Wh-indefinites and their relation to wh-in-situ

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1 Introduction
The question to be addressed in this paper is what, if any, is the historical relationship between wh-in-situ and wh-indefinites in Chinese. Archaic Chinese of the 5th to 3rd centuries BCE was a wh-fronting language and wh-words did not at first glance display the behavior expected of indefinites. However, wh-words can be found functioning as negative polarity items in archaic Chinese in a particular construction where they were required to remain in-situ. This indicates that wh-indefinites are not incompatible with wh-fronting. This still leaves the question, however, as to whether wh-in-situ was required for the non-interrogative interpretation to obtain. I will conclude that wh-in-situ is not a prerequisite