A semantic analysis of modal DE 得 in pre-modern Chinese[1]

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Abstract: In this paper, the lexical semantics of the pre-modal verb 得 *dé* and its development into a modal auxiliary will be discussed. Two different positions are available for the modal *dé*, the default preverbal position of modal auxiliary verbs and a post-verbal position. The analysis of the event and the argument structure of the lexical verb *dé* reveals that the different modal uses of *dé* originate from its functions as an achievement verb. In this regard, *dé* clearly differs from the other verbs of possibility in Late Archaic Chinese. The particular syntacto-semantic constraints of *dé* can account for its development into both a modal auxiliary verb, and for the particular functions it develops in the Modern Sinitic languages as a postverbal modal marker.

Keywords: Lexical semantics, Lexical verb, Modality, Possibility modality, Grammaticalization

1   Introduction

In Late Archaic (5th – 2rd c. BCE, LAC) and Early Middle Chinese (2st c. BCE – 6th c. CE, EMC)[2], the most important modal auxiliaries expressing POSSIBILITY and ABILITY are 能 *néng* 'able to', 可 *kě* 'possible', and 得 *dé* 'manage to, able to'. The three verbs differ syntactically and etymologically: *kě* 'be possible', and *néng* 'be able' are derived from state verbs; *dé* 'get, obtain, manage to, able to, (must)' on the other hand is derived from an achievement verb. All three modals appear as lexical verbs and as modal auxiliary verbs in Late Archaic Chinese.[3] The examples (1a-c) represent the lexical employment, and the examples in (1d-f) represent the employment as modal auxiliary verbs.

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[2] The 2nd c. BC is traditionally considered the last century of the LAC period, but it can also be considered part of the transition period in which the features of Early Middle Chinese start to develop. According to Peyraube (1996), the period from the 1st c. BCE – 1st c. CE is labeled Pre-Medieval, and the period from the 2nd – 6th c. CE is labeled Early Medieval Period.

[3] The verb 獲 *huò* 'catch, capture, manage to do, be able' is very similar in meaning and functions to a verb of possibility in Archaic Chinese (Liu 刘利 2000: 175f). Liu 刘利 points to a similar path of grammaticalization of the two verbs *huò* and *dé*. However, *huò* is much less frequent in its function as an auxiliary verb than *dé* is. Liu 刘利 provides a comprehensive treatment of the grammaticalization of *dé* from a lexical verb to a modal verb expressing 'objective conditioned permission 客觀條件許可 *kèguān tiáojiàn xǔkě*' or 'circumstantial permission 事理許可 *shìlǐ xǔkě*.

(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.

 c. 申侯由是得罪。 (*zuǒzhuàn, xī* 5.5.2) (LAC)
Shēn__hóu__yú__shì__dé__zuì
Shen__hou__from__this__get__guilt
Shen hou had become guilty from then on.

 d. 「吾不可用也已。」 (*zuǒzhuàn, dìng* 4) (LAC)
Wú__bù__kě__yòng__yě__yǐ
I__NEG__KE__employ__SFP__SFP
I cannot be employed [anymore].

 e. 夫賢主者，必且能全道而行督責之術者也。 (*shǐjì*: 87, 2554) (EMC)
Fú__xián__zhǔ__zhě__bì__qiě__néng__quán__dào__ér__xíng__dūzé__zhī__shù__zhě
SIP__virtuous__ruler__NOM__certainly__FUT__NENG__complete__way__CON__
perform__investigate.and.punish.crime__SUB__method__NOM__SFP
*A virtuous ruler will certainly be one who is able to guard the right way and thus to
perform the method of controlling and punishing criminals.*

 f. 晉、楚無信，我焉得有信？」 (*zuǒzhuàn, xuān* 11) (LAC)
Jìn__Chǔ__wú__xìn__wǒ__yān__dé__yǒu__xìn
Jin__Chu__not.have__faith__I__how__DE__have__faith
Jin and Chu do not have faith, how can we manage/ be able to have faith.

The most conspicuous difference between modal DE and the other possibility modals is the postverbal position one of the successors of DE obtains in Modern Mandarin and other Sinitic languages. Two different positions are reported for DE, the preverbal position, identical to the preverbal position in LAC and EMC, and the postverbal position.

Xie (2012) in his study on postverbal DE in Modern Mandarin proposes three different readings of DE, an ability, an opportunity, and a disposition reading. All three readings "have to do with the potential to cause or undergo 'change of state' that is attributable to properties of the subject and/or of the utterance contexts (Hackl 1998; Bhatt 1999)." For an ability reading, represented by (2a), the subject needs to be agentive (Xie 2012: 391). Agency can be tested by the do-test (Cruse 1973), 'John breaks the vase' entails 'John did something', whereas 'the vase broke' does not. Cruse argues that agents can also be inanimate. With a non-agentive unaccusative subject, no ability reading is available (Xie 2012: 391) as in (2b). The same accounts for instrumental subjects and for state verbs preceding DE. These readings are termed dispositional readings in Xie. (2c) is an example for the opportunity reading of DE in a particular temporal setting and (2d) is a typical example for the disposition reading.

(2) a. Zhāngsān__yīgèrén__bān__de__qǐlai__nà__xiāng__shū (Xie 2012: 388)
 Zhangsan__alone__lift__DE__up__that__box__(CL)__book
 Zhangsan can lift up that box of books all by himself.

 b. dàrén__cóng__xiépō__shàng__huá__de__xiàlái (Xie 2012: 391)
 adult__from__slope__on__slip__DE__down
 An adult can slide down from the top of the slope.

    c. Nǐ__zài__wǎng__shàng__kàn__de__dào__wǒ__de__shíhòu__wǒ__dōu__xián__zhe
        You__at__internet__on__see__DE__reached__me__MOD__time__I__all__free__PROG
        When(ever) you see me on the internet, I am free. (Xie 2012: 392)

    d. zhè__zhǒng__jīqi__yīge__xiǎoshí__suì__de__wán__shí__dūn__yùmǐ
        this__kind__machine__one__hour__crush__DE__finish__ten__ton
        This machine can crush ten tons of corn in an hour. (Xie 2012: 392)

Besides postverbal DE, a deontic modal marker DEI, appearing in the regular position of modal auxiliaries exists in Modern Mandarin.

(3) Zhāngsān__jīntiān__děi__qù__kàn__yīshēng (Xie 2012: 396)
     Zhangsan__today__must__go__see__doctor
     Zhangsan must go see his doctor today.

This syntacto-semantic feature distinguishes modal DE from the other possibility modals and leads to the hypothesis that at least in some of its functions in LAC and EMC, DE rather has to be analyzed as a pre-modal lexical verb than as a fully grammaticalized modal auxiliary. We will argue that this special feature accounts for the particular diachronic development of DE into a postverbal element introducing manner or result. The syntacto-semantic features of *dé* as an achievement verb account for the particular constraints of *dé* as an implicative modal verb, basically expressing opportunity. In the following sections, the lexical semantics of the pre-modal lexical verb *dé* and its development into two different modal markers will be discussed. In section 2, the argument structure of the lexical verb *dé* is at issue, mainly based on the framework proposed in Levin (1993), Levin and Rappaport Hovav (1995), and Rappaport Hovav and Levin (1998), despite the problems pointed out in Dölling and Heyde-Zybatow (2007) with this approach. Section 3 is devoted to the different modal readings of DE in LAC and EMC, and section 4 provides a brief introduction to the development of postverbal DE and proposes a possible analysis for this development.

2   The lexical verb 得 *dé*

2.1   The argument structure of dé in Early Archaic and Late Archaic Chinese

The lexical verb *dé* can appear as an intransitive, i.e. unaccusative verb, a transitive verb, and in a ditransitive structure introducing an additional argument. Morphologically, the verb *dé,* EMC *tək,* belongs to the class of verbs of 'receiving' (得到 *dédào*). These are according to Jin 金理新 (2006: 364f) characterized by the fact that they do not occur in the *qùshēng* category (idem). The *qùshēng* is connected to an increase of valency, or to resultative readings. The verbs of receiving to which *dé* belongs are endodirectional (Mei 梅祖麟 2000, Xing and Schuessler 2020) telic achievement verbs. In the Early Archaic Chinese (10th – 6th c. BCE, EAC) text *Shijing*, *dé* is only attested as a lexical verb with the basic meanings 1) (itr.) 'available, obtainable' (TLS proposes an intransitive meaning 'successful')[4]; 2) (tr.) get, obtain, find, catch'. In (4a) *dé* is transitive, containing a direct object; in (4b) no object appears overtly, the verb is intransitive/unaccusative. For LAC, it has been proposed that a pronominal object can remain empty if the VP is negated (see e.g. Pulleyblank 1995), as in the first clause of example (4b) (>> 'he does not gain PRO). According to this, it cannot be excluded that *dé* in this example

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[4] TLS: http://tls.uni-hd.de/main/basic_ch_text.lasso, accessed 01.10.2018.

is transitive with a covert object pronoun.[5] In the second clause, no negation is involved. This argues for an intransitive analysis of *dé* in this clause, and – by way of parallelism of the two instances – for an unaccusative analysis in both instances in (4b), and subsequently also in (4c). In the examples (4d-f) the VPs with *dé* contain a 于 *yú* -PP. In (4d), *dé* appears in a syntactic ditransitive construction, the indirect object is introduced by the preposition 于 *yú*; the direct object of *dé* is *zuì* 'crime, guilt'. 得罪 *dé zuì* is frequently attested in a transitive or a ditransitive construction, with an additional indirect object.[6] The indirect object is not a goal, but rather an affectee in a benefactive (malefactive) construction. In (4e), the direct object is the *wh*-word 胡 *hú* 'what', the PP 焉 *yán*, representing *yú*+3Obj according to early commentaries, refers to a local complement 'in it'. In (4f), *dé* again appears in its negated form; in this example, no direct referent for an internal argument seems to be available, accordingly it is understood as intransitive; the PP is locative. In (4g), *dé* is transitive and passivized in the complement of the possibility modal verb 可 *kě*, which requires a transitive/causative complement in a resultative, i.e. unaccusative construction (see e.g. Meisterernst 2008a, 2019a).

(4) a. 燕婉之求，得此戚施。 (*shījīng, guófēng*) (EAC)
  Yānwǎn__zhī__qiú__dé__cǐ__qīshī
  Pleasant__docile__GEN__search__get__this__toad
  In search of a pleasant and docile one, she found this toad.

 b. 匪媒不得。既曰得止，曷又極止！ (*shījīng, guófēng*) (EAC)
  Fěi__méi__bù__dé__jì__yuē__dé__zhǐ__hé__yòu__jí__zhǐ
  Is.not__go.between__NEG__get__already__say__get__SFP__why__again__extreme__SFP
  Without a go-between, she will not be gained (= you do not succeed). After saying 'she has been gained, why go on to such extremes!

 c. 寤寐求之。求之不得， (*shījīng, guófēng*) (EAC)
  Wù__mèi__qiú__zhī.__Qiū__zhī__bù__dé__
  Awake__sleep__search__3Obj.__search__3Obj__NEG__get
  Awake and sleeping he searched for her, he searched for her, but she was not found.

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[5] According to Djamouri (1991), transitive verbs are typically negated by the negator 弗 *fú* and not by *bù* 不. This approach has also been adopted in the present study. The negator *fú* has attracted a lot of attention in the linguistic debate (see e.g. Djamouri 1991, Pulleyblank 1995, Wei 魏培泉 2001, and references to earlier work therein). One of the hypotheses proposed is that *fú* is a fusion of *bù* and the object pronoun 之 *zhī* (supported e.g. in Wei 魏培泉 2001), based on the fact that the object pronoun is zero when the verb is negated by *fú*. Pulleyblank (1995), by contrast, proposes an aspectual reading, due to the coda *-t. Additionally, he points out that a Han period taboo on *fú* might have blurred the picture of its occurrence in the transmitted texts. This taboo may be responsible for the apparent interchangeability of *fú* and *bù* in the transmitted Archaic Chinese literature. Aldridge (p.c.) proposes that LAC is not an object pro-drop language; object pro-drop seems to be mostly confined to negated contexts. This contrasts with the earliest attested periods of Chinese, which seem to allow object pro-drop, and with Modern Chinese, which clearly permits object pro-drop. The 3P object pronoun *zhī* 之 of LAC is attested only as a demonstrative pronoun in the oracle bone inscriptions; *zhī* as an object pronoun first appears in the bronze inscriptions of the beginning of the Spring and Autumn Period (770 BCE) according to Djamouri (1999). In the *Shijing*, in Early Archaic Chinese, the object pronoun *zhī* is well attested and seems to be obligatory with typical transitive verbs.

