Dissecting the illocutionary phrase: New evidence from SFP embeddability

Mandarin question markers like *ba*, *ma*, and *meiyou* have been traditionally analyzed as occupying one single head. We advocate for a separate layer for each, prompted by newly surfaced data suggesting that *ma* is more readily embeddable than previously thought.

Background In interrogatives (Li & Thompson 1981, Zhu 1982, a.o.): (a) *ba* signals confirmation questions (1); (b) *ma* signals yes-no questions (2); and (c) *meiyou* signals yes-no questions but expresses the perfective aspect even without the perfective suffix (3). (4) is the declarative base.

(1) Xia-le yu ba?
fall-PFV rain BA
'It rained, didn't it?'

(2) Xia-le yu ma?
fall-PFV rain MA
'Did it rain?'

(3) Xia yu meiyou?
fall rain MEIYOU
'Did it rain?'

(4) Xia-le yu.
fall-PFV rain
'It rained.'

There is a common practice of placing *ba*, *ma*, and *meiyou* within the same projection (e.g., Zhu 1982, Paul 2014, Pan 2015), such as the illocutionary force phrase (IForceP) in Pan 2019:

(5) HighAttP > LowAttP > SQP > IForceP > OnlyP > SAspP > TP

Pan observes that unlike *meiyou*, *ba*/*ma* cannot be embedded in **certain verbal complements** (e.g., *zhidao* 'know') and clausal subjects. He considers them unembeddable more generally but does not explain the difference in embeddability. We demonstrate that a split IForceP analysis rather than a purely lexical (e.g., feature-based) one better accounts for the data newly brought to light.

***Ma*: Embeddable after all** Recent findings suggest that *ma* can embed under restricted conditions and challenge its unembeddability (6). (Possible dialectal variations are left for future work.)

(6) John xiang zhidao [xia yu le ma zuotian]$_{\uparrow}$.
John want know fall rain LE MA yesterday
'John wants to know whether it started raining yesterday.' (Bhatt & Dayal 2020: 1122)

We use "↑" to represent the rising intonation typically associated with information-seeking questions. Prompted by Bhatt & Dayal, we add in (7) an example with variable binding from **Beijing Mandarin** as evidence that the embedded question is not a direct quotation.

(7) [Mei ge ren]$_i$ dou xiang zhidao [ta$_i$ de fenshu bi wo$_{j/*i}$ gao ma]$_{\uparrow}$.
every CLF person all want know 3SG POSS score than 1SG high MA
'Everyone$_i$ wants to know whether their$_i$ score is higher than mine$_{j/*i}$.'

While predicates like 'want to know' accept embedded *ma*, other predicates like 'know' reject it:

(8) #[Mei ge ren]$_i$ dou zhidao [ta$_i$ de fenshu bi wo$_j$ gao ma]$_{\uparrow}$.
every CLF person all know 3SG POSS score than 1SG high MA

The contrast between 'want to know' and 'know' is not rogative vs. responsive (Dayal 2023): for example, 'forget' is responsive but embeds *ma* and thus aligns with 'want to know'. We refer to predicates of this kind as ***wonder*-type** and to predicates like 'know' as ***know*-type**.

Ba's embeddability does not follow *ma*: *ba* cannot embed under *wonder*-types (Luo to appear), nor can it embed under *know*-types (9). *Meiyou*, on the other hand, embeds under both types.

(9) *[Mei ge ren]$_i$ dou (xiang) zhidao [ta$_i$ de fenshu bi wo$_j$ gao ba].
every CLF person all want know 3SG POSS score than 1SG high BA

(10)

	Ba	*Bu*/*ma*	*Meiyou*/Op$_{WH}$/V-not-V
Clausal subject	✗	✗	✓
Know-type	✗	✗	✓
Wonder-type	✗	✓	✓

(11) Xia-mei-xia yu?
fall-not.PFV-fall rain
'Did it rain?'

The observed tiered embeddability of the three question markers is summarized in (10). Here, we add two more, also considered to reside in IForceP (Pan 2019): the SFP *bu*, forming yes-no questions when added to the end of a declarative base, and the null *wh*-operator, used for interpret-

ing *wh*-questions in *wh*-in-situ languages (cf. Huang 1982). We also add the V-not-V morphology (Huang 1991, a.o.), another yes-no question forming mechanism (11).

