

A syntactic approach to the grammaticalization of the modal marker *dāng* 當 in Middle Chinese

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In this paper, I discuss the grammaticalization of the Chinese modal verb *dāng* from a lexical verb into a deontic modal marker and a future marker as a case of upward movement to one or more functional categories in the sense of Roberts and Roussou (2003). Evidence for a functional category outside *vP* hosting deontic modality comes from the deontic negative markers of Archaic Chinese, from the semantic scope of negation (following Cormack and Smith 2002), from the syntax of *wh*-adverbials, and from the relative order of necessity modals and possibility modals.

1. Modal markers in Chinese

- Modal markers in Late Archaic Chinese (5th – 2nd c. BCE) as a clear instantiation of grammaticalization.

→ Grammaticalization can range from

→ lexical verb → modal verb → markers of deontic and/or epistemic modality → future markers.

→ The first modal displaying this development: the verb *kě* 可 ‘possible, can’.

(1) a. 有無父之國則可也。 (Zuozhuan, Huan 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. 匹夫猶未可動，而況諸侯乎！ (Zhuangzi 4.2.1) (LAC)

Pǐfū yóu wèi kě dòng, ér kuàng zhūhóu hū

Commoner still NEG_{asp} **KE** move, CON rather feudal.lord SFP/Q

‘If even a commoner **cannot** be moved, even less can a feudal lord!’

c. 臣違君命者，亦不可不殺也。 (Guoyu, Luyu shang) (LAC)

Chén wéi jūn mìng zhě, yì bù kě bù shā yě

subject oppose ruler order REL, also **NEG KE NEG** kill SFP

‘A subject who opposes the order of his ruler **must** also be killed.’

- Poly-functionality of most modals in Modern Chinese, Tsai (e.g. 2015) (based on Rizzi 1997):

→ derivation in different syntactic positions:

→ CP=epistemic modality; TP(IP)=deontic modality; *vP*=dynamic/circumstantial modality.

→ In Late Archaic Chinese (LAC), modal verbs are almost exclusively confined to possibility verbs, i.e. to dynamic modality; a new system develops in (Early) Middle Chinese (EMC 1st c. BEC – 6th c. CE).

2. Deontic modality in Late Archaic Chinese

1) Deontic negative markers

- Deontic modality (prohibition) in Late Archaic Chinese (5th – 2nd c. BCE):
- Prohibition → A class of synthetic deontic negative markers, or possibility modals + NEG

- Obligation → the possibility modal KE with double negation ‘NEG+KE+NEG cannot not = have to’ (Chinese does not have negative concord)
- Deontic modal negative markers in Archaic Chinese: a morphological class, marked by the initial consonant *m-* in Middle Chinese (7th c. CE), their non-modal counterparts are marked by the initial consonant *p-* in Middle Chinese.
- Different modal negative markers: 1) *wú* (*muə̃*) 毋/無; (2) and *wù* (*mut*) 勿 → negation of transitive verbs;
- 1) *wú* (*muə̃*) 毋/無, possibly in the CP layer, higher than *wù*. Djamouri (1991) proposes an epistemic reading for *wú* 毋.
- Semantic function: NECESSARY NOT.
- Early Middle Chinese: beginning replacement of synthetic modal negation by analytic modal negation → NEG + AUX_{mod}.

(2) a. 先生置之，勿復言已。 (Zhangguo ce 17.12.12, 2nd c. BCE)

Xiānshēng zhì zhī, wù fù yán yǐ
 Sir put.aside 3Obj, NEG_{mod} again speak SFP
 ‘Put it aside, sir, and **do not** mention it again.’

b. 禁舊客勿出於宮。 (Zuozhuan Zhao 18, LAC)

Jìn jiù kè wù chū yú gōng
 Prohibit old guest NEG_{mod} leave PREP palace
 ‘he (forbade) **ordered** older visitors **not to** leave the palace.’

c. 淨人益食不得相喚。但以手指麾。 (EMC: T51, 2085, 857b, Faxian 5th c. CE)

Jìng rén yì shí bù dé xiāng huàn, dàn yǐ shǒu zhǐ huī
 Server add food NEG DE mutual call.out, only with hand show wave
 ‘If the servers are supposed to add food, one **must not call** them, only wave with the hands.’

Paraphrase: it is NECESSARY / obligatory NOT to call (out loud) to them.

NECESSARY [NOT = clear obligation, the theoretical possibility to call still exists.

- The syntactic position of the deontic negative markers
- Combination with high adverbials provides some evidence for the high position of deontic negation outside *vP*: functional projection within CP.
- a.: high modal particle/adverb *yōng* 庸, marker of rhetorical questions,
- b.: *yōng* preceding the epistemic adverb *bì* 必 ‘certainly, necessarily’ → high position in a rhetorical question marked by the SFP/Q *hū* 乎 → epistemic reading.
- c.: the high adverb *nǎi* 乃 ‘thus, thereupon’ → usually following the subject (CP layer) → epistemic reading
- d.: the existential quantifier with subject reference → usually following the subject → deontic reading.