[6] In the Thesaurus Linguae Sericae (http://tls.uni-hd.de/, accessed July 23, 2018) three different shades of meaning are listed for this frequent phrase: 1) transitive: 'commit an offense against a contextually determined N; 2) ditransitive: 'fall foul of, commit a crime against N'; in 3) the PP is left out, the indirect object is contextually determined. LAC has two different kinds of ditransitive structures with semantically ditransitive verbs: 1) V IO DO, b) V DO *yú* 於/于 IO. Morphologically *dé* belongs to the verbs of receiving, many of which are ditransitive verbs.

d. 云不可使，得罪于天子； (*shījīng, xiǎoyǎ*) (EAC)
Yún__bù__kě__shǐ__dé__zuì__yú__tiānzǐ
Say__NEG__possible__sent__obtain__guilt__PREP__heaven__son
If one refuses to be employed, one becomes guilty (obtains guilt) against the son of heaven.

e. 人之為言，胡得焉！ (*shījīng, guófēng*) (EAC)
Rén__zhī__wèi__yán__hú__dé__yán
Man__GEN__false__word__what__find__in.3Obj
The people's false words, what can you find in them!

f. 如匪行邁謀，是用不得于道。 (*shījīng, xiǎoyǎ*) (EAC)
Rú__fěi__xíng__mài__móu__shì__yòng__bù__dé__yú__dào
Be.like__NEG__go__proceed__consult__therefore__NEG__get__PREP__road
This is like consulting without moving forward; therefore nothing will be gained on the road.

g. 為鬼為蜮，則不可得。 (*shījīng, xiǎoyǎ*) (EAC)
Wéi__guǐ__wéi__yù__zé__bù__kě__dé
Be__ghost__be__turtle__then__NEG__KE__obtained
If you were a ghost or a turtle, you could not be caught.

In all instances in the *Shījīng* the subject is [+HUMAN], independently of the argument structure of *dé*, i.e. independently of whether the subject is a theme or a goal argument. The agentivity features of the subject of *dé* are in all cases very low, if existent at all, although agentivity has been proposed as distinguishing feature for postverbal ability DE according to Xie (2012). The internal argument in a transitive construction can range from [+HUMAN] to [+ABSTRACT]. For an intransitive employment of *dé* as in (4b), the TLS proposes the meaning 'be successful'. This seems to be a translation derived from the unaccusative alternation 'NP be gained, won, obtained' >> the fact that NP has been obtained implies that subject has succeeded in obtaining the endpoint of the event.

The following argument structure of *dé* is attested in the *Shijing*:

a) VP1: NP1[+HUMAN]$_{goal}$ V NP2$_{theme}$[+HUMAN]/[+ABSTRACT] → transitive
b) VP2: NP1[+HUMAN]$_{theme}$ V → intransitive
c) VP3: NP1[+HUMAN]$_{goal}$ V (NP2$_{theme}$) *yú* 于-PP → (di)transitive, benefactive (malefactive)
d) VP3: NP1[+HUMAN]$_{theme}$ V *yú* 于-PP → intransitive with locative PP (source)

The set of subjects of the intransitive use [+HUMAN] is a subset of the objects of the transitive use [+HUMAN]/[+ABSTRACT]. According to Levin and Rappaport Hovav (1995: 86), "the asymmetry in the selectional restrictions is significant since it provides a guide to which variant is basic." This seems to imply that the basic use of *dé* is the transitive use and not the intransitive/unaccusative use. The thematic role of the [+HUMAN] subject in (4a), (4c) and (4d) is the goal of the situation expressed by the predicate; no agent seems to be involved. Since the goal subjects of *dé* in the *Shijing* are [+HUMAN], i.e. sentient according to Dowty (1991: 581), and sentiency is a typical Proto-Agent entailment, this may be the distinctive feature that qualifies them as subjects of the verb of getting and receiving *dé* and allows a grammaticalization to functions requiring an agentive subject. According to the hierarchy of thematic roles in Bresnan (2001: 307, cf. Xiong 2017) *goal* or *experiencer* is the lowest of rank of the roles *agent, beneficiary and goal*; they all precede the roles of instrument and patient/theme though.[7]

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[7] See also Marelj (2004: 198, cf. Xiong 2017: 48) according to whom goals are [+CAUSE].

All the basic functions of the lexical verb *dé* are also attested in the Late Archaic Chinese texts *Zuǒzhuàn* and *Guóyǔ*; the auxiliary verb *dé* is still not very frequent in these texts. The transitive and ditransitive constructions become more frequent, whereas the intransitive construction is extremely infrequent. Examples for the intransitive construction appear in (5a) and (5b). The structure of the two examples is identical. Intransitive *dé* almost exclusively appears in this structure in the two texts checked. The subject is [-HUMAN/+ABSTRACT] in both examples.

(5) a. 信、禮之亡，欲免，得乎？」 (*zuǒzhuàn, chéng* 15) (LAC)
      Xìn__lǐ__zhī__wáng__yù__miǎn__dé__hū
      Trustworthiness__propriety__GEN__demise__wish__avoid__gained__SFP/Q
      When trustworthiness and propriety perish and one wishes to avoid it, will it be gained (= will one be successful?)

    b. 若殺不辜，將失其民，欲安，得乎？ (*zuǒzhuàn, chéng* 15) (LAC)
      Ruò__shā__bù__gū__jiāng__shī__qí__mín__yù__ān__dé__hū
      If__kill__NEG__guilty__FUT__loose__POSS__people__wish__pacify__gained__SFP/Q
      If he kills the innocent he will lose his people, and if he wants to find peace [then], will it be gained (=will he succeed)?

The examples in (6) all show the transitive employment of *dé*: in (6a), *zuì* 'guilt', an abstract noun, appears as the internal argument of *dé*; in (6b), the internal argument is also an abstract noun; in (6c), the internal argument is a proper name and [+HUMAN], and in (6d), it is [+HUMAN]. In (6a-c), the goal subject is [+HUMAN], in (6d), it is abstract, referring to the name of the state. However, state names can be used metonymically in order to refer to the ruler of the state. Thus, it can also be considered [+HUMAN].

(6) a. 申侯由是得罪。 (*zuǒzhuàn, xī* 5.5.2) (LAC)
      Shēn__hóu__yú__shì__dé__zuì
      Shen__hou__from__this__get__guilt
      Shen hou had become guilty from then on.

    b. 歸之而質其大子，必得大成。 (*zuǒzhuàn, xī* 15.4.25) (LAC)
      Guī__zhī__ér__zhì__qí__dàizǐ__bì__dé__dà__chéng
      Return__3OBJ__CON__hostage__his__heir__certainly__get__great__achievement
      Send him back, but keep the heir as a hostage, then you will certainly gain a great success.

    c. 「得華登矣！」 (*zuǒzhuàn, zhāo* 21.6.5) (LAC)
      Dé__Huá__Dēng__yǐ
      Get__Hua__Deng__SFP
      I got Hua Deng!

    d. 晉得其民， (*guóyǔ, zhōuyǔ zhōng*) (LAC)
      Jìn__dé__qí__mín
      Jin__get__POSS__people
      ... if Jin wins his people, ...

In the examples in (7) the *dé*-VP contains a *yú*-PP; in (7a-c), the VP is ditransitive, the PP refers to a source. The goal subject is [+HUMAN]. In (7d), *dé* is intransitive with a theme subject; the PP refers to a goal or an affectee; the subject is [-HUMAN/+ABSTRACT].

(7) a.　「若得道於虞，猶外府也。」 (*zuǒzhuàn, xī* 2) (LAC)
　　　　Ruò__dé__dào__yú__Yú__yóu__wài__fǔ__yě
　　　　If__get__way__PREP__Yu__still__outside__treasury__SFP
　　　　If you get the way of passage from Yu, it will still be [like in] a foreign treasury.

　　b.　「夷吾無禮，余得請於帝矣， (*zuǒzhuàn, xī* 10) (LAC)
　　　　Yíwú__wú__lǐ__yú__dé__qǐng__yú__dì__yǐ
　　　　Yiwu__not.have__propriety__I__get__question__PREP__god__SFP
　　　　Yiwu does not have any propriety, I got [permission for] a request from the god.

　　c.　「吾不得志於漢東也，我則使然。 (*zuǒzhuàn, huán* 6) (LAC)
　　　　Wú__bù__dé__zhì__yú__Hàndōng__yě__wǒ__zé__shǐ__rán
　　　　1P__NEG__get__intention__PREP__Handong__SFP__I__then__make__SUF
　　　　If I do not get my will at/from Handong, this will be my own doing.

　　d.　故是非不得於身。 (*zhuāngzǐ* 5.5.5) (LAC)
　　　　gù__shì__fēi__bù__dé__yú__shēn
　　　　therefore__right__wrong__NEG__succeed__PREP__body
　　　　Therefore right and wrong are not found on him.

The examples in (8) show different kinds of negators modifying *dé*: in the first clause of (8a), it is the neutral negative marker *bù*, the internal argument, again the abstract noun *zhì* 志 (see also ex. (8c)), is present; in the second clause, the internal argument is not present overtly; *dé* is intransitive. In (8b), the negative marker *fú*, identified as default marker of transitive verbs in Djamouri (1991), precedes *dé*, the pronominal internal argument does not appear overtly, but according to the negative marker, *dé* is analyzed as transitive. In (8c), the aspectual negative marker *wèi* 未 negates *dé*; this negative marker is located in the Outer Aspect Phrase, typically negating telic verbs. In all examples, the subject is [+HUMAN], in (8a) and (8b) it is a goal subject, and in (8c), it is a theme subject. A [+HUMAN] subject seems to be the default case when *dé* appears as a lexical verb. The structures do not differ from non-negated structures. The analysis as a telic achievement verb is supported by its co-occurrence with the aspectual negative marker *wèi* in (8c).

(8) a.　成而不得志，公子燮求令尹而不得，故二子作亂。 (*zuǒzhuàn, wén* 14) (LAC)
　　　　Chéng__ér__bù__dé__zhì__gōngzǐ__Xiè__qiú__língyǐn__ér__bù__dé__
　　　　gù__èr__zǐ__zuò__luàn
　　　　Accomplish__CON__NEG__get__intention__prince__Xie__search__Lingyin__CON__NEG__get__therefore__two__prince__make__chaos
　　　　This being achieved, he did not get his will. Prince Xie requested the position of Lingyin, but it was not received (he did not receive it), therefore the two princes made chaos.

　　b.　弗得，鞭之，見血。 (*zuǒzhuàn, zhuāng* 8) (LAC)
　　　　Fú__dé__biān__zhī__xiàn__xuè
　　　　NEG_{tr}__get__whip__3Obj__appear__blood
　　　　When he didn't get it, he whipped him until blood appeared.

　　c.　趙旃求卿未得，且怒於失楚之致師者， (*zuǒzhuàn, xuān* 12) (LAC)
　　　　Zhào__Zhān__qiú__qīng__wèi__dé__
　　　　Zhao__Zhan__search__minister__NEG_{Asp}__get
　　　　qiě__nù__yú__shī__Chǔ__zhī__zhì__shī__zhě
　　　　furthermore__angry__PREP__loose__Chu__GEN__bring.about__army__REL

> *Zhao Zhan requested the position of minister, but it was not obtained yet (= he had not succeeded yet). Furthermore, he was angry about having lost those who challenged the army of Chu.*

Similar to the situation in the Early Archaic text *Shijing*, *dé* appears as an intransitive verb with a theme subject (VP1) and a transitive (and ditransitive) verb with a goal subject (VP2). The subject is predominantly [+HUMAN]. The intransitive construction in VP1 shows a wider range of subjects in LAC, allowing an occasional [+ABSTRACT] subject, than in Early Archaic Chinese.

(9) a. VP1: $NP1_{theme}$ [+HUMAN] V → intransitive, one example with [-HUMAN] subject.
    b. V1a: $NP1_{theme}$ [+HUMAN]/[+ABSTRACT] V *yú* 于-PP → intransitive with locative PP/affectee (benefactive)
    c. VP2: $NP1_{goal}$ [+HUMAN] V $NP2_{theme}$[+HUMAN]/[+ABSTRACT] → transitive
    d. VP2a:$NP1_{goal}$ [+HUMAN] V $NP2_{theme}$ *yú* 于-PP → source
    e. VP2b:$NP1_{goal}$ [+HUMAN] V $NP2_{theme}$ *yú* 于-PP → benefactive, this seems to be confined to *dé zuì*

As an achievement verb, *dé* focusses on a result. Rappaport Hovav and Levin (1998: 104) propose the event structure template in (10a) for 'result verbs'. Two sub-events are involved in this representation, an activity in (10b), and a result state associated with achievements as in (10c).