Proposal: Three separate heads First, we propose a three-way split for IForceP (12): (a) HighIForceP houses unembeddable *ba*; (b) PerspP houses question markers restrictedly embeddable like *bu*/*ma*; and (c) LowIForceP houses the most embeddable *meiyou*/Op_{WH}/V-not-V. We leave open the analyses for the exact deep position and derivation process of these question markers.

(12) [[[. . . (*meiyou*/Op_{WH}/V-not-V) $_{\text{LowIForceP}}$] (*bu*/*ma*) $_{\text{PerspP}}$] (*ba*) $_{\text{HighIForceP}}$]

We attribute the **non-co-ocurrence** of question markers to their **semantic mismatches**. Adopting Hamblin's (1973) theory of questions being sets of propositions, we assume: (a) *ba* takes a proposition (Ye 2021); (b) *bu*/*ma* takes a singleton set, output from $p \rightarrow \{p\}$ type shifting in the sense of Dayal 2023, restricted to interrogatives; and (c) *meiyou*/Op_{WH}/V-not-V yields an alternative set. Question markers in different layers do not co-occur, because their input and output result in a type clash, and those in the same layer also do not since they compete for the same position:

(13) *ba*: $p \rightsquigarrow p$ (14) *ma*: $\{p\} \rightsquigarrow \{p\}$ (15) *meiyou*: $p \rightsquigarrow \{p, \neg p\}$

These are independently motivated by the fact that only *ma* licenses 'yes'/'no' as a propositional anaphoric device (Krifka 2023) and by the negation/*wh*-morphology in other question markers:

(16) *dui* 'right'/*meicuo* 'correct' *response to:* ✓ma *(2),* #meiyou *(3),* #*V-not-V (11)*

Second, we interpret PerspP *à la* Dayal 2023. It triggers perspectival centering and requires that the embedded question should be p(otentially)-active for the perspectival center, which would refer to the speaker in the matrix clause and the matrix subject in the embedded clause:

(17) $[\![\text{Persp}^0]\!] = [\lambda Q.\lambda x\colon \Diamond\neg\text{know}(x, Q).Q]$ (Dayal 2023: 11, adapted)

We therefore attribute the infelicity of a *bu*/*ma* question under *know*-types to a semantic/pragmatic mismatch: a question cannot be p-active for someone if they already know the answer. This predicts that *bu*/*ma* can be embedded even under *know*-types when the matrix is **interrogative** or **negative**, as the question becomes possibly p-active for the perspectival center (Dayal 2023): (18) resembles the unacceptable example (8) except that its matrix is interrogative. This makes it possible for the perspectival center (i.e., the matrix subject in this case) to not know the answer, rescuing the sentence from unacceptability. In contrast, the (un)embeddability of *ba*/*meiyou*/Op_{WH}/V-not-V is not affected, as they don't introduce p-activeness. Our predictions hold true. The data were confirmed by 12 native Beijing Mandarin speakers under experimental conditions (Liu to appear).

(18) *Matrix illocutionary force effect: #declarative (8) (15% acceptance), ✓interrogative (63%)*
Xiaohong$_i$ zhi-bu-zhidao [ta$_i$ de fenshu bi wo$_j$ gao ma]$_{\uparrow}$.
Xiaohong know-not-know 3SG POSS score than 1SG high MA
'Does Xiaohong$_i$ know whether her$_i$ score is higher than mine$_j$?'

Evidence against a lexical analysis A potential alternative is to argue for a nonsplit IForceP and that *bu*/*ma* carries a p-activeness feature/presupposition themselves. This approach does not account for data like (19–20), where the p-activeness requirement can be satisfied in the context, yet embedding *bu*/*ma* in **clausal subjects/unconditionals** remains impossible. A natural analysis is that they must be LowIForceP. This extends to **noun complements/prepositional object clauses**.

(19) *[$_{\text{PerspP}}$ Zuotian xia-le yu ma] hai bu qingchu. *clausal subject*
yesterday fall-PFV rain MA yet not clear
Intended: 'Whether it rained yesterday is not clear yet.'

(20) *wulun [$_{\text{PerspP}}$ zuotian xia-le yu ma] *unconditional*
no.matter yesterday fall-PFV rain MA
Intended: 'no matter whether it rained yesterday'