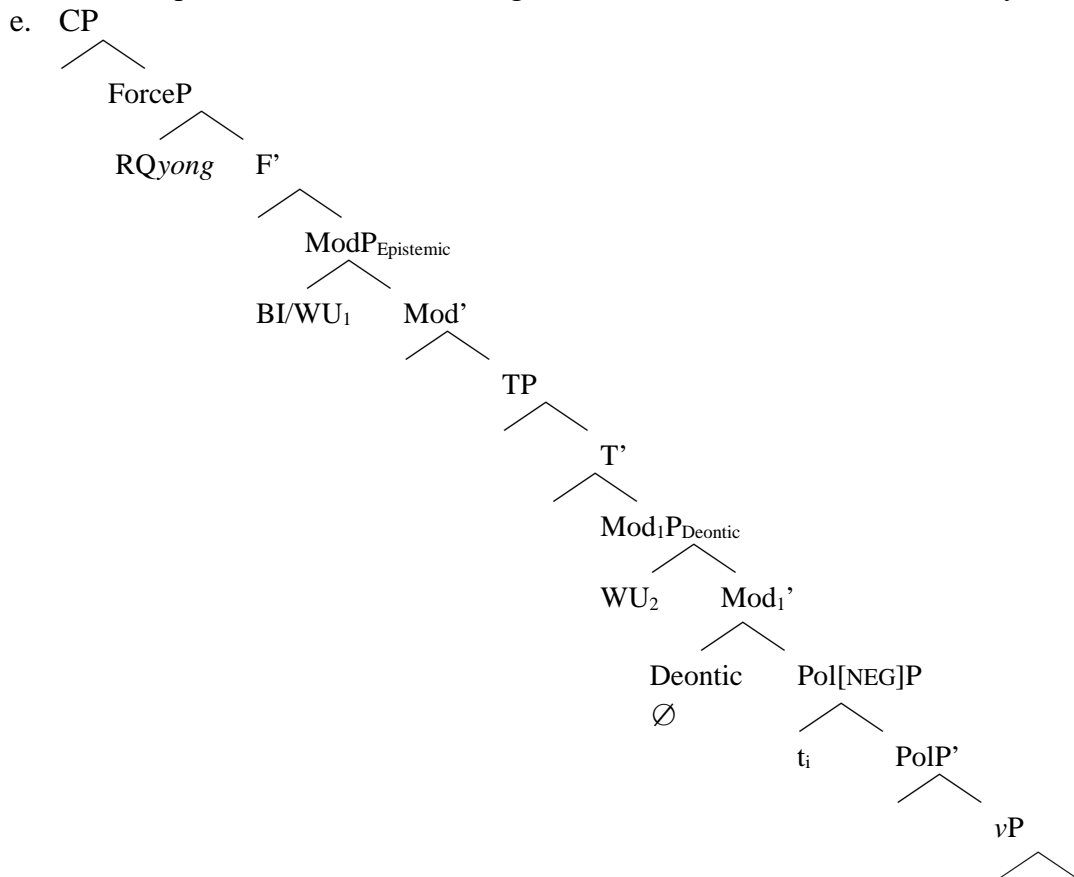
In the literature, these combinations are often qualified as idiomatic phrases appearing in rhetorical questions.

(3) a. 不如聽之以卒秦，勿庸稱也以為天下。 (Zhangguo ce 11.10.2, 2nd c. BCE)

Bù rú tīng zhī yǐ zú Qín, wù yōng chēng yě yǐwéi tiānxià
 NEG be.like listen 3OBJ CON finish Qin, NEG_{mod} **yong** mention NOM make empire
 ‘It would be better to listen to them and let Qin succeed, but it **should not** be announced and made to [an affair of] the empire.’

- b. 所效者庸必得幸乎？ (Zhanguo ce 25.25.5, 2nd c. BCE)
Suǒ xiào zhě yōng bì dé xìng hū
 REL follow REL **RHETQ necessarily** obtain favor SFP/Q
 ‘Is what follows that they are really **necessarily** obtaining favor?!’
- c. 『將待後，後有辭而討焉』，毋乃不可乎？ (Zuozhuan Xuan 15, LAC)
Jiāng dài hòu, hòu yǒu cí ér tǎo yán
 FUT wait successor, successor have excuse CON hold.accountable PREP.3Obj
wú nǎi bù kě hū
NEG_{mod} then NEG possible SFP/Q
 ‘If we will wait for a successor, and if the successor has excuses and we hold him accountable for it, **should** that **not** be inappropriate?!’
- d. 『毋或如東門遂不聽公命，殺適立庶』。 (Zuozhuan Xiang 23, LAC)
Wú huò rú Dōngmén Sui bù tīng gōng mìng
NEG_{mod} someone be.like Dongmen Sui NEG listen duke order,
shā dí lì shù
 kill heir enthrone son.of.concubine
 ‘We **should not** act like Dongmen Sui who did not listen to the duke’s order and killed the righteous heir and enthroned the son of a concubine.’

→ Different positions for the modal negative markers in the CP and the TP layer



2) *Possibility modals as deontic markers*

- Deontic modality: expressed predominantly by the root possibility verbs KE 可 ‘possible, can’;
- The deontic interpretation of root possibility modals requires a particular syntactic context: Combination with negation a) NEG + KE; b) KE + NEG; c) NEG + KE + NEG
- Appearance in syntactically marked contexts: rhetorical questions ⇒ reverse polarity (Han 1998, citing Sadock 1971, 1974).

→ Polysemy of root possibility markers: necessity ⇔ possibility

→ Are the two readings distinguished syntactically?

(4) a. 而無私積，可不謂忠乎？ (Zuozhuan Xiang 5, LAC)

ér wú sī jī,
CON not.have personal accumulate,
kě bù wèi zhōng hū
can NEG called loyal SFP/Q

‘and yet he has not accumulated anything for himself, **must** he **not** be called loyal (← is it possible not to call ...)!’

POSSIBLE NOT *p* = NECESSARY *p*

b. 勢之於人也，可不慎與？ (Shiji:40;1737, EMC (100 BCE))

shì zhī yú rén yě, kě bù shèn yú
influence GEN at man SFP, **can NEG** careful SFP/Q

‘And in using one’s power with regard to human beings, **must** one not be careful / one must (it is necessary to) be careful!?’