(10) a. [[x ACT] CAUSE [BECOME [y < STATE>]]]
    b. [x ACT]
    c. [BECOME [y < STATE>]]

The analysis of the argument structure of *dé* has shown that the [+HUMAN] subject/external argument in LAC is evidently rather a goal than an agentive subject. The goal subject may be involved in causing the GET event to happen, but it functions neither as direct agent nor as direct cause. Accordingly, the ACT feature is not expressed in the event structure of the lexical verb *dé* even in the transitive structure. Two different possibilities arise with regard to the analysis of the transitive variant of *dé*: 1) a light verb INVOLVE instead of ACT could be proposed in the lexical semantics of *dé*, in order to link the external argument to VP. This is inspired by a proposal in Feng (2014) with regard to the light verbs in *v*P in Archaic Chinese and represented by (12d-f); 2) The external argument is severed from the verb as proposed in Kratzer (1996); according to this analysis, the examples (12d-f) can be removed from the representation of the lexical semantics of *dé*. We propose the following basic event structure of *dé*:

(11) [BECOME [y < STATE = *GET/OBTAIN(ED)*>]]

Including the possible adjuncts, the lexical verb *dé* can combine with in the event structure template, the following variants are attested in LAC:

(12) a. V1:   [BECOME [$y_{human/abstract}$ < GET>]]; clear restrictions on the theme subject, in comparison to the theme in object position
    b. V1a: [BECOME [$y_{human/abstract}$ < GET> at [P_{loc} z]]]
    c. V1b: [BECOME [$y_{human/abstract}$ < GET/OBTAIN> for [$P_{bene/goal}$ z]]] (?)
    d. V2:   [x_{human} INVOLVE] [BECOME [$y_{human/abstract}$ < GET>]]
    e. V2a: [x_{human} INVOLVE] [BECOME [$y_{human/abstract}$ < GET/OBTAIN> from [P_{source} z]]]

    f. V2b: [*x*_{human} INVOLVE] [BECOME [*y*_{human/abstract} < GET> for [P_{bene/goal} *z*]]]

2.2   Discussion of the argument structure of the lexical verb dé
Due to its semantics and its argument structure, *dé* seems to belong to the verbs involving argument alternations within *v*P. According to the classification provided in Levin (1993) for English verb classes and their alternations, two different classifications seem to be possible for *dé*: 1) GET verbs, and 2) OBTAIN verbs. The latter include the English verbs 'accept, acquire, obtain, receive, regain, seize, select, …' Most GET verbs allow a *from* phrase, and a *for* benefactive phrase, and they show a benefactive alternation (Levin 1993: 141f); they do not allow dative and locative alternations. [8] Most OBTAIN verbs allow a *from* phrase, and a benefactive *for* phrase, but they do not show the Benefactive Alternation. They also do not allow dative and locative alternations. Example (13) shows the grammaticality of a benefactive alternation in English with the get verb 'buy', and the ungrammaticality of the benefactive alternation with the verb 'obtain' (from Levin 1993: 142).

(13) a. Carmen bought a dress for Mary.
     b. Carmen bought Mary a dress.
     c. Carmen obtained a spare part for Mary.
     d. *Carmen obtained Mary a spare part.

    The verb *dé* allows PPs with the preposition *yú* 于/於, the most general preposition expressing relation in Archaic Chinese. One of its basic functions is to introduce a locative phrase, but it also introduces an indirect object, the agent of a passive construction, and the *Y* element in a comparative structure. In the complement of *dé*, two basic functions are attested: a) in the transitive and telic construction, *yú* introduces a source; and b) in the intransitive/unaccusative, resultant state construction, *yú* introduces a locative complement. The benefactive (or rather malefactive) construction is almost exclusively confined to the combination *dé zuì* 'acquire guilt against' (in ex. (4d)). In this construction, the PP is possibly also locative 'in front of', or simply relational 'in relation to'. In contrast to the English GET and OBTAIN verbs, no alternations within VP seem to be attested; a few late examples from Early Middle Chinese show an alternation between a double object construction and a prepositional construction 'V NP2 *from* NP3' and 'V NP2 NP3', i.e. the *source* is syntactically realized as a second internal argument as in example (14b) from the *Shiji*.[9] No change of position of the source argument is involved. Thus, this construction differs from typical ditransitive verbs in LAC, which allow the dative alternation: NP1 V DO *to* IO ↔ NP1 V IO DO. This construction only seems to be attested with the internal argument *xìng* 幸. This shows that *dé* is clearly distinct syntactically from the corresponding English verbs and also from typical ditransitive verbs of the *give* or *take* type in LAC.

(14) a. 聞臣之得幸於王也，   (*zhànguó cè* 25.25.3) (LAC-EMC)
       Wén__chén__zhī__dé__xìng__yú__wáng__yě
       Hear__subject__GEN__get__favor__PREP__king__SFP
       if one hears that [someone like] me is gaining favor from the king, …
     b. 得幸武帝，生子一人， (*shǐjì* 49: 1985) (EMC)
       Dé__xìng__Wǔdì__shēng__zǐ__yī__rén

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[8] GET and RECEIVE verbs are briefly discussed in Dowty (1991: 581) as historically particularly interesting. The examples in the Oxford English Dictionary for both verbs imply that 'active' senses were as common as 'passive' (non-volitional) senses.

[9] In the Early Middle Chinese period, the Chinese language underwent a number of structural changes which also involved the employment of PPs with *yú* in ditransitive and other constructions.

> Get__favor__Wu__emperor__give.birth__son__one__man
> *she gained favor from/with emperor Wu and bore one son.*

On the other hand, *dé* apparently shows some features characteristic for middle constructions in transitivity alternations. According to Levin (Levin 1993: 26), middle constructions are characterized by "a lack of time reference and by an understood but unexpressed agent. More often than not, the middle construction includes an adverbial or a modal element." (e.g. Alexiadou 2014). This distinguishes them from the causative/inchoative alternation.[10] An example would be:

(15) a. The butcher cuts the meat.
   b. The meat cuts easily.

The same kind of modification is also attested with *dé* in a similar meaning, modified by the adverb *yì* 易 'easily'. The Academia Sinica *shànggǔ* corpus (http://hanji.sinica.edu.tw/ accessed September 25, 2018) shows 21 hits of *yì dé* 易得 'easily get' in LAC and EMC texts, of those, only one instance is transitive. All other instances are intransitive (unaccusative) with a theme subject. Additionally, they are all generic; i.e. they display at least some of the features typical for middle constructions. The basis for the generic reading in the examples represented in (16) is the intransitive/unaccusative variant of *dé* and the combination with *yì* 'easily'. Two analyses are possible for an intransitive *v*P with a theme subject in LAC, a passive analysis and an unaccusative analysis.[11] Although *dé* in LAC predominantly functions as a transitive verb, the intransitive constructions with a theme subject are evidently unaccusative and not passive. This analysis is supported by the fact that in none of the examples discussed above with a *yú*-PP, the PP introduces an agent, although the introduction of the agent is one of the regular functions of the *yú*-PP. According to Alexiadou and Schäfer (2013), the introduction of an agent by a PP (*by*-phrase in English) is licensed in passive constructions, but not in unaccusative constructions. Thus the examples with the PP *yú* clearly show that NP$_{theme}$+*dé* has to be analyzed as unaccusative and not as passive.[12] Despite the semantic similarities with the examples in (15), the middle analysis does not seem to account for *dé* in the examples (16), though. This is due to the transitivity constraint on verbs that can enter the middle construction discussed in Xiong (2017) referring to Marelj (2004) and Fagan (2009: 97). Marelj (Marelj (2004: 10f, cf. Xiong 2017: 110f) proposes that only verbs with Cause, Agent or Instrument roles can enter the middle construction. *Receive* is not acceptable in the middle construction, because it does not contain the CAUSE feature (see Xiong 2017: 112). Xiong (2017: 211f) analyses constructions with a resultative verb and with *rongyi/nan* 'easy/difficult' in Modern Chinese as instantiations of the *tough* construction and not as middles. Although *dé* is not a complex resultative verbal predicate like the predicates discussed in Xiong, the same analysis can account for both *dé* and for *yòng* 用 'use, employ' in the examples in (16), modified by *yì*

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[10] An argument against the structure with *dé* as a middle construction is the fact that *dé* is an achievement verb, which makes an analysis as lexical middle unlikely (following Fagan (2009, cf. Xiong 2017: 29) on German, English and French middles). On the other hand, Lekakou (2009: 99, cf. Xiong 2017: 51) claims that, "an otherwise eventive verb becomes a derived state, and, more precisely, receives a generic interpretation." Middle verbs and unaccusatives have in common that they do not assign case (see Xiong's (2017: 34 discussion of Hale and Keyser's (2002) analysis of middles).

[11] Although a number of verbs in Archaic Chinese could be marked morphologically for resultativity/telicity (see e.g. Jin 金理新 2006, Schuessler 2007, Meisterernst 2016, Aldridge and Meisterernst 2019), there was apparently never a morphological distinction between the passive and the unaccusative.

[12] A second test Alexiadou and Schäfer (2013) propose is Control: a passive agent can control a PRO of a rationale clause +, unaccusative -.

'easy' and *nán* 難 'difficult' respectively.[13] However, the unaccusative function and the semantic similarity with middle constructions may have contributed to the development of *dé* into a postverbal resultative marker, and into the middle construction with DE.

(16) a.　「悲夫！士何其易得而難用也！」 (*zhànguó cè* 11.9.1) (LAC-EMC)
　　　Bēi__fú__shì__hé__qí__yì__dé__ér__nán__yòng__yě
　　　Sad__SFP__officer__why__MOD__easy__get__CON__difficult__employ__SFP
　　　How sad! Why are officers to be found easily, but to be employed with difficulty?
　　b.　惟余一人，有善易得而見也，有不善易得而誅也。」 (*lǚshì chūnqiū* 20.2.3)
　　　(LAC)
　　　Wéi__yú__yī__rén__yǒu__shàn__yì__dé__ér__jiàn__yě
　　　COP__I__one__man__have__good__easy__get__CON__visible__SFP
　　　Yǒu__bù__shàng__yì__dé__ér__zhū__yě
　　　Have__NEG__good__easy__get__CON__punish__SFP
　　　For me alone, if they are good, they are found easily and made visible, if they are bad, they are found easily and punished.

2.3　The aspectual and modal structure of dé

Dé is a typical achievement verb in Archaic Chinese. Both, the transitive and the intransitive variant clearly refer to a final point of the situation, the BECOME feature. The analysis of the argument structure of *dé* in the event structure template in (11) demonstrates that *dé* functions as an achievement verb even in the transitive variant. No ACT or CAUSE sub-event is involved in the lexical structure of *dé*. The external argument may be involved in the BECOME <STATE> event, but is not linked to an ACT event by an acting or causing relation.

In the temporal structure provided for terminative, i.e. telic situations in Abraham and Leiss (2008: XIV), a predicate with *dé* either refers to t_m, the change of state point from a process (E_1) to a resultant state [E_2], or to the resultant state E_2. In (17), the INVOLVE event includes the goal subject *Jin* and the process E_1 leading to the resultant state, starting with t_m which indicates that the theme 'his people' are won. In (18), only the t_m and the resultant state part E_2 are present in the structure.

(17) a.　晉得其民， (*guóyǔ, zhōuyǔ zhōng*) (LAC)
　　　Jìn__dé__qí__mín
　　　Jin__get__POSS__people
　　　… Jin wins his people …
　　b.　| >>>>>>>>>> | ……………|
　　　t₁　　E₁　　　tₘ　E₂　　tₙ
　　　[*x* INVOLVE]　　[BECOME [*ʏ*<STATE>]]
　　　[*Jin* INVOLVE]　[BECOME [*people* <WIN>]]

(18) a.　信，禮之亡，欲免，得乎？」 (*zuǒzhuàn, chéng* 15) (LAC)
　　　Xìn__lǐ__zhī__wáng__yù__miǎn__dé__hū
　　　Trustworthiness__propriety__GEN__demise__wish__avoid__succeed__SFP/Q

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[13] See Xiong (2017: 117) citing Bassac and Bouillon (2002)) 'the verb *use* is treated as an activity verb … and is therefore excluded from the middle construction. Modern Chinese (*shi)yong* 'use' is acceptable in the *qilai* middle construction (Xiong 2017: 120), though.

