VP} t_k t_i]]]]]]]

The analysis of a suffix as a resultative head in the Inner Aspect phrase follows straightforwardly from the VO order of Chinese. With regard to the reconstructed sonorant prefix underlying the voicing alternation, the analysis is less straightforward and possibly argues for an alternation of causative–anticausative rather than transitive/causative–resultative. The structure of *vP* resembles to a certain extent the analysis McFadden (2015) proposes for the Old English prefix **ge-*. In contrast to Old English, where according to McFadden (2015) **ge-* seems to be close to mandatory in particular contexts, in Archaic Chinese the resultative head is overtly realized much less frequently. With regard to the verbs in the complement of KE, it is merely realized in about one third of the cases.

The analysis of the reflection of the reconstructed derivational morphology in the complement of KE leads to the following preliminary results:

- (1) The marking of the required unaccusative structure and the resultative reading of the complement of KE are not mandatory. Although the discussed affixes apparently have the function to mark telicity and resultativity, their presence is not obligatory on the complement of KE. This argues strongly against an analysis of the discussed morphology as reflecting an earlier inflectional layer of the language. The marked category may be related to perfective meanings, but cannot be analyzed as a realization of grammatical aspect, i.e. perfectivity.
- (2) The consistent marking of event verbs by either of the discussed affixes leads to the proposal that the suffix **-s* has functions related to telicity and resultativity. The constraints on verbs of ‘receiving’ proposed in Jin 金理新 (2006) points to selectional restrictions for the derivational affixes determined by the semantics of the verb.
- (3) The voicing alternation may originally have had functions different from marking the resultative or passive. One possible hypothesis involves a causative–anti-causative alternation, in which the anticausative is the marked member. One argument comes from the fact that this derivation is realized by prefixation.
- (4) The marking of neither of these functions is mandatory.

The discussion clearly demonstrates that numerous questions and difficulties remain with regard to the precise function of the reconstructed derivational morphology. Nevertheless, a comparison with other, better studied, systems of morphological change and loss such as the Germanic system provides some evidence from a morpho-syntactic perspective for the existence of derivational morphemes

related to aktionsart features such as telicity and resultativity. The fact that this morphology was obviously not mandatory at any stage of Archaic Chinese to mark the discussed aspectual features provides clear counter-evidence to the proposed existence of a systematic and grammaticalized marking of the perfective aspect. However, it certainly provides some evidence for a systematic derivational morphology, which displays some functional similarities to the *ge*-prefix in the Germanic languages.

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