Paraphrase: is it possible that one is not careful? ⇒ it is not possible that one is not careful ⇒ it is necessary that one is careful: reverse polarity.

c. 君子一言以為知，一言以為不知，言不可不慎也。 (Lunyu 19.25, LAC)

Jūnzǐ yī yán yǐ wéi zhī,
gentleman one word APPL make know
yī yán yǐ wéi bù zhī,
one word APPL make NEG know
yán bù kě bù shèn yě
word **NEG KE NEG** careful SFP

‘A gentleman will be considered wise according to one word, or he will be considered unwise according to one word, words **cannot not (=have to)** be treated with care!’

- Semantic scope of negation to distinguish between deontic and the possibility readings of NEG+MOD_{POSS}; following a proposal by Cormack and Smith (2002)

→ A functional head Pol(arity) to distinguish between Modal₁ and Modal₂.

→ Semantic scope is not necessarily reflected by the syntactic position of NEG

→ Only indirect evidence for the realization of possibility modals in two different syntactic positions as Modal₁ and Modal₂ in LAC and Early Middle Chinese (EMC) (2nd c. BCE–2nd c. CE).

(5a. and c.) KE = Modal₂, paraphrased by NOT[POSSIBLE];

(5b and d.) KE = Modal₁, paraphrased by NECESSARY[NOT].

The complement of KE in (5a) refers to a resultant state; resultant states can be marked by derivational affixation in Archaic Chinese, similar to the Tibetan aspectual system (Jin Lixin 2006, Meisterernst 2016, forthcoming).

(5) a. 終不可就，已而棄之。 (Shǐjì: 112; 2961, EMC 100 BCE)

zhōng bù kě jiù, yǐ ér qì zhī
 finally NEG can finish, then abandon OBJ

‘... when eventually it **could not** be finished, they gave it up.’

NOT[POSSIBLE]

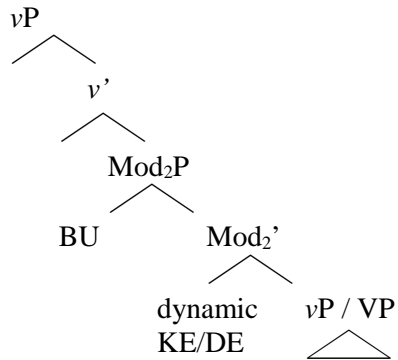
b. 臣聞敗軍之將，不可以言勇， (Shǐjì: 92;2617, EMC 100 BCE)

chén wén bài jūn zhī jiàng, bù kě yǐ yán yǒng,
 subject hear defeat army GEN general, NEG can YI speak bravery,

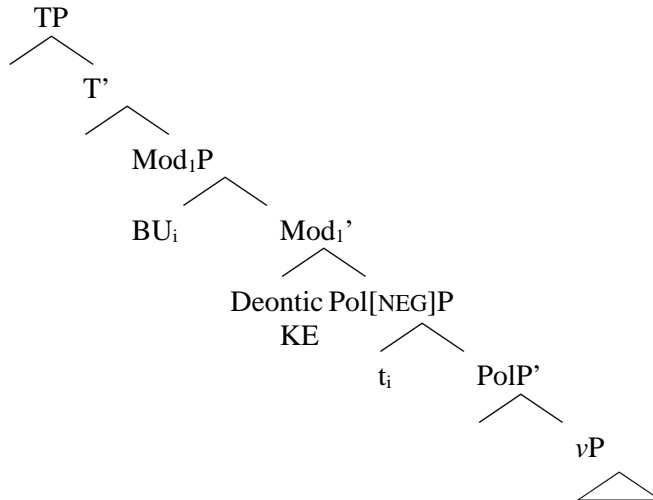
‘I have heard that the general of a defeated army **may not** speak about bravery ...’

NECESSARY[NOT]

c.



d.



3. Future marking in Late Archaic Chinese

- Most common future marker in LAC: the adverb *jiāng* (e.g. Meisterernst 2004, 2015, Wei 2017).

→ proposed grammaticalization from a verb of moving.

→ one of the most common temporal adverbs in LAC, referring to situations located at a reference time following speech time.

→ generated outside vP (Meisterernst 2004, 2015):

a.: *jiāng* precedes the vP internal reflexive pronoun *zì* 自;

b.: it precedes the negative marker *bù* 不;

c.: it precedes the *wh*-adverbial *yān* 焉 ‘how’, located outside *vP* always preceding the negative marker *bù*;

d.: it precedes the adverbial *wh*-word *hé* 何 ‘how’ and the possibility modal *néng* 能 ‘able to’;

e.: it precedes adverbial *héyǐ* ‘how’ (frequently rhetoric);

f.: it precedes the *wh*-adverbial *héyōng* 何庸 ‘why, what use’, marking rhetorical questions;

g.: but it follows the epistemic modal *bì* 必.

(In ex. (3b) we have the order *yōng bì*, showing that *yōng* independently can occupy a different and higher position than in combination with a *wh*-word)

(6) a. 莫敖狃於蒲騷之役，將自用也。 (Zuozhuan Huan 13, LAC)

Mòáo niǔ yú Púsāo zhī yì, jiāng zì yòng yě
Moao confident PREP Pusao GEN expedition, **FUT self** employ SFP
‘The moao has gained confidence due to the Pusao expedition, he will employ himself.’

b. 「人將不食吾餘。」 (Zuozhuan Zhuang 6, LAC)

Rén jiāng bù shí wú yú
Man **FUT NEG** eat my leftover
‘The man will not eat my leftovers.’

c. 君失其官，帥師不威，將焉用之？ (Zuozhuan Min 2, LAC)

Jūn shī qí guān, shuài shī bù wēi, jiāng yān yòng zhī
Ruler loose POSS office, lead army NEG authority, **FUT how** employ 3Obj
‘If the ruler loses his office, when leading an army does not show authority, how can one employ him?’

d. 不畏于天，將何能保？ (Zuozhuan Wen 15, LAC)

Bù wèi yú tiān, jiāng hé néng bǎo
NEG respect PREP heaven, **FUT how able** protect.oneself
‘Without respect towards heaven, how will he be able to protect himself?’