(i) Zhe__xie__chufang__yongju__yong__qilia__hen__fangbian
　　The__PL__kitchen__utensil__use__QILAI__very__convenient
　　It is convenient to use these kitchen utensils. (cf. Xiong 2017: 119)

'When trustworthiness and propriety perish and one wishes to avoid it, will it be gained (= will one be successful?)'

b. | >>>>>>>>> | ....|
    t_1 E_1 t_m E_2 t_n
               [BECOME [$_Y$ <STATE>]]
               [BECOME [pro_{theme} <GAINED>]]

Achievement verbs can be modified by the perfective adverbs 既 *jì* 'already', 已 *yǐ* 'already, and by the aspectual negative marker 未 *wèi* 'not yet'. These adverbs have been analyzed as attached to the Outer Aspect Phrase in (Meisterernst 2016); as perfective adverbs, they naturally combine with [+TELIC] verbs; with atelic verbs they signal completion. Telicity is hosted in the Inner Aspect Phrase within *v*P.[14] The perfective adverbs frequently combine with the sentence final particle 矣 *yǐ*, which has been compared to the sentence final particle 了 *le* in Modern Mandarin (e.g. Pulleyblank 1995). *Yǐ* appears in the lowest layer of SFPs in Chinese, possibly as the head of the Outer Aspect Phrase; it marks finiteness. In contrast to another typical telic verb, the verb 治 *chí/zhì* 'govern/governed >> in good order', the verb *dé* occurs relatively frequently in combination with one of the aspectual adverbs *jì* and *yǐ*.[15] The reason for this may be that *dé* belongs to the verbs of receiving which are excluded from the morphological changes typically associated with resultativity; thus, the resultative/perfective reading is more liable to be marked by an adverbial. The verb *chí/zhì* 'govern/governed' on the other hand shows one of the possible morphological alternations connected to meanings of telicity and resultativity. These are a) an alternative reading in the *qùshēng* resulting from a former *-*s* suffix (first proposed in Haudricourt 1954, also Downer 1959; Unger 1983; Sagart 1999; Jin 金理新 2006, Schuessler (2007 etc.).), or b) an alternation between voiced and voiceless initials (Karlgren 1933; Mei 梅祖麟 1988; Baxter and Sagart 2014, etc.). In LAC, verbs which show morphological alternations tend to occur less frequently with the perfective adverbs *jì* and *yǐ* than verbs not showing these alternations (including verbs which only appear in the *qùshēng*) (Meisterernst 2015b, Aldridge and Meisterernst 2018 and references therein). The two different readings have been recorded for *zhì* already in the *Jīngdiǎn shìwén* (6th c. CE) by Lu 陸德明 (550-630), based on earlier phonological commentaries. They have been reconstructed as (*r-de, *r-de-s) in Jin 金理新 (2006). Different functions have been attributed to the reconstructed *-*s*, connected to perfectivity, passive readings, and most recently to resultativity and telicity (Meisterernst 2015b, 2016, 2019a, Aldridge and Meisterernst 2018, and reference therein). The examples in (19) show *dé* modified by *jì* (19a), by *yǐ* (19b), and by *wèi* and *jì* (19c).

(19) a. 卞人將畔，臣討之，既得之矣。(*guóyǔ, lǔyǔ xià*) (LAC)
    Biàn_rén_jiāng_pàn_chén_tǎo_zhī_jì_dé_zhī_yǐ
    Bian_people_rebel_subject_punish_OBJ_PERF_get_OBJ_SFP
    Someone in Bian wanted to rebel, and I punished him, and I have already gotten it.
b. 今已得地而求不止者 (*zhànguó cè* 10.1.9) (LAC-EMC)
    jīn_yǐ_dé_dì_ér_qiú_bù_zhǐ_zhě
    now_PERF_get_land_CONJ_request_NEG_stop_NOM
    Now she has already got the land, but her demands do not stop ...

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[14] For a discussion see Meisterernst (2016) and the references therein.

[15] A search of the sequence *jì/yǐ dé* and *jì/yǐ zhì* in the Shanggu corpus of Academia Sinica (http://hanji.sinica.edu.tw/ accessed September 25, 2018) displays the following hits: *jì dé*: 70, *jì zhì*: 3; *yǐ dé*: 65, *yǐ zhì*: 17. The increase of marking by *yǐ* with *zhì* is expected, because *yǐ* is later than *jì* and appears at a time when the number of aspectual adverbs generally increases; this is supposedly caused by the loss of transparency of the former morphology (see Meisterernst 2017, 2019a).

c. 其未得之也，患得之；既得之，患失之。　(*lúnyǔ* 17.15) (LAC)
Qí__wèi__dé__zhī__yě__huàn__dé__zhī__jì__dé__zhī__huàn__shī__zhī
His__NEG_{asp}__get__OBJ__SFP__worry__get__OBJ__PERF__get__OBJ__worry__loose__OBJ
As long as he has not got it yet, he worries about getting it; when he already got it, he worries about loosing it.

A characteristic feature *dé* has in common with other auxiliary verbs is the employment of the first person pronoun 吾 *wú* in subject position. *Wú* is more frequent than the other common 1P pronoun 我 *wǒ* (12 ⟺ 7 in *Zuǒzhuàn*) in combination with *dé* as both lexical and auxiliary verb. This has already been stated in Gabelentz in 1881 (1960: § 1092f). Whereas *wǒ* can stand for a nominative subject and for any kind of object, Gabelentz analyzes *wú* as mostly, but not exclusively genitive. He states that when *wú* appears as the subject in combination with an adverb or an auxiliary word, the subject has genitive case. All the can-wish verbs of LAC, i.e. all the early auxiliary verbs appear more frequently with *wú* than with *wǒ*. This is also true for volitional verbs and verbs of participant internal ability. This may be accounted for by the irrealis mood of modal verbs, which imposes different constraints on the subject (Aldridge p.c.).[16] In most of the instances with *wǒ*, the pronoun seems to be in contrastive focus or has plural reference (Aldridge, p.c.); *wǒ* is historically the default pronoun to express the plural of the 1st person. In (20a), the first person pronoun *wú* appears in a non-contrastive context, referring to a goal and not to an agent; in (20b), *wǒ* appears in contrast to the term of address *zǐ* 子 in the first clause.

(20) a. 「吾得罪於君，悔而無及也。 (*zuǒzhuàn, xiāng* 20)」LAC)
wú__dé__zuì__yú__jūn__huǐ__ér__wú__jí__yě
I__get__guilt__PREP__ruler__regret__CON__not.have__arrive__SFP
I incurred guilt towards my ruler, regret does not lead anywhere.

b. 子得其國寶，我亦得地， (*zuǒzhuàn, chéng* 2) (LAC)
zǐ__dé__qí__guó__bǎo__wǒ__yì__dé__dǐ
You__receive__its__country__treasure__I__also__receive__land
You will get the treasures of the country, and we will also get the land ...

2.4   Concluding remarks on the lexical verb *dé*

The discussion above demonstrates that the lexical verb *dé* is unambiguously an achievement verb; it is first slightly more frequently attested in intransitive, unaccusative constructions with a theme subject (8 instances vs. 6 unambiguous transitive instances in the *Shijing*). According to proposals made on the morphosyntax of Chinese e.g. in Jin 金理新 (2006), it belongs to the class of verbs of *receiving* (得到 *dédào*), which are characterized by the fact that they never appear in the *qùshēng* alternation. This implies that they do not belong to the class of verbs, for which the resultant state can be marked morphologically by an *-s-* suffix. Consequently, they are more frequently modified by perfective adverbs in LAC, which mark them as telic, referring to a resultant state. During the LAC period, the employment of *dé* increases, and it is predominantly employed as a transitive verb with a goal subject. Also in its transitive use, no ACT/CAUSE feature seems to be involved in the event template of *dé*; this argues for the existence of genuine transitive achievement verbs in LAC (see Meisterernst 2015a, 2016). The lexical semantics and the argument structure of *dé* have some features in common with for instance the

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[16] According to Dowty (1991: 578), goals are obliques in many cases; this may also account for the employment of *wú*, which supposedly has a non-nominative case (Aldridge 2015). As an achievement verb, and as an implicative verb, *dé* frequently expresses realis mood rather than irrealis mood.

English GET and OBTAIN verbs. Similar to the English verbs of this category, the expression of a source, corresponding to a *from* phrase and a restricted set of benefactive *for* phrases are licensed in the argument structure of *dé*. But in contrast to the English verbs, no alternations, such as dative or locative alternations within VP seem to be attested. Constructions with the adverb *yì* 易, which have a generic reading and resemble middle alternations, also permitted for some of the English GET/OBTAIN verbs, rather have to be analyzed as tough constructions than as middle constructions.

3 The diachronic development of dé

3.1 An introduction to the modal marker dé and its different functions

The grammaticalization of GET verbs into auxiliaries is well attested in the literature (Heine and Kuteva 2019); Chinese is one of the exemplary cases. Heine and Kuteva (2019) show that GET verbs can grammaticalize into past tense markers (e.g. in Khmer), into markers of possibility (Chinese, Burmese, English, Lahu, Vietnamese), or permission (Chinese, English). The precondition for the grammaticalization of a lexical verb into a modal auxiliary verb is the licensing of a VP complement in the argument structure of the pre-modal verb. Complements which are ambiguous between an NP and a VP analysis open the path for a reanalysis of *dé* as an auxiliary verb. One of the triggers for the extension of the system of modal auxiliaries in EMC was possibly the loss of transparency of the former derivational aspectual morphology of the verb, briefly discussed in section 2.3, as one of a number of structural changes in Chinese at that time (Aldridge, e.g. 2013, Feng 2014, Aldridge and Meisterernst 2018, Meisterernst 2019a, 2020a). Due to this change, morphological distinctions between nouns and verbs ceased to be productive. The examples in (21) demonstrate how ambiguities between a VP and an NP analysis arise. 成 *chéng* in (21a), 'complete, accomplish', 'achievement' is a typical transitive verb, but in the example it appears without an internal argument. An unaccusative or passive analysis of *chéng* in the complement of *dé* is not possible, since the subject of *chéng* cannot be analyzed as its internal argument. This argues for the NP analysis of *chéng* 'achievement'. 進 *jìn* 'advance, move forth; enter, present' in (21b) on the other hand can appear as an intransitive (unergative) verb, and 死 *sǐ* 'die' in (21c) is a typical unaccusative verb; the internal argument appears in subject position. Since *jìn* can appear as an intransitive unergative verb and *sǐ* is intransitive in its basic argument structure, their analyses as VPs are not problematic; no violation of their argument structure is involved as it would be in the VP analysis of *chéng* in (21a). Consequently, the analysis of *dé* in (21b) and (21c) as a modal auxiliary verb is more likely than in (21a). (21d) shows the analysis of the process of grammaticalization of (21b) from lexical verb with NP complement to modal verb with VP complement. The examples in (22) all show transitive complements with overt internal arguments following the complement verb. In these cases, the complements of *dé* are not ambiguous anymore between an NP and a VP analysis.

(21) a. 楚得成，則君無敗矣。」 *(zhànguó cè* 10.1.5) (LAC-EMC)
　　　　Chǔ__dé__chéng__zé__jūn__wú__bài__yǐ
　　　　Chu__DE__complete/achievement__then__prince__not.have__defeat__SFP
　　　　If Chu gains this achievement, then our prince will not suffer defeat.
　　b. 父兄莫得進矣。 *(zuǒzhuàn, xiāng* 27) (LAC)
　　　　Fù__xiōng__mò__dé__jìn__yǐ
　　　　Father__older.brother__none__DE__enter/entrance
　　　　None of our elders gains access / can enter.
　　c. 得死為幸。」 *(zuǒzhuàn, xī* 19) (LAC)
　　　　dé__sǐ__wéi__xìng

DE__die/death__be__fortunate
To gain [a natural] death/ to be able to die, will become fortunate.

d. [$_{VP}$ DE 'GET/GAIN [$_{NP}$ *jin* 'access']] → [$_{vP}$ [$_{VP/ModP}$ DE 'can' [$_{VP}$ *jin* 'access']]

(22) a. 且子懼不孝，無懼弗得立。 *(zuǒzhuàn, mǐn* 2) (LAC)
   qiě__zǐ__jù__bù__xiào__wú__jù__fú__dé__lì
   furthermore__you__fear__NEG__filial__NEG$_{mod}$__fear__NEG$_{tr}$__DE__enthrone
   Furthermore fear, not to be filial, don't fear that they will not enthrone you.

   b. 僑焉得恥之？ *(zuǒzhuàn, zhāo* 16) (LAC)
   qiáo__yān__dé__chǐ__zhī
   Qiao__how__DE__ashamed__3Obj
   How could I, Qiao, be ashamed of it?

   c. 寡君知不得事君矣 *(zuǒzhuàn, zhāo* 13) (LAC)
   guǎ__jūn__zhī__bù__dé__shì__jūn__yǐ
   Lonely__prince__know__NEG__DE__serve__ruler__SFP
   My prince knows that he cannot serve you, my prince.

Dé as a modal auxiliary verb is less frequent than the lexical verb *dé* in *Zuǒzhuàn*; as an auxiliary verb, it is infrequent in *Guóyǔ*, and it is also not very frequent in *Lúnyǔ, Mòzǐ, Mèngzǐ, Xúnzǐ, Zhuāngzǐ*. Liu 刘利 (2000: 156) presents the following figures: 18 instances of *dé* as auxiliary verb in *Lúnyǔ* (33.5% of its occurrence), 21 instances in *Guóyǔ* (14.5%), 74 instances in *Zuǒzhuàn* (45.6%), 162 in *Zhànguó cè* (40.6%). However, a closer look at the unambiguous instances of *dé* as a modal auxiliary in the *Lúnyǔ* results in a lower number of instances. Unambiguous instances exclude those with a complement which allows both the NP and the VP analysis and instances with the connector *ér* 而 appearing between *dé* and VP.[17] The entirely unambiguous instances in the *Lúnyǔ* amount to only seven out of 48 (14.6%). Liu 刘利 (2000) in his comprehensive study of modal auxiliary verbs in LAC particularly focuses on the different modal readings of *dé* in rhetorical questions and in combination with negation; these are the environments, in which deontic modal readings are supposed to appear first (see also Li 李明 2001, Meisterernst 2020a, 2020b). This is not the main issue of this study. Instead, the focus lies on the aspectual and argument structure of *dé* in order to show the triggers for the multiple functions of *dé*, including its function as a post verbal marker.