e. 民弗堪也，將何以終？ (Zuozhuan Zhao 1, LAC)

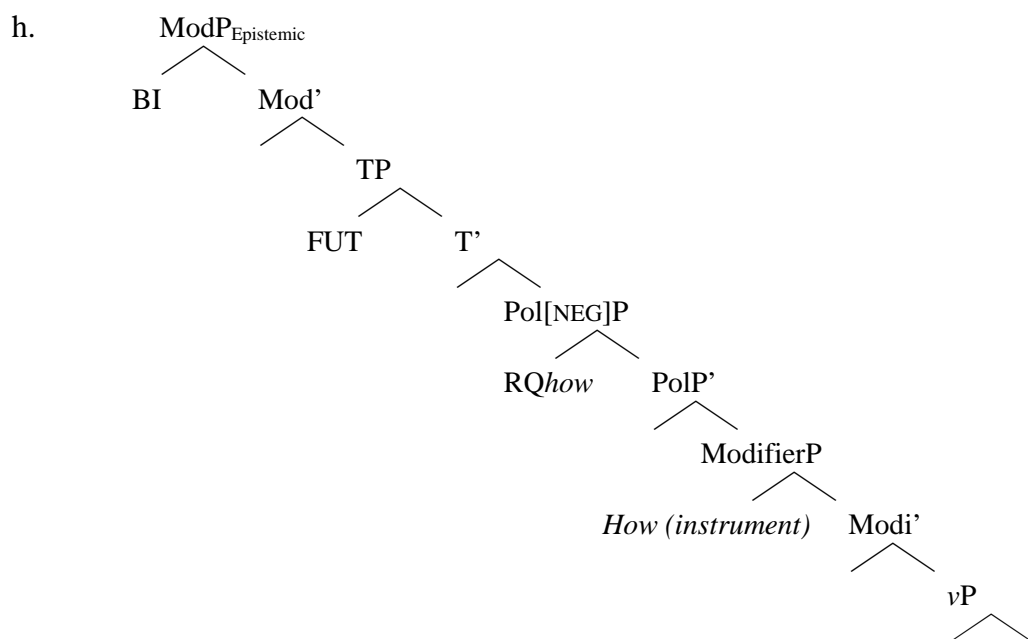
Mín fú kān yě, jiāng héyǐ zhōng
People NEG_{tr} bare SFP, **FUT how** finish
‘The people will not bare it, how can he come to a natural end?’

f. 將庸何歸？ (Zuozhuan Xiang 25, LAC)

Jiāng yōnghé guī
FUT RHETQ return
‘What use will it be to return?!’

g. 天未絕晉，必將有主。 (Zuozhuan Xi 24, LAC)

Tiān wèi jué Jìn, bì jiāng yǒu zhǔ
Heaven NEG_{mod} cut.off Jin, **EPIST FUT** have ruler
‘Heaven has not cut off Jin yet, it will certainly have a ruler.’



4. The diachronic development of modal *dāng* 當

- The modal DANG ‘should’: first emergence as a modal auxiliary at the end of the LAC (Meisterernst 2011) period.
- Emergence of new modal markers in Early Middle Chinese possibly ← the loss of a former derivational aspectual morphology (Meisterernst 2017, 2018)
- One of a number of structural changes connected to the loss of transparency of the derivational morphology of Old Chinese (Aldridge, e.g. 2013, Feng Shengli 2015, Meisterernst 2017, Aldridge and Meisterernst 2018).

- Grammaticalization of DANG:

Lexical verb ‘undertake, act as, match correspond to’ → a modal auxiliary ‘ought, should’:

- Circumstantial → weak deontic modality
- deontic reading not triggered by negation or rhetorical question
- future marker in EMC → epistemic readings
- in EMC: poly-functional modal + lexical verb

In the examples in (7) DANG appears as a lexical verb with an NP complement; in b. it is a deontic modal with an unaccusative telic verb as complement; in c. the complement is an unergative verb; d. it is a transitive verb, and in e. DANG appears as a future marker.

- (7) a. 行爵出祿。必當其位 (Lǐjì, Yuèlíng, EMC)
xíng jué chū lù, bì dāng qí wèi
 carry.out title issue salary, must **correspond** its position
 ‘The conferring of titles and the issuing of salaries must **be in accordance** with the position.’
- b. 我真王嗣，當立，吾欲求之 (Shǐjì: 31,1463, EMC)
wǒ zhēn wáng sì, dāng lì, wú yù qiú zhī
 I true king successor, DANG **enthroned**, I want require 3P:OBJ
 ‘I am the true successor to the king; I **should** be enthroned, and I want to insist on it.’
- c. 朱公長男以為赦，弟固當出也 (Shǐjì 41,1754, EMC)
Zhū gōng zhǎng nán yǐwéi shè dì gù
 Zhū father older son think release younger.brother certainly

dāng chū yě
DANG go.out SFP

‘The oldest son of father Zhū thought that since there was an amnesty, his younger brother **should certainly** get out.’

- d. 天子儀當獨奉酌祠始皇廟 (Shǐjì 6,266, EMC)

tiān zǐ yí dāng dú fèngzhuó cí
heaven son ceremony DANG alone offer.wine sacrifice

Shǐ Huáng miào

Shǐ Huáng temple

‘According to the rites of the Son of Heaven, You alone **should** offer wine as a sacrifice at the temple of Shǐ Huáng.’

- e. 我所說經典無量千萬億，已說、今說、當說，而於其中

wǒ suǒ shuō jīng diǎn wú liàng
I REL tell classic scripture not-have measure

qiān wàn yì, yǐ shuō,
thousand ten-thousand hundred thousand, already tell,

jīn shuō, dāng shuō, ér yú qí zhōng,
now tell, DANG tell, CON at its middle,

‘Of all the immeasurable thousands, ten-thousands, hundred thousands of sūtras I have recited, which have already been recited, are recited now, and **will be recited**, among all these, ...’ (Taisho, 9, 262, 31b, 5th c. CE)

4.1 The syntax of modal DANG

- Complement of DANG:

→ Does not seem to go beyond the size of vP: includes applicative phrases: YI-phrase/YU-phrase and other vP material.

→ Applicative phrases: within or at the edge of vP (see Aldridge 2012); the verb in LAC does not move out of vP;

→ LAC an YI-phrase regularly follows the modal verbs of possibility.

According to the standard assumption, the verb moves from VP to a higher functional projection (Huang 1994, Lin 2001, Tang 2001). In the case of a light verb or a high applicative in this position the verb cannot be moved out of VP, because this would violate Travis’ (1984) head movement constraint (cf. Aldridge 2012). The subject is always raised to a position preceding the modal verb, i.e. the matrix T/C.

→ Most modals seem to be raising verbs in LAC and EMC: passivization test (Ademola-Ademoye 2011); semantic sensitivity of the subject rather to the complement verb than to the modal (Lin 2011).

- (8) a. 有愧於彼。於彼有畏。當以此答以為歸依。 (Taishō 1, 1, 91c, EMC 5th c.)

yǒu kuì yú bǐ, yú bǐ yǒu wèi, dāng yǐ cǐ dá yǐwéi guīyī
have shame PREP that, PRE that have fear, DANG YI this answer consider trust

‘There is shame in that, and in that there is fear, one **should consider** this answer as entirely trustworthy.’

- b. 今當復以譬喻更明此義，諸有智者以譬喻得解。 (Taishō 9, 262, 12b, EMC 5th c.)

Jīn dāng fù yǐ pìyù gēng míng cǐ yì,
Now DANG again YI simile more clarify this meaning,
zhū yǒu zhì zhě yǐ pìyù déjiě

PL have wisdom NOM YI simile attain understanding

‘Now, you **should again clarify** this meaning even more with a simile, so that all those who know attain understanding with [the help of] this simile.’

- Sentence final particle *yǐ* 矣

- *yǐ* in LAC: functions comparable to sentence final *le* 了 in Modern Mandarin (Pulleyblank 1994, 1995, Meisterernst 2005, 2015) → associated with perfect/perfective aspect and a change of state reading.
- Scope of *yǐ* as finiteness test (following Lin (2011) on the scope of *le* in Modern Mandarin) to determine the finiteness features of the complement clause of modals (see also Erlewine 2017 for the position of *le*): deontic (non finite complement) ↔ epistemic (finite complement)
- DANG is always within the scope of *yǐ* 矣: ‘the situation being the way it is, an obligation to act in a particular way has arisen YI’.

- (9) a. 至其年二月八日·忽告眾曰·吾[當[去]矣]。(Taishō 50, 2059, 351c, early 6th c.)
Zhì qí nián èr yuè bā rì, hū gào zhòng yuē: wú dāng qù yǐ
At that year two month eight day, suddenly tell multitude say: I DANG leave SFP
‘In the second month on the eighth day he suddenly told the multitudes, “I will leave.”’

- b. 「君若不得菴羅果，我必[當[死]矣]。」(Taishō 24, 1462,787b, early 6th c.)
jūn ruò bù dé ānlò guǒ, wǒ bì dāng sǐ yǐ
You if NEG get mango fruit, I certainly DANG die SFP
‘If you, my husband, does not get the mango, I **will certainly die** ⇒ ‘it is certain that the situation will arise that I die’ ≠ ‘it has become certain that I will die.’

4.2 Scope of negation

In LAC: deontic modality has to be triggered by negation or a rhetorical question operator → a polarity head, which divides modals in MODAL₁ and MODAL₂. See also ex. 5.

- (10) a. 終不可就，已而棄之。(Shǐjì: 112; 2961, EMC 100 BCE)
zhōng bù kě jiù, yǐ ér qì zhī
finally **NEG can** finish, then abandon OBJ
‘... when eventually it **could not be** finished, they gave it up.’

NOT[POSSIBLE]

- b. 我今寧當捨此身命，不可毀破三世諸佛所制禁戒。(Xianyujing, EMC 5th c. CE)
Wǒ jīn níng dāng shě cǐ shēn mìng, bù kě huǐ pò
I now MOD_{epistemic} DANG abandon this body life, **NEG KE** destroy
sān shì zhū fó suǒ zhì jīnjiè
three period PL Buddha REL determine precept
‘I now should rather abandon this body and life; I **must not** destroy the precepts which the Buddhas of the three periods determined.’

Paraphrase: it is NECESSARY that I NOT destroy.

NOT POSSIBLE = NECESSARY | NOT

- DANG: no need for a trigger such as negation or a rhetorical question for a deontic reading

→ first modal with a clear DEONTIC NECESSITY reading;

→ DANG as a necessity operator semantically scopes over negation: NECESSARY[NOT ↔ the negation marker always precedes DANG.

(11) a. 孝子亦當先意承志，不當違親之欲。 (Lunheng 9.28, EMC, 1st c. CE)

xiào zǐ yì **dāng** xiān yì chéng zhì,
pious son MOD **DANG** precede thought accept will,

bù dāng wéi qīn zhī yù
NEG DANG oppose relative GEN wish

‘A pious son **should anticipate** their thoughts and accept their will, and he **should not** oppose the wishes of his parents.’

NECESSARY/SHOULD[NOT

b. 五陰無常不當於中住，五陰有常不當於中住， (Fanguang borejing, EMC end 3rd c.)