The dependence of the modal reading of *dé* on the lexical aspect and the temporal structure of the embedded verb has been generally acknowledged. According to Dobson (1959: 53, note 19), *dé* basically has an aspectual meaning. Dobson seems to assume that modal predicates with event verbs, e.g. verbs with resultative aspect, receive a deontic reading, while those with atelic verbs receive a possibility reading.[18] A close relation between the reading of *dé* and the aspect

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[17] Liu 刘利 (2000: 58f) analyses *dé* in the construction *dé* 而 *ér* VP as auxiliary verb. One of his arguments for this is that *dé* and the verb following *ér* share the same object. However, object sharing of two VPs is not a characteristic feature of an auxiliary verb and its complement. Additionally, the construction V1 *ér* V2 is also attested with other verbs. The example below is an instantiation of a subordinated VP preceding *ér* and sharing the same object with the following verb. If the object is the pronoun *zhī*, it is only expressed once following the second V (Unger 1988: 65).

(i)   棄而違之。 *(lúnyǔ* 5.19.3) (LAC)
    Qì__ér__wéi__zhī__
    Abandon__ER__turn.against__OBJ
    Abandoning him he turned against him.

For a discussion of this structure (including the structure *dé ér* VP) and for more examples see also Mei 梅廣 2015: 200f).

[18] Dobson (1959: 53, note19: "得 thus operates in two forms in the verbal syntagma: 得 與 "ought to give", 得 受 "should receive" but 得 見 "succeed in seeing"."

of the verb in the complement of *dé* has also been assumed in Li 李明 (2001). He proposes that if the verb selected by *dé* has a perfective/resultative reading, the meaning of *dé* is 'reach'; if the verb has an imperfective/incomplete reading, *dé* expresses possibility. The reading can be marked by an aspectual (perfective) adverb, such as *jì* 既 'already', preceding *dé* (Li 李明 2001: 16f). This adverb does not appear in the complement of *dé*. The adverb is adjoined to the Outer aspect phrase (Meisterernst 2016) and is accordingly located outside *v*P. It denotes that the entire predicate is located in the past and that the event expressed by the matrix verb is complete (see also the examples in (19), discussed above). In the examples in (23) the entire modal predicate is marked for aspect; in (23a), for perfective aspect by the adverb *jì*. In (23b), it is marked by a combination of the aspectual negative marker *wèi* and the adverb 嘗 *cháng*: *wèi cháng* 'never in the past', referring to a past non-event. In both examples, *dé* has an implicative reading; this is the default reading of *dé* in past test contexts. The different readings of the modal auxiliary *dé* are discussed in the following sections.

(23) a. 『舜往于田，則吾既得聞命矣； *(mèngzǐ* 5.1.1) (LAC)
   Shùn__wǎng__yú__tián__zé__wú__jì__dé__wén__mìng__yǐ
   Shun__wander__PREP__field__then__I__JI__DE__hear__mandate__SFP
   That Shun wandered around in the fields, I already managed to understand its meaning, ...

   b. 未嘗得聞社稷之長計。 *(zhànguó cè* 19) (LAC-EMC)
   Wèi__cháng__dé__wén__shèjí__zhī__cháng__jì
   NEG$_{asp}$__PAST__DE__hear__state__long__plan
   I never before managed to/could hear about long-range plans for the state.

Semantically, the modal auxiliary *dé* in Pre-Tang Chinese is associated with different possibility meanings similar to the English modal 'can' and the semi-modal 'to be able to'. The English modal *can* involves meanings of 'ability, opportunity', but also 'capacity, skill', "and even 'right'" (Austin 1970: 320, note 17). Most of these meanings can also be associated with *dé* in Pre-Tang Chinese, similar to *kě(yǐ)*, the earliest modal auxiliary of possibility attested in Archaic Chinese. The modal auxiliary *néng*, also attested early in Chinese, predominantly expresses ability and is a participant-internal modal according to van der Auwera and Plungian's (1998) classification. By contrast, *kě* and *dé* are basically participant external modals, i.e. they express possibilities induced by external factors (for an analysis of *kě* as predominantly a circumstantial root modal see Meisterernst 2008a).[19] For postverbal *de* in Modern Mandarin three different readings have been proposed in Xie (2012: 393): a) an ability reading; b) an opportunity reading; and c) a disposition reading. As already mentioned these readings all "have to do with the potential to cause or undergo "change of state" that is attributable to properties of the subject and/or of the utterance contexts (Hackl 1998; Bhatt 1999)." Thus, they fit well the telicity features of both the modal *dé* and its default complement; the basic meaning of the lexical verb *dé* always includes the change of state of 'not having' to 'having received/gotten/obtained'.

As an event verb, *dé* is a typical change of state verb. It can be distinguished from the other possibility modals by its syntacto-semantic features as a transitive achievement verb with a goal subject and as an intransitive achievement verb with a theme subject. Additionally, its functions as a semi-modal implicative verb, similar to 'manage to' in English, are not modal in the strict sense; this is discussed below. The latter, and the feature of *dé* as an achievement verb expressing a result, may account for its particular diachronic development into the postverbal

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[19] According e.g. to Huang et al. (2009), both *néng* and *kěyǐ* are control modals in Modern Mandarin (2009: 110). A qualification of *néng* as a possible control modal in LAC is still pending, but *kě(yǐ)* is most certainly a raising modal in LAC.

element DE introducing manner and result. Cheng and Sybesma's discussion on potential DAK in Cantonese, the correspondence to DE in Modern Mandarin, accounts for the result reading of DAK by proposing that it is located in a resultative small clause. They discuss two different readings of DAK, a root (deontic) permission reading and a potential reading. They argue that *dak* is a verb (though defective) which is inserted in two different positions in order to derive the different readings: for the deontic reading, 'can' is inserted in the matrix clause, and for the potential reading it is inserted in the resultative small clause. They present the following examples for the different readings of DAK.

(24) a. keoi __zaa-dak __   __li-ga __ce
        3s __drive-DAK __this-CL __car
        s/he can [i.c., is permitted to] drive this car.
   b. keoi__lo-dak-hei__li-seung__syu
        3s__take-DAK-up__this-box__book
        s/he can [i.e., will manage to] lift this box of books.

More research on the topic is required, but Cheng and Sybesma's analysis points to the possibility that the functions of postverbal *dé* actually derive from the semi-modal lexical verb *dé* 'get, obtain', and not from the auxiliary verb *dé*, which emerged during the LAC period, although the semantics of postverbal *dé* and of the auxiliary verb *dé* show a considerable overlap. This will be briefly discussed in section 4 (see also Meisterernst 2019b).

Similar to the verb of possibility *kě/kěyǐ*, which regularly expresses deontic modality in polarity contexts, i.e. rhetorical questions and negation, *dé* also functions as a deontic modal marker. An opportunity reading, i.e. a circumstantial possibility reading, is common to all examples with the auxiliary verb *dé* whether in the present, future, or past tense. It is also the meaning underlying the derived deontic readings. As already mentioned, Dobson (1959: 53) relates the deontic reading of *dé* to the aspectual features of the complement verb, i.e. to a complement verb showing resultative aspect. What Dobson refers to is rather the fact that *dé* by default has event complements, i.e. telic verbs, which are compatible with the perfective aspect. Perfective aspect is not marked by perfective adverbs, though; the default complement of the auxiliary verb *dé* does not have any temporal or aspectual marking. Additionally, a telic verb does not necessarily trigger a deontic reading of the modal predicate.

In the following sections, the possibility, i.e. circumstantial, and the deontic readings of *dé* in LAC and EMC are introduced briefly. According to Tsai's (2015) cartographic approach, circumstantial readings are located in the lexical layer, i.e. in *v*P, deontic modals are loated in the TP layer. Following the terminology proposed in Xie's analysis of postverbal DE and Bhatt's (1999) studies on Ability modals, we propose that the basic meaning of *dé* is to express participant-external circumstantial or opportunity modality. Depending on the temporality of the predicate, *dé* either expresses *possibility* (see also Li 李明 2001) or has an *implicative* meaning. The two other meanings of *dé* proposed in Xie (2012), *ability* and *disposition* are extremely infrequent in the Late Archaic and Early Medieval literature.

3.2   Ability and disposition readings of the auxiliary verb dé
Ability and opportunity modalities differ by the fact that the first is stative, referring to "stable properties of an individual", i.e. ability modals behave like individual level predicates. By contrast, opportunity modals behave like stage level predicates, involving a change of state, a temporal element (Xie 2012: 391). Although ability is stative, referring to a special type of potential of the agent, it is also dynamic "when it comes to the agent's actualization of his internal ability in a world." (Xie 2012: 403) Xie (2012) claims that the ability reading requires an agentive subject. As the examples demonstrate, according to this constraint true ability readings are very infrequent with *dé*. This is not surprising considering the fact that the basis

for the modal auxiliary verb, the lexical verb *dé* usually has a goal and not an agent subject. In (25a), *dé* appears parallel to the ability modal *néng*. The difference between *néng* 能 and *dé* is: 1) participant-internal ability with *néng*, 2) participant-external circumstantial possibility with *dé*. In the coordinated clauses in (25a) both subjects are agentive, thus an ability reading seems possible; the reading in (25a) is generic. In (25b), the subject of the complement verb 見 *jiàn* 'see' is an experiencer; thus, it is non-agentive. According to the circumstances of being a woman, a nun does not have the disposition allowing her to see the Buddha first. In the first clause of (25c), the subject, the robbers, have the ability or capacity to change; the sentence has a generic reading; *dé* clearly adds the semantic reading of possibility to the proposition. The subject has to be analyzed as a theme and not as an agent in both clauses. The reading in (25d) is generic, too; the subject is [+HUMAN], but as the subject of a psych verb, it is rather an experiencer than an agent. In example (25e), the subject of *dé* is contrasted to the subject in the first clause, Jìn and Chǔ, therefore the 1st person pronoun *wǒ* appears; the complement verb is the existential verb 有 *yǒu* followed by 信 *xìn* 'belief'. Since the predicate is a psych predicate, the subject is non-agentive. The example in (25d), can also be generic under certain conditions. All examples imply that circumstances enable or prevent the obtainment of the predicated situation.

(25) a.　至人之所不得逮，賢人之所不能及，*(zhuāngzǐ* 29.3.6) (LAC)
　　　zhì__rén__zhī__suǒ__bù__dé__dài__
　　　utmost__man__GEN__REL__NEG__DE__achieve__
　　　xián__rén__zhī__suǒ__bù__néng__jí
　　　virtuous__man__GEN__REL__NEG__able.to__arrive
　　　This is what a perfect man cannot achieve, what a virtuous man cannot arrive at.
　　b.　我是女人。何由得先見佛。*(taishō* 51, n. 2085, p. 859c) (late EMC)
　　　Wǒ__shì__nǚrén__hé__yóu__dé__xiān__jiàn__fó
　　　I__COP__woman__how__from__DE__first__see__Buddha
　　　I am a woman, how could I see the Buddha first?
　　c.　盜賊得變，此不得變也。*(xúnzǐ* 5/10/4) (LAC)
　　　Dào__zé__dé__biàn__cǐ__bù__dé__biàn__yě
　　　Robber__thieve__DE__change__this__NEG__DE__change__SFP
　　　Although robbers and thieves can change, these could not be changed.
　　d.　對曰：「非小人之所得知也。」*(zuǒzhuàn, chéng* 9.9.1) (LAC)
　　　Duì__yuē:__fēi__xiǎo__rén__zhī__suǒ__dé__zhī__yě
　　　Answer__say__is.not__small__man__SUB__SUO__DE__know__SFP
　　　He answered, 'This is not something a small man can know.'
　　e.　晉、楚無信，我焉得有信？」*(zuǒzhuàn, xuān* 11) (LAC)
　　　Jìn__Chǔ__wú__xìn__wǒ__yān__dé__yǒu__xìn
　　　Jin__Chu__not.have__faith__I__how__DE__have__faith
　　　Jin and Chu do not have faith, how can we manage/ be able to have faith.

Most of the examples presented in (25) are more liable to a disposition than to an ability reading. Both readings are not very frequent in LAC and EMC. In contrast to ability modality, which is characterised by the requirement of an agentive subject, the disposition modal does not have an agentive subject.[20] Ability and disposition modals both seem to display the same temporal constraints, i.e. they are usually not compatible with past-denoting temporal phrases; in past denoting contexts, an implicative reading is involved. (Xie 2012: 402). The same

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[20] See Xie (2012: 392, 402): "The disposition reading is different from the ability reading merely in regard to whether the subject is agentive or not."

constraints, Xie proposes for postverbal DE in Modern Mandarin, also seem to account for the modal auxiliary verb *dé* in LAC and EMC. The examples demonstrate that the ability/disposition readings have a strong tendency to be generic, and they are excluded from past contexts. This is an argument in favour of the status of *dé* as a typical implicative verb, which shows different readings according to temporal constraints.