Wǔ yīn wúcháng **bù dāng** yú zhōng zhù,
Five aggregate impermanence **NEG DANG** PREP middle stay,

wǔ yīn yǒucháng **bù dāng** yú zhōng zhù
five aggregate permanence **NEG DANG** PREP middle stay

‘the impermanence of the five aggregates **should not** stay in the middle, the permanence of the five aggregates **should not** stay in the middle

NECESSARY/SHOULD[NOT

4.3 Relative order of modal auxiliaries

- DANG: always precedes possibility modals (*kě* 可, *néng* 能, *dé* 得) when they appear in combination

→ Reverse order POSSIBILITY > NECESSITY: not attested, unless DANG is a lexical verb and not a modal marker.

(12) a. 舅姑之心，豈當可失哉？ (Hou Hanshu, nüliezhuan, EMC, 5th c.)

jiù gù zhī xīn, qǐ **dāng** kě shī zāi

father.in.law mother.in.law GEN heart, Q **DANG** can neglect SFP/Q

‘The minds of father and mother in law, how **should** it be **possible** to neglect it?!’

b. 曉知其事，當能究達其義，通見其意否？」 (Lunheng 12.36, EMC 1st c. CE)

xiǎo zhī qí shì, **dāng** néng jiū dá qí yì,

understand know POSS affair, **DANG** able pursue reach POSS justice

tōng jiàn qí yì fǒu

connect see POSS meaning NEG

‘Do you understand and know the affairs, **should** you be **able** to pursue and reach their rightful end, do you see and connect their meanings, or don’t you?’

c. 宜以時廢退，不當得居位。 (Hanshu 75:3182, EMC 1st-2nd c. CE)

Yí yǐ shí fèi tuì, **bù dāng** dé jū wèi

Appropriate PREP time discard repress, **NEG DANG** can dwell position

‘They should be timely discarded and repressed, and they **should** not be **able** to remain in position.’

4.4 Position of *wh*-words

- Two *wh*-words as tests: 1) adverbial *wh*-word *yúnhé* 云何 ‘how, in which way’, and 2) *yǐhé* 以何 ‘how, by which, in which way’.

- Default position of *wh*-words (adverbial and object *wh*-words) in LAC: following aspectual and temporal adverbs (Meisterernst 2015), but preceding modal auxiliary verbs.
- Adverbial *wh*-words: always in preverbal position; object *wh*-words: pre-verbal position in LAC (see Aldridge 2010).
- EMC: the syntactic constraint on *wh*-words referring to an internal argument weakens (Aldridge 2013 (MC)):
- occasional appearance between modal verb and matrix verb → around end of 2nd c. CE regularly appearance in-situ, i.e. in postverbal position.
- ↔ The intermediate position between modal and matrix verb is not available for all modal verbs: no, or hardly any instances with *kě*, *néng* (**dé kě(yǐ) shuí/hé V*, *néng shuí/hé V* (1 instance), **dé shuí/hé V*).
- Possible evidence for the upward movement of DANG out of the lexical and to the CP/TP layer as a deontic and/or future marker (see (13b with LAC future marker *jiāng*).

(13) a. 今四者不足以使之，則望當誰為君乎？ (Han Feizi 34.11.05)

Jīn sì zhě bù zú yǐ shǐ zhī,

Now four NOM NEG suffice YI employ 3OBJ,

zé wàng dāng shuí wéi jūn hū

then expect DANG WHOM be ruler SFP

‘If these four are not good enough to employ them, **to whom should I** expect to be a ruler then?’

b. 不畏于天，將何能保？ (Zuozhuan Wen 15, LAC)

Bù wèi yú tiān, jiāng hé néng bǎo

NEG respect PREP heaven, FUT how able protect.oneself

‘Without being afraid of heaven, **how will he be able** to protect himself?!’

→ Upward movement of DANG out of the *vP* layer: condition for its development into a future marker.

→ In this position, DANG could be reanalyzed as a future marker, similar to the future marker *jiāng* 將 of LAC, which appears outside *vP* in the CP/TP layer (Meisterernst 2015).

- Adverbial modifiers *yúnhé* and *yǐhé*

→ Both are most similar to instrumental *how* in Modern Mandarin, according to Tsai’s (2008) analysis of *how* and *why* in alternations in Chinese.

→ Tsai (2008): Instrumental *wh*-words in the TP layer in the periphery of *vP*, following modals.

→ Two syntactic positions available for *yúnhé*: pre-modal and post-modal.

(14) a. 設有是問者。汝當云何答。 (Taishō 1, 1, p. 112b, 5th c. CE)

Shè yǒu shì wèn zhě, rǔ dāng yúnhé dá

If have this question REL, you DANG how answer

‘If there are any with these questions, **how should** you answer?’ → You should answer with the following speech ...

b. 我當云何令諸眾生心歡喜耶？ (Taishō 3,153, p. 62c, 3rd c. CE)

Wǒ dāng yúnhé líng zhū zhòng shēng xīn huānxǐ yé

I DANG how make PL multitude living heart happy SFP_{quest}

‘**How should** I make all the living beings happy in their hearts?’ → I should do the following ...

- Reverse order is more frequent: different semantics → the *wh*-word scopes over DANG; DANG expresses future (possibility) in a rhetorical question with reverse polarity: HOW [WILL/COULD ... → NOT[WILL
- weak deontic reading of DANG, if existent at all → future marker.
- rhetorical markers: can be very high in the sentence, preceding deontic and/or future markers.
- Genuine circumstantial possibility modals: by default follow *yínhé*
- The order 云何得 *yínhé dé* is attested, but the order *dé yínhé* is not (the same for the possibility/ability modal *néng* 能).
- Argument for the differences in position of deontic DANG from possibility modals.

(15) a. 世尊制戒不得浴。我等云何當浴。佛言。從今日後聽雨時浴。

Shìzū zhìjiè bù dé yù. Wǒ děng yínhé dāng yù.

Shizun prescription NEG DE bathe. I PL **how** DANG bathe

Fó yán cóng jīn rì hòu tīng yǔ shí yù

Buddha say from today day after hear rain time bathe

‘Following the prescriptions of the World-Honored-One we are not allowed to bathe.