3.3   Opportunity reading of the auxiliary verb dé

As mentioned already, opportunity modals involve a change of state, a temporal element (Xie 2012: 391); they are stage level predicates. As a typical change of state verb, *dé* is particularly liable for readings of this kind. According to Xie's study, the expression of opportunity modality can include past-denoting temporal phrases. The opportunity modal reading of the auxiliary verb *dé* may be captured best by the English semi-modal 'able to', and *dé* actually seems to function in a manner very similar to 'able to' in English. According to Bhatt (1999: 184), ABLE is a non-stative implicative verb similar to 'manage to' (which involves an actuality entailment in the past tense and the perfective.[21] (Bhatt 1999: 188) "There seems to be a class of verbs which behave like implicative verbs in the perfective and attribute ability in the presence of genericity." In the case of *dé* in LAC, it rather seems to be disposition which is attributed to *dé* than ability, according to the agentivity constraint proposed in Bhatt. The implicative reading of *dé* is discussed under 3.4.

Opportunity implies that barriers are temporarily released and allow the agent of the complement verb to perform the situation; usually without any temporal restrictions with regard to past-tense contexts. (Xie 2012: 391). Opportunity belongs to the category of circumstantial possibility and it designates, "a property of an individual or entity anchored to the context in which the individual/entity is." (Xie 2012: 391)[22] With *dé*, the enabling conditions are frequently mentioned. In the examples in (26), the enabling conditions are not directly expressed; however, *dé* clearly displays an opportunity reading. In all instances, *dé* can be rendered by 'have/had the opportunity to'. In the first clause of (26a), the enabling conditions, in this case a participant-internal ability expressed by *néng*, are revealed. The enabling conditions in (26b) and (26c) are provided in the preceding context. (26c) and (26d) show that the opportunity to perform *x* can function as the condition for subsequent events.

(26) a.   「… 然不自意**能**先入關破秦，**得**復見將軍於此。 (*shǐjì*: 7,312) (EMC)
rán__bù__zì__yì__néng__xiān__rù__guān__pò__Qín__
but__NEG__self__think__able.to__before__enter__pass__destroy__Qin__
dé__fù__jiàn__jiàngjūn__yú__cǐ
DE__again__see__general__at__this
… but I do not think myself that I am able to enter the gate and destroy Qin, and to be able to see the general again here.

   b.   僕得聞此，不忘於心。願君之亦勿忘也。」 (*zhànguó cè* 20) (LAC-EMC)
Pú__dé__wén__cǐ__bù__wàng__yú__xīn__yuàn__jūn__zhī__yì__wù__wàng__yě
Servant__DE__hear__this__NEG__forget__PREP__heart__Wish__prince__SUB__
also__NEGmod__forget__SFP
After I could hear this, I will not forget it in my heart. I wished that you would also not forget it.

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[21] Bhatt (1999: 187): "Sentences like 'John was able to lift the truck' are ambiguous between a 'managed to' implicative verb-like reading which asserts that John actually lifted the truck and says nothing about John's abilities and a 'had the ability to' reading which asserts that John has the ability to lift the truck." Thus, "The implicative verb reading is only available in non-generic (perfective) environments, while the 'had the ability to' reading is only available in generic (imperfective) environments."

[22] This reading goes back to Austin 1970 (Xie 2012: 391).

c. 若寡人得沒于地，天其以禮悔禍于許， 無寧茲許公復奉其社稷，
Ruò__guǎ__rén__dé__mù__yú__dì__tiān__qí__yǐ__lǐ__huǐ__huò__yú__Xǔ__
If__lonely__man__DE__die__PREP__soil__heaven__MOD__YI__rites__regret__misfortune__PREP__Xu
wúnìng__zī__Xǔ__gōng__fù__fèng__qí__shèjì
rather__this__Xu__duke__again__present__his__gods.of.earth.and.grain
If I am able to die in the land, and if Heaven would according to the rites regret the misfortunes inflicted on Xu, would then the duke Xu not rather present offerings again to his gods of earth and grain? (zuǒzhuàn, yǐn 11) (LAC)

d. 我等每自思惟：『設得受記，不亦快乎。』」 (*taishō* 9, n. 262, p.29b) (late EMC)
Wǒ__děng__měi__zì__sīwéi__shè__dé__shòu__jì__bù__yì__kuài__hū
I__PL__each__self__think__if__DE__receive__promise__NEG__MOD__delightful__SFP
Whenever we think by ourselves, if we could receive the promise to attain nirvana, would that not be delightful!

In (27) the enabling conditions are referred to by the demonstrative pronoun *cǐ* 此 'this' or by the phrase *rú/ruò cǐ* 如/若此 'like this, thus'. In (27a, b), they are revealed in the preceding narrative. In (27c), they are mentioned in the first clause. In (27a), the complement verb is a verb of perception; this implies a low degree of agentivity; in (27b) and (27c), the subject is clearly agentive. In (27d), it is [-HUMAN] and non-agentive.

(27) a. 此臣之日夜切齒腐心也，乃今得聞教！」 (*shǐjì*: 86,2533) (EMC)
Cǐ__chén__zhī__rì__yè__qiè__chǐ__fǔ__xīn__yě__nǎi__jīn__dé__wén__jiào
This__subject__SUB__day__night__champ__tooth__spoil__heart__SFP__then__now__DE__hear__teaching
Therefore, I champ my teeth and grieve in my heart day and night, and thereupon I am now able to hear the instructions.

b. 此幸臣之所以得欺主成私者也。 (*hán fēizǐ* 14/1/5) (LAC)
Cǐ__xìng__chén__zhī__suǒ__yǐ__dé__qī__zhǔ__chéng__sī__zhě__yě
This__favour__subject__GEN__REL__YI__DE__cheat__ruler__achieve__personal.advantage__REL__SFP
This is how favoured subjects manage to cheat their rulers and achieve their own personal advantages.

c. 如此則太后心安，君等幸得脫禍矣。」 (*shǐjì*: 9;399) (EMC)
Rú__cǐ__zé__tàihòu__xīn__ān__jūn__děng__xìng__dé__tuō__huò__yǐ
Like__this__then__Queen.dowager__heart__secure__prince__group__luck__DE__remove__misfortune__SFP
Like this, the Queen dowager will feel secure and you and your party will be lucky enough to be able to remove misfortune.

d. 若此則能順其天，意氣得游乎寂寞之宇矣，形性得安乎自然之所矣。
Ruò__cǐ__zé__néng__shùn__qí__tiān__yì__qì__dé__yóu__hū__jí__mó__zhī__yǔ__yǐ
If__this__then__can__follow__POSS__heaven__mind__energy__DE__float__PREP__quiet__calm__SUB__world__SFP
__xíng__xìng__dé__ān__hū__zìrán__zhī__suǒ__yǐ
__form__emotion__DE__peaceful__PREP__natural__GEN__place__SFP

Being like this, he is then able to follow his heaven[ly destiny], his mind and energy are able to float in a world of calm and silence, his shape and emotions are able to dwell in peace in a place of naturalness. (lǔshì chūnqiū 17/1/4/8) (LAC)

3.4   Implicative reading of the auxiliary verb dé

In past tense and perfective contexts, *dé* has an implicative reading; an actuality entailment is implied in a conventional implicature somewhat similar to 'manage to'. Many of the requirements for implicative verbs are met by *dé*. These are, 1) Implicatives take VP complements, 2) The subject of the implicative verb and of the verbal complement must be identical, 3) Adverbial modification must have the same effect on the complex VP as on the complement VP, 4) Implicative applies to active verbs and with stative verbs they have a marked meaning, 5) Implicatives are tense and aspect dependent (perfective aspect). A further argument for the analysis of *dé* as an implicative verb comes from the fact that the auxiliary verb *dé* 'manage to, able to' has developed from a verb with the meaning 'obtain, get'; both the verbs 'get' and 'manage to' appear in the list of implicative verbs in Kartunnen (1971: 341, 350). The opportunity meaning of 'get' is captured by Karttunnen's paraphrase of the meaning of 'get' (1971: 351) "get to do depends on the chance to get to do." The implicative reading establishes a sub-group of the opportunity – or ability – reading of *dé*. In the following examples, the possible situation expressed by the modal predicate has been actualized. In the examples (28a) and (28b), temporal sequence is marked in the second clause by the temporal conjunctions 遂 *suì* 'then, thereupon' and 乃 *nǎi* 'then, thereupon'. But this does not necessarily imply that the situation is located in the past. In (28c), temporal sequence from past to speech time is marked by the predicate *zhì jīn* 'arrive at the present point in time'. Additionally, the past setting of the respective events in (28a–d) is induced by the context the examples appear in. In (28e) and (28f) (repeated from example (23) above), the past situation is explicitly marked by past denoting or perfective adverbs.

(28) a. 克舍之，丑父遂得亡歸齊。　(*shǐjì*: 32,1497) (EMC)
Kè__shě__zhī__Chǒufù__suì__dé__wáng__guī__Qí
Ke__release__OBJ__Choufu__thereupon__DE__flee__return__Qi
Ke released him, and Choufu (managed thereupon to) could thereupon flee and return to Qi.

b. 楚軍大亂，壞散，而漢王乃得與數十騎遁去，　(*shǐjì*: 7,322) (EMC)
Chǔ__jūn__dà__luàn__huài__sàn__ér__Hàn__wáng
Chu__army__great__chaos__break.apart__scatter__CON__Han__king__
nǎi__dé__yǔ__shù__shí__qí__dùn__qù
then__DE__with__several__ten__horseman__flee__go.away
The army of Chu was in great chaos, broke apart and was scattered, and so the King of Han could / managed to flee with thirty or forty horsemen, ...

c. 足下所以得須臾至今者，以項王尚存也。　(*shǐjì*: 92,2622) (EMC)
Zúxià__suǒyǐ__dé__xūyú__zhì__jīn__zhě__yǐ__Xiàng__wáng__shàng__cún__yě
Sir__therefore__DE__temporarily__arrive__today__REL__because__Xiang__King__still__exist__SFP
Sir, the reason why you were able to / have managed to get to the present point for the time being is because King Xiang is still there.

d. 行十七日計可千五百里。得至鄯鄯國。(*taishō* 51, n. 2085, p.857a) (EMC)
Xíng__shí__qī__rì__jì__kě__qiān__wǔ__bǎi__lǐ__dé__zhì__Shànshàn__guó
Travel__ten__seven__day__calculate__POSS__tousand__five__hundred__mile__DE__arrive__Shanshan__state

They travelled seventeen days and calculated that it was about one thousand five hundred miles when they managed to arrive at the state Shanshan.

 e. 『舜往于田，則吾既得聞命矣； (*mèngzǐ* 5.1.1) (LAC)

  Shùn__wǎng__yú__tián__zé__wú__jì__dé__wén__mìng__yǐ

  Shun__wander__PREP__field__then__I__JI__DE__hear__mandate__SFP

  That Shun wandered around in the fields, I already managed to understand its meaning, ...

 f. 未嘗得聞社稷之長計。 (*zhànguó cè* 19) (LAC-EMC)

  Wèi__cháng__dé__wén__shèjí__zhī__cháng__jì

  NEG$_{asp}$__PAST__DE__hear__state__long__plan

  I never before managed to/could hear about long-range plans for the state.

3.5 Deontic DE

Deontic readings with the possibility modal *dé* first emerge in LAC and EMC in polarity contexts, i.e. in rhetorical questions and negated contexts (Liu 刘利 2000, Li 李明 2001). The deontic reading is logically implied, because NEG MOD$_{poss}$ 'not possible that $p \neg \Diamond p$ is equivalent with 'necessary that not $p \Box \neg p$' in terms of necessity (Meisterermst 2020b). *Dé* allows both a possibility and a deontic (necessity) reading. Meisterermst (2020b) proposes an analysis of the **semantic** scope of negation as evidence for different syntactic positions in which the deontic and possibility readings of MOD$_{poss}$ in LAC and EMC are interpreted, following a proposal in Cormack and Smith (2002). The development of *dé* into the deontic modal *děi* 'must' of Modern Mandarin is supposedly the result of this early ambiguity of reading of MOD$_{poss}$ in polarity contexts.[23] In (29a), *dé* evidently has a possibility reading, the negator scopes over the modal; in (29b) and (29c), the negator is in the scope of the modal, which thus receives a deontic interpretation.

(29) a. 我等梵天所化。是以無常。不得久住。 (*agama*, T01, 1, p. 69b) (late EMC)

  Wǒ__děng__fàntiān__suǒ__huà__shìyǐ__wúcháng__**bù__dé**__jiǔ__zhù

  I__PL__Brāhma__REL__change__therefore__impermanent__NEG__DE__long__stay

  We are who god Brahmā changed, therefore we don't have permanence and cannot remain long.