How will we bathe then? The Buddha said, “From now one you bathe when you hear the rain.”

(*Taishō* 22, 1425, 372b, 4th/5th c.)

b. 此比丘唯知此一偈。云何當能教誡我等。 (*Taishō* 22, 1421, 46a, 5th c.)

Cǐ bīqiū wéi zhī cǐ yī jì, yínhé dāng néng jiàojiè wǒ děng

This bhikṣu only know this one gatha, **how** DANG able teach I PL

‘This bhikṣu knows only this one gatha, **how will he** be able to advise us?’ → he will not be able to advise us.

c. 如此眾生染著諸使。云何得免生死苦惱。 (*Taishō* 4, 212, 633c, 4th c.)

Rúcǐ zhòng shēng rǎnzhūo zhūshǐ,

Such multitude being defiled.attachment various.declivities

yínhé dé miǎn shēng sǐ kǔnǎo

how manage.to avoid life death pain distortion

‘All those living beings have defiled attachments and various declivities, **how do they**

manage to avoid the circle of life and death, pain and distortion?’ → ‘they will probably not be able to do that ...’

- Syntactic distribution and the scope facts of *yǐhé* 以何: very similar to *yínhé*.

→ *yǐhé* follows the LAC/EMC future marker *jiāng* 將;

↔ to *yínhé*: *yǐhé* always follows DANG, similar to instrumental *how* in Modern Mandarin (Tsai 2008)

↔ to DANG: *yǐhé* 以何 precedes the possibility verbs *dé* 得 and *néng* 能; instances of DE/NENG *yǐhé* are not attested.

→ *yǐhé* in EMC: not syntactically identical with *yǐ* NP, which by default follows possibility modals (The same accounts for *héyǐ*, which survived from LAC to Modern Mandarin → always preceding modals).

→ argues for the higher syntactic position of DANG in contrast to the circumstantial modals.

(16) a. 未曉輕侮之法將以何禁?

(*Hou Hanshu* 44: 2825)

Wèi xiǎo qīngwǔ zhī fǎ jiāng yǐhé jìn

NEG_{asp} clarify insult GEN rule FUT **how** prevent

‘If one has not clarified the rules of insult, **how would** one prevent it?’

- b. 汝今日請二部僧。我等當以何報之。 (Taishō 22, 1425, 531b, 5th c.)
Rǔ jīn rì qǐng èr bù sēng, wǒ děng **dāng yǐhé** bào zhī
You now day ask two section monk, I Pl **DANG how** respond OBJ
‘If you now ask the two kinds of monks, **how should** we respond to them?’ → we should respond with ...
- c. 今為道，當以何為大戒而得長成乎？ (Taipingjing 98: 156, EMC)
Jīn wéi dào, **dāng yǐhé** wéi dàjiè
Now do way, **DANG how** make full.set.of.precepts
ér dé zhǎngchéng hū
CON obtain mature.achievement SFP
‘Now, in performing the DAO, **how should** one follow the full set of precepts and obtain maturity?’ → It is not possible to give an answer to this question ...
- d. 諸欲患如是，以何能捨之？ (Taishō 46, 1915, 464a, 6th c.)
Zhū yù huàn rú shì, **yǐhé néng** shě zhī
PL wish anxiety like this, **how able** abandon 3Obj
‘If all wishes and anxieties are like that, **how can** one be able to abandon them?’ → in doing ...

4.5 Future DANG

- Differences and similarities between *jiāng* 將 and *dāng* 當

→ the most conspicuous difference: negative markers precede *dāng*, but follow *jiāng*

↔ scope factors are identical: DANG scopes over negation.

- (17) a. 周公治魯，太公知其後世當有削弱之患； (Lùnhéng 78.3.6, EMC 1st c. CE)
太公治齊，周公睹其後世當有劫弑之禍
Zhōu gōng chí Lǔ, Tàì gōng zhī qí hòu shì
Zhōu duke rule Lǔ, Tàì duke know his after generation
dāng yǒu xiāo ruò zhī huàn;
DANG have pare weak SUB trouble
Tàì gōng chí Qí, Zhōu gōng dǔ qí hòu shì
Tàì duke rule Qí, Zhōu duke see his after generation
dāng yǒu jié shì zhī huò
DANG have rob murder SUB calamity
‘When Duke Zhōu was governing Lǔ, Duke Tàì knew that his descendants **would have** the misfortune of being reduced and weakened; when Duke Tàì ruled Qí, Duke Zhōu saw that his descendants **would endure** the calamity of being robbed and murdered.’
- b. 命當溺死，故相聚於歷陽；命當壓死，故相積於長平 (Lùnhéng 6.1.30, EMC)
mìng **dāng** nì sǐ, gù xiāng jù yú Lìyáng;
destiny **DANG** drown die, therefore mutually gather at Lìyáng;
mìng **dāng** yā sǐ, gù xiāng jī yú Chángpíng
destiny **DANG** crush die, therefore mutually collect at Chángpíng
‘If their destiny was that they were **going to** drown and die, they therefore gathered at Lìyáng; and if their destiny was they **were being** crushed and die, they therefore came together at Chángpíng.’