Paraphrase: we do not manage to remain long = NOT [POSSIBLE: circumstantial.

 b. 明主之道，臣不得以行義成榮，不得以家利為功。 (*hán fēizǐ* 48/8/3) (LAC)

  Míng__zhǔ__zhī__dào__chén__bù__dé__yǐ__xíng__yì__chéng__róng

  Enlighten__ruler__GEN__way__minister__NEG__DE__YI__carry.out righteousness__achieve__glory

  bù__dé__yǐ__jiā__lì__wéi__gōng

  NEG__DE__YI__house__advantage__make__merit

  According to the way of an enlightened ruler, the ministers may not achieve glory with just carrying out righteousness, and they may not gain merit by advantages for their families.

Paraphrase: it is necessary that they do not achieve glory…, that they do not gain merit by = NECESSARY [NOT

 c. 時優婆夷，聞佛世尊，正由我故，制諸比丘，不得食肉， (*Xianyujing* T4, 202, p. 375c) (late EMC*)*

  Shí__yōupóyí__wén__fó__shìzūn

  Time__upāsika__ask__Buddha__World-Honoured-One,

---

[23] Due to the lack of space, this development is not related in detail in this discussion; the focus is rather on the the semantics of DE as a condition for its development as a postverbal modal. The reader is referred to Meisterermst (2020b).

zhèng__yóu__wǒ__gù__zhì__zhū__bǐqiū__**bù__dé**__shí__ròu
correct__from__I__reason__determine__PL__bhiksū__NEG__DE__eat__meat
At the time a laywoman asked the Buddha: "World-Honoured-One, did you make these corrections because of me and determined that the bhiksū may not to eat meat."

Paraphrase: it is mandatory that bhiksū does not eat meat = NECESSARY[NOT

3.6   Concluding remarks on the modal auxiliary verb dé

The examples in this section demonstrated that the auxiliary verb *dé* can have ability, disposition, and opportunity readings. In past tense contexts *dé* has an implicative reading, thus it shows semantic similarities to *able to*, and *manage to* in English. The implicative reading can be derived from the semantics of *dé* as a lexical verb with the meaning 'get, obtain'. The ability and the disposition readings are the least frequent readings of *dé* in the periods under consideration; they show a strong tendency to have a generic reading. The opportunity reading is the predominant reading of the modal auxiliary verb *dé*; it underlies all other readings; the subject of the modal predicate can be agentive or non-agentive. Deontic readings are present, but require particular syntactic constraints related to polarity. Both the possibility (potential) reading and the deontic (permissive) reading proposed for postverbal Cantonese DAK in Cheng and Sybesma (2004) are attested for the preverbal modal *dé* in EMC, suggesting that the paths of grammaticalization of pre- and postverbal DE were to a certain extent similar semantically. In a modal predicate with *dé,* the thematic features of the subject depend on the argument structure and the syntax of the complement verb and not on *dé*. Beside its function as a modal auxiliary verb, *dé* prevails as a lexical verb throughout the LAC and EMC periods. Similar to many other modals in Chinese, it is subject to a lexical split into a lexical and a functional category. This is the typical scenario for Chinese modals.

4   The development of postverbal DE

In Late Archaic and Early Middle Chinese, the complement of the modal verb *dé* can be either a tenseless, non-finite *v*P as in example (30a) and the examples above, or it can be a CP. In the latter case, *dé* still has full lexical status. An argument for the CP analysis of the complement of *dé* is the fact that deontic negative markers can appear in its complement as in (30b, c). Deontic negative markers are necessity operators, which have been proposed to appear in the CP/TP layer above possibility modals (Meisterernst 2020b, based on Cinque 1999, Tsai 2015).[24] In any case, as deontic modals, they have to be analyzed as appearing above *v*P. If *dé* were analyzed as a modal auxiliary verb expressing possibility in (30b) and (30c), this would lead to the irregular order *possibility necessity* (Meisterernst 2020a, b, see also below). In (30a), the epistemic adverb *bì* 必 and the future marker *dāng* 當 precede *dé*; the complement is a simple VP. (30b) and (30c) represent the two modal negative markers *wú* 無 and *wú* 毋 in the complement of *dé*, which argue for the CP status of the complement of *dé*.[25]

(30) a. 我等亦如是，必當得作佛。 (*taishō* 9, n.262, p.12a) (late EMC)
   Wǒ__děng__yì__rú__shì__bì__dāng__dé__zuò__fó
   1P__PL__also__like__this__certainly__FUT__DE__be__Buddha
   ... we are also like that and will certainly manage to become Buddhas.
 b. 此彈丸之地，猶不予也，令秦來年復攻王，得無割其內而媾乎？」
   Cǐ__dànwán__zhī__dì__yóu__bù__yǔ__yě__líng__Qín__lái__nián__fù__gōng__
   wáng__

---

[24] Li (2015: 163) proposes that these negative markers have imperative force and are probably generated in the CP layer.
[25] Djamouri (1991) proposes an epistemic reading for *wú* 毋.

This__bullet__SUB__land__yet__NEG__give__SFP__cause__Qin__come__year__again__attack__king__
dé__wú__gē__qí__nèi__ér__gòu__hū
DE__NEG~mod~__cede__POSS__inner__CON__conclude.contract__SFP
If you do not give them this tiny piece of land, then you will cause Qin to attack you, and are you then able / could you then manage not to cede the inner parts [of the state] in order to negotiate peace? (zhànguó cè 20/10/11) (LAC-EMC)

c. 賴大臣爭之，及留侯策，太子得毋廢。 (*shǐjì*: 9;395) (EMC)
Lài__dà__chén__zhēng__zhī__jí__liú__hóu__cè__tàizǐ__dé__wú__fèi
Profit__great__minister__fight__OBJ__arrive.at__Liu__lord__scheme__heir__DE__NEG~mod~__abolish
He profited from the great ministers who disputed it, and as it came to the scheme of lord Liu, the heir was able to manage not to be abolished.

The complement of *dé* can also be a full (probably finite) clause; the subject has nominative case as in example (31). In LAC, embedded non-finite clauses usually have genitive subjects; the embedded clause is nominalized. In middle Chinese, the case distinction has disappeared (Aldridge 2013) and embedded clauses are not nominalized anymore.

(31)　婆羅門作是說。言。此我不得名斷滅。 (*taishō* 1, n.1, p.93a) (late EMC)
Póluómén__zuò__shì__shuō__yán__cǐ__wǒ__bù__dé__míng__duànmiè
Brāhman__make__this__speech__say__this__I__NEG__DE__name__eradicate
The brāhman made the following speech and said: This means that I do not succeed [in the attempt] that my name is being eradicated.

The behavior of *dé* in the examples discussed in this section argues for two different instantiations of *dé*: 1) as an auxiliary verb, similar to the semi-modal 'able to/manage to' in English with a clear implicative reading in past contexts, and 2) as a lexical (modal) verb with a semi-modal meaning which allows a CP complement to follow. It is this syntactic ambiguity, which allows two different developments of modal *dé* as a preverbal deontic modal verb and as a postverbal resultative marker.

According to Wang 王力 (2004: 350), the basis of postverbal DE, i.e. *dé* as a V~2~ first appears during the Han period, in the Early Middle Chinese period. During this period, it still clearly functions as a verb in its lexical meaning 'gain, obtain, achieve', referring to the successful achievement of the event expressed by the preceding verb. This is not different from other resultative verb constructions that make their appearance during this period. This is shown in the two examples in (32a, b); in both examples *dé* is not followed by a *v*P or CP complement. (31c) is one of the earliest examples, in which V~1~+DE is followed by a *v*P or CP, and where DE has to be analyzed as a functional category introducing a result (Wu 吳福祥 2004: 153) and not as a resultative verb anymore. In this example, DE had lost its semantic content and its argument structure and it is reduced to the expression of the resultative. Examples like this demonstrate that DE first had to lose its argument structure before it could grammaticalize into a postverbal functional category (see also Wu 吳福祥 (2004: 150f).

(32) a. 民採得，日重五銖之金，一色正黃。 (*lùnhéng* 19.58) (EMC)
mín__cǎi__dé__rì__chóng__wǔ__shú__zhī__jīn__yī__sè__zhèng__huáng
people__gather__get__day__double__five__shu__GEN__metal__one__appearance__real__yellow
People gather and obtain, and they daily double five shu of metal, it is monochrome and of a true yellow color.

b. 若道術不可學得，則變易形貌， *(bàopǔzǐ, nèipiān duìsú* 3) (EMC)
Ruò__dào__shù__bǔ__kě__xué__dé__zé__biànyì__xíngmào
If__Dao__art__NEG__can__learn__get__then__change__appearance
If the magic art of the Dao cannot be learned and obtained, then one changes the appearance ...

c. 迷得襄王抛國位   (*DHBW* 8.7) (MC)
Mí   dé Xiāng wáng pāo   guó wèi
Bewitch DE Xiang king cast.aside state position
King Xiang was bewitched so that cast aside his state position.

Structures like those in the examples (32a) and (32b) pave the way for constructions with an intransitive resultative V$_2$, in which the two verbs do not constitute an object sharing construction anymore; they are still extremely infrequent in EMC. These structures are allegedly the basis for the development of postverbal DE, when a *v*P or a CP introducing a result attaches to them. Even in Middle Chinese there are hardly any examples, in which V$_1$+DE is followed by a CP or *v*P, and which allow an analysis of DE as a postverbal modal marker. The example in (32c) from the vernacular *Dunhuang bianwen* literature (cf. Wu 吳福祥 2004: 153) is one of the earliest unambiguous instances. The number of instances only increases after the Middle Chinese period, and in the 13th c. in Early Mandarin postverbal DE is well attested (Feng 馮春田 1992). The analysis of this development and a syntactic analysis of the grammaticalization of postverbal DE go beyond the scope of the present analysis; they are the topic of a separate study (Meisterernst 2019b (ms.)).[26]

5   Conclusion

The analysis of the lexical semantics and the argument structure of *dé* shows that it is a typical achievement verb in its intransitive, but also in its transitive use. In the transitive construction, it by default has a [+HUMAN] goal subject, no ACT or CAUSE event are included in the event template of *dé*: [BECOME [y < STATE = *GET/OBTAIN(ED)*>]].

The basic function of *dé* as a modal auxiliary verb is to express opportunity readings. From this reading, the infrequent ability and disposition readings, but also the deontic readings *dé* can receive in particular syntactic environments can be derived. The sensitivity of *dé* to perfective marking together with its semantics as an achievement verb qualify it as typical implicative verb; it shows implicative readings in past and perfective contexts similar to the implicative verb *manage to* in English. Most of the functions proposed for postverbal DE in Xie (2012) are already present in the modal auxiliary verb *dé*. However, postverbal DE has probably developed from the semi-lexical achievement verb *dé*, expressing a result, and not from the modal auxiliary verb *dé*.

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[26] I am very grateful to one of the anonymous reviewers for pointing out the significance of statistical studies in order to provide evidence for different stages of grammaticalization. However, this method has not been applied in this study for mainly two reasons. The most relevant reason is that the topic of the paper is the analysis of the lexical semantics and particularly the argument structure of *dé* in history as a basis for further studies of the development of the two instantiations of DE, the preverbal and the postverbal one, in Modern Sinitic languages. We tried to show to which extent the semantics of both pre-, and post-verbal DE were already present in LAC. We also proposed that the early grammaticalization into a deontic marker concerned preverbal DE in polarity contexts and that the basis of the emergence of postverbal DE was the split of preverbal DE from the lexical verb GET, OBTAIN. Preverbal DE followed the common path of grammaticalization of all modals in Chinese, whereas the lexical verb *dé* increasingly developed into a resultative marker, over time allowing a CP complement in its argument structure. The second reason for not applying the statistical method is that instances showing this development were very infrequent throughout the Middle Chinese period and only became more frequent from the 10th c. on. This period is not subject of the present study.

The paper tentatively proposes that, syntactically, the two different functions of modal DE in Modern Mandarin, i.e. the function as a deontic modal auxiliary verb *děi*, and the function as a postverbal modal marker of manner and result, derive from two different instantiations of *dé* in EMC. The deontic marker *děi* derives from the modal auxiliary verb *dé*, which is characterized by a non-finite *v*P complement. The postverbal modal marker DE derives from the semi-modal lexical verb *dé*, which has a (finite) CP complement. The particular syntactic constraints of the achievement verb *dé*, which contrast it to the other modal verbs of possibility in LAC, triggers the split between auxiliary *dé* and postverbal DE and its grammaticalization into a marker of the resultative and of manner. However, more research has to be conducted on the diachronic development of *dé* to confirm this hypothesis.

6   References

Abraham, Werner and Elisabeth Leiss. 2008. *Modality-aspect interfaces: implications and typological solutions*. Amsterdam/ Philadelphia: John Benjamins Pub. Co.

Alexiadou, Artemis and Florian Schäfer(eds.). 2013. *Non-canonical passives*. Amsterdam: John Benjamins.

Alexiadou, Artemis. 2014. Active, middle, and passive: the morphosyntax of Voice. *Catalan Journal of Linguistics* 13:1-22.

Aldridge, Edith. 2013. Chinese Historical Syntax: Middle Chinese. *Language and Linguistics Compass: Historical Linguistics* 7(1):39-57.