- c. 如其下此沙門。吾到漢地當向國王言汝也 (Taisho 51, 2085, p.866a, 5th c. CE)
rú qí xià cǐ shāmén, wú dào Hàn dì
 if MOD put.down this Shramana, I arrive Hàn region
dāng xiàng guó wáng yán rǔ yě
 DANG to country king tell you SFP
 ‘If you put this Shramana down [from the boat], I **will**, as soon as I arrive in Hàn, talk to the king of the country about you.’
- d. 問訊已佛語目連。吾卻後七日當下閻浮提 (Taisho 51, 2085, 859c, EMC)
wèn xùn yǐ fó yǔ Mùlián, wú què hòu qī rì
 greet ASP Buddha talk Mùlián, I hereafter seven day
dāng xià Yánfóutí
 DANG descend Yánfóutí
 ‘After they greeted each other, the Buddha said to Mùlián (Maudgalyāyana): “After seven days I **will** come down to Yánfóutí (Jambudvīpa) again.”’
- e. 彼必當作轉輪王也。我將無作轉輪王耶? (Taisho 1, 26, 512a, 4th c., EMC)
bǐ bì dāng zhò zhuǎnlún wáng yě,
 that **certainly** DANG become wheel turn king
wǒ jiāng wú zuò zhuǎnlún wáng yé
 I FUT NEG become wheel turn kind SFP/Q
 ‘He **will certainly** become a wheel-turning kind. And **will** I not [also] become a wheel-turning king?’

5. Conclusion

LAC:

- Two positions for modal negation in LAC, one in the CP layer (epistemic), one in the TP layer (deontic)
- Future marker in TP layer, preceding rhetorical *wh*-word and instrumental *wh*-word;
- Rhetorical *wh*-words → reverse polarity = instantiation of polarity head
- Possibility modal verbs as deontic markers: polarity head distinguishes between Mod₁ and Mod₂

EMC:

- New modal auxiliaries emerge, expressing deontic modality independent of an overt trigger: modal DANG

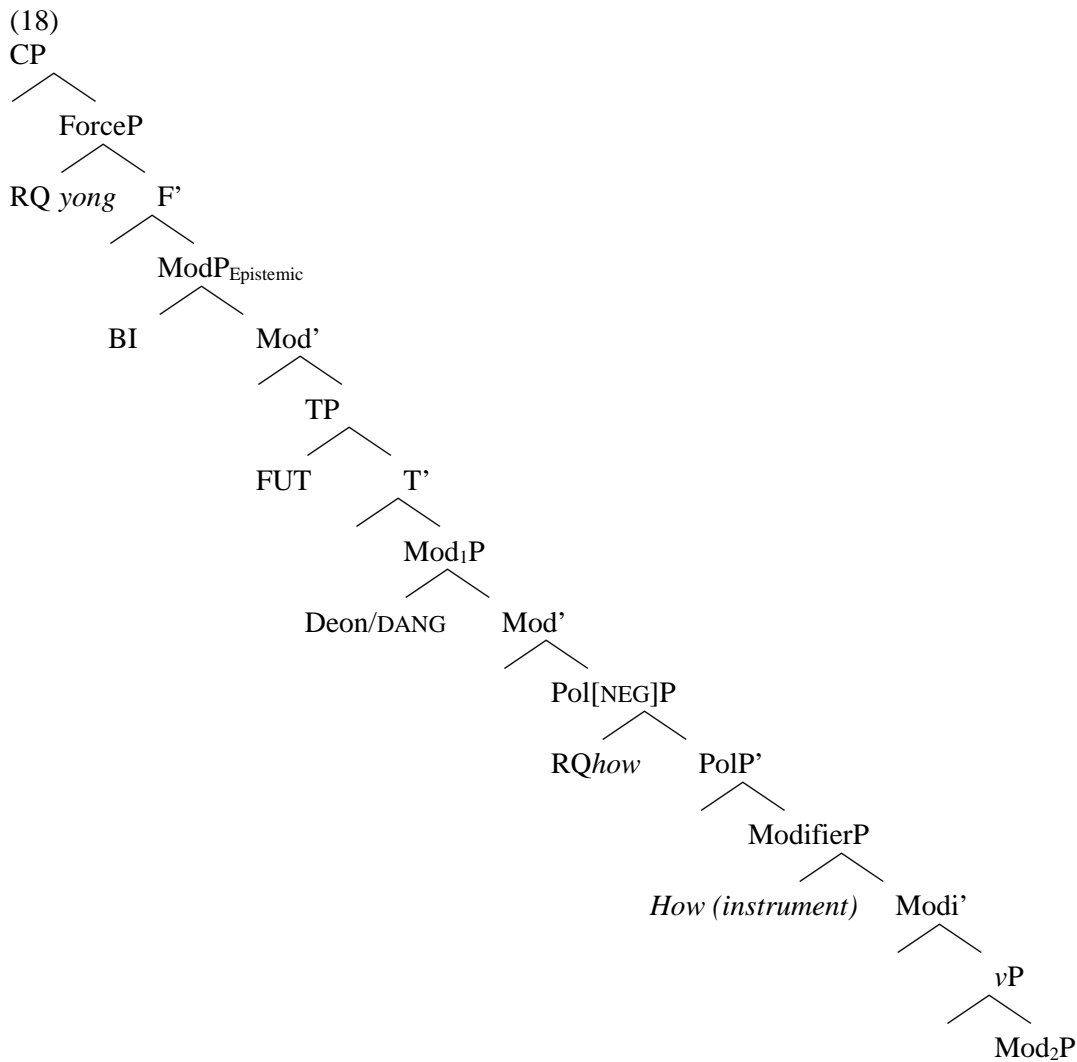
Position of DANG:

- Scopes semantically over negation = semantics of LAC future *jiāng* ≠ syntax of *jiāng*
- Precedes all possibility modals = LAC future *jiāng*
- Precedes instrumental *how* = LAC future *jiāng*
- Follows epistemic *bì* = LAC future *jiāng*
- Follows (always?) rhetorical *how* ≠ LAC future *jiāng* (?)

Force RQ/M > Mod_{epistemic} BI/WU > FUT JIANG/DANG > Mod_{deontic} DANG > Pol RQ/NEG > Modifier *how* > Mod_{circumstantial}

Remaining issues

- Are deontic modality and future marking in competition?
- The different positions of *wh*-adverbials in rhetorical questions



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