Aldridge, Edith. 2015. Pronominal Object Shift in Archaic Chinese. In *Syntax over Time: Lexical, morphological and information-structural interactions*, ed. Theresa Biberauer and George Walkden, 350-370. Oxford: Oxford University Press.

Aldridge, Edith and Barbara Meisterernst. 2018. Resultative and termination: A unified analysis of Middle Chinese VP-YI. In *Topics in Theoretical Asian Linguistics*, eds. Kunio Nishiyama, Hideki Kishimoto, and Edith Aldridge, 157-179. John Benjamins.

Austin, John Langshaw. 1970. Ifs and cans. In *Austin philosophical papers,* ed. G.O. Urmson and G.J. Warnock, 205-233. New York: Oxford University Press.

Baxter, William H. and Laurent Sagart. 2014. *Old Chinese reconstructions*. Available at http://ocbaxtersagart.lsait.lsa.umich.edu/BaxterSagartOCbyMandarinMC2014-09-20.pdf. Accessed 25 May 2018.

Bassac, Christian and Pierrette Bouillon. 2002. Middle Transitive Alternations in English: A Generative Lexicon Approach. In *Many Morphologies*, eds. Paul Noucher and Marc Plenat. Somerville, 29-47. MA: Cascadilla Press.

Bhatt, Rajesh. 1999. *Covert modality in non-finite contexts*. PhD dissertation, University of Pennsylvania.

Bresnan, Joan. 2001. *Lexical-Functional Grammar*. Oxford: Blackwell.

Cheng, Lisa Lai-Shen and Sybesma Rint. 2004. Postverbal 'can' in Cantonese (and Hakka) and Agree. *Lingua* 114:419-446.

Cinque, Guglielmo. 1999. *Adverbs and Functional heads: A Crosslinguistic Perspective*. Oxford: OUP.

Cormack, Annabel and Neill Smith. 2002. Modals and Negation in English. In *Modality and its Interaction with the Verbal System, Linguistik Aktuell 47 / Linguistics Today 47*, ed. Sjeg Barbiers, Frits Beukema, Wim van der Wurff, 133-163. Amsterdam: John Benjamins.

Cruse, D. Alan. 1973. Some thoughts on Agentivity. *Journal of linguistics* 9:11-23.

Djamouri, Redouane. 1991. Particules de négation dans les inscriptions sur bronze de la dynastie des Zhou [Particles of negation in the Zhou dynasty bronze inscriptions]. *Cahiers de Linguistique Asie Orientale* 20(1):5-76.

Djamouri, Redouane. 1999. Evolution of *zhi* in Archaic Chinese. In *In Honor of Mei Tsu-Lin : Studies on Chinese Historical Syntax and Morphology*, ed. Alain Peyraube and Sun Chaofen, 33-48. Paris : EHESS.

Dobson, William Arthur Charles Harvey. 1959. *Late Archaic Chinese: a grammatical study.* Toronto: Toronto University Press.

Dölling, Johannes and Tatjana Heyde-Zybatow. 2007. Verb Meaning: How much Semantics is in the Lexicon? In *Interface and Interface Conditions*, ed. Andreas Späth, 33-75. Berlin: Mouton De Gruyter.

Downer, Gordon B. 1959. Derivation by tone-change in classical Chinese. *Bulletin of the School of African and Oriental Studies* 22(2):258–290.

Dowty, David. 1991. Thematic Proto-Roles and Argument Selection. *Language* 67(3):547-619.

Fagan, Sarah. 2009. *The Syntax and Semantics of Middle Constructions.* (2nd edition) Cambridge: Cambridge University Press.

Feng, Shengli. 2014. Light verb syntax between English and Classical Chinese. In *Chinese Syntax in a Cross-linguistic Perspective*, ed. Audrey Li, Andrew Simpson and Wei-Tien Dylan Tsai, 229–250. Oxford: Oxford University Press.

Feng, Chuntian 馮春田. 1992. Analysis of the main employments of 'de', 'le', 'zhe' in "Zhu zi yulei" "朱子語類"'得','了','着'的主要用法分析. In *Investigation of the Chinese language of the Song, Yuan, and Ming periods* 宋元明漢語研究, ed. Cheng Xiangqing 程湘清, 243-288. Shandong: Shanddong jiaoyu chubanshe.

Gabelentz, Georg von der. 1960. *Chinesische Grammatik*, *Mit Ausschluss des Niederen Stiles und der Heutigen Umgangssprache* [Chinese Grammar: Under exclusion of the Low Style and the Contemporary Vernacular Language]. Halle: Niemeyer, (1881) 1960.

Hackl, Martin. 1998. On the semantics of "ability attributions". Ms, MIT.

Hale, Kenneth and Samuel Jay Keyser. 2002. *Prolegomenon to a Theory of Argument Structure*. Cambridge: MIT Press.

Heine, Berndand Tania Kuteva. 2019. *World Lexicon of Grammaticalization*. Cambridge: CUP.

Huang, James C.-T., Y.-H. Audrey Li, and Yafei Li. 2009. *The Syntax of Chinese.* Cambridge: Cambridge University Press.

Haudricourt, André G. 1954. Reconstruire le chinois archaïque [Reconstruction of Archaic Chinese]. *Word* 10(2-3):351–364.

Jin, Lixin 金理新. 2006. *A study of old Chinese morphology* 上古汉语形态研究. Hefei: Huangshan Publishing House.

Karlgren, Bernhard. 1933. Word families in Chinese. *Bulletin of the Museum of Far Eastern Antiquities* 5: 9–120.

Karttunen, L. 1971. Implicative Verbs. *Language* 47(2):340–358.

Kratzer, Angelika. 1996. Severing the External Argument from its Verb. In *Phrase Structure and the Lexicon*, ed. Johan Rooryck and Laurie Zaring, 101-137. Dordrecht: Kluwer.

Lekakou, Marika. 2005. *In the Middle, Somewhat Elevated: The Semantics of Middles and its Crosslinguistic Realization*. Ph.D. dissertation, University of College London.

Levin, Beth. 1993. *English Verb Classes and Alternations: A Preliminary Investigation.* Chicago: University of Chicago Press.

Levin, Beth and Malka Rappaport Hovav. 1995. *Unaccusativity*. Cambridge, MA: MIT Press.

Li, Ming 李明. 2001. *The historical development of Chinese modal auxiliary verbs* 漢語助動詞的歷史發展. Ph.D. dissertation. Beijing: Peking University.

Li, Yin. 2015. *The Diachronic Development of Passive Constructions from Archaic Chinese to Modern Mandarin.* PhD thesis. Seattle: University of Washington.

Liu, Li 刘利. 2000. *A study of modal auxiliary verbs in Pre-Qin Chinese* 先秦漢語助動詞研究. Beijing: Beijing Normal University Publishing Group.

Lu, Deming 陸德明 (Tang). 1985. *Annotations on the Classics* 經典釋文. Shanghai: Shanghai Ancient Books Publishing House.

Marelj, Marijana. 2004. *Middles and Argument Structure across Languages*. Utrecht: LOT.

Mei, Guang 梅廣. 2015. *Outline of Classical Chinese Grammar* 上古漢語語法綱要. Taipei: Sanmin.

Mei, Tsu-lin 梅祖麟. 2000. Temporal strata in derivation by the four tones 四声别义中的时间层次. *Studies of the Chinese Language* 中国语文 6:427–443. Reprinted in *Collection of linguistic articles by Mei Zulin* 梅祖麟語言學論文集, 306-339, Beijing: The Commercial Press.

Mei, Tsu-lin 梅祖麟. 1988. Three examples of internal reconstruction in Chinese 内部拟构汉语三例. *Studies of the Chinese Language* 中国语文 204(3):169–181.

Mei, Tsu-lin. 2015. Proto-Sino-Tibetan Morphology and its modern Chinese correlates. In *Oxford handbook of Chinese Linguistics*, eds. William S-Y. Wang and Chaofen Sun, 58–67. Oxford: Oxford University Press.

Meisterernst, Barbara. 2008a. Modal verbs in Han period Chinese Part I: The syntax and semantics of *kě* 可 and *kě yǐ* 可以. *Cahiers de Linguistique Asie Orientale* 37(1):85-120.

Meisterernst, Barbara. 2008b. Modal verbs in Han period Chinese Part II: Negative Markers in combination with the modal auxiliary verbs *kě* 可 and *kěyǐ* 可以. *Cahiers de Linguistique Asie Orientale* 37(2):197-222.

Meisterernst, Barbara. 2015a. *Tense and aspect in Han period Chinese: A linguistic study of the 'Shiji'*. Berlin: DeGruyter.

Meisterernst, Barbara. 2015b. New Issues in Chinese Grammar: The Morpho-Syntax of the Aspectual System in Late Archaic Chinese. In *Studies on Folklore, Classics and Chinese Character* 民俗典籍文字研究 15. Beijing: The Commercial Press.

Meisterernst, Barbara. 2016. The syntax of aspecto-temporal adverbs from Late Archaic to Early Medieval Chinese. *Journal of East Asian Linguistics* 25(2):143–181. DOI: 10.1007/s10831-015-9140-3.

Meisterernst, Barbara. 2017. Modality and Aspect and the Role of the Subject in Late Archaic and Han period Chinese: obligation and necessity. *Lingua Sinica* 3:10.

Meisterernst, Barbara. 2019a. A new approach on the modal KE 可 and the relation between the aspectual and the modal system in Archaic Chinese". In *New perspectives on Aspect and Modality in Chinese Historical Linguistics Frontiers in Chinese Linguistics*, ed. Barbara Meisterernst, 159-190. Springer and Peking University Press.

Meisterernst, Barbara. 2019b. The diachronic development of postverbal DE in Chinese. Paper presented at the *24th International Conference of Historical Linguistics*. Canberra, Australia.

Meisterernst, Barbara. 2020a. A new approach to the development of deontic markers: In Pre-Modern Chinese. In *A Typological Approach to Grammaticalization and Lexicalization*, *Trends in Linguistics, vol 327*, ed. Janet Xing, 191-230. Berlin: De Gruyter Mouton.

Meisterernst, Barbara. 2020b. Possibility and Necessity and the Scope of Negation in Early Middle Chinese, Forthcoming in *International Journal of Chinese Linguistics*.

Peyraube, Alain. 1996. Recent issues in Chinese historical syntax. In *New Horizons in Chinese Linguistics*, *Studies in Natural Language and Linguistics Theory*, ed. C.-T. James Huang and Y.-H. Audrey Li, 161–213, Dordrecht: Springer.

Pulleyblank, Edwin G. 1995. *Outline of Classical Chinese Grammar*. Vancouver: University of British Columbia Press.

Rappaport Hovav, Malka and Beth Levin. 1998. Building Verb Meanings. In *The Projection of Arguments: Lexical and Compositional Factors,* ed. Miriam Butt and Wilhelm Geuder, 97-134. Stanford: CSLI Publications.

Sagart, Laurent. 1999. *The Roots of Old Chinese.* Amsterdam/Philadelphia: John Benjamins.

Schuessler, Axel. 2007. *ABC etymological dictionary of old Chinese*. Honolulu, HI: University of Hawaii Press.

Tsai, Wei-Tian Dylan. 2015. On the Topography of Chinese Modals. In *Beyond Functional Sequence*, ed. Ur Shlonsky, 275-294. New York: Oxford University Press.

Unger, Ulrich. 1983. Hao ku 好古: Sinological Circular. *Early China* 9/10:169–174.

Unger, Ulrich. 1988. *Grammar of Classical Chinese*. Grammatik des Klassischen Chinesisch. Münster: unpublished.

van der Auwera, Johan, and Vladimir A. Plungian.1998. Modality's semantic map. *Linguistic Typology* 2:79-124.

Vendler, Zeno. 1967. *Linguistics and philosophy*, 1st edition. Ithaca, NY: Cornell University Press.

Wang, Li 王力. 2004 (1980). *Hanyu shigao*. Beijing: Zhonghua Book Company.

Wei, Pei-chuan 魏培泉. 2001. New evidence on a joint discussion of *fú* and *wù* 〈「弗」、「勿」拼合說新証〉. *Bulletin of the Institute of History and Philology Academia Sinica* 歷史語言研究所集刊 72(1):121-215.

Wu Fuxiang 吳福祥. 2004. *Analysis of the grammar of 12 languages in Dunhuang bianwen* 敦煌變文集 12 種語法研究. Henan: Henan University Press.

Xie, Zhiguo. 2012. The modal uses of *de* and temporal shifting in Mandarin Chinese. *Journal of East Asian Linguistics* 21:387-420.

Xing, Janet and Axel Schuessler. 2020. Semantic extension in Old Chinese: Direction, transitivity, and voice. In *Typological Regularity of Semantic Change in Grammaticalization and Lexicalization*, ed. Janet Xing, 165-190. Berlin: DeGruyter.

Xiong, Jiajuan. 2017. *Chinese Middle Constructions: Lexical Middle Formation*. *Frontiers in Chinese Linguistics*. Singapore: Springer and Peking University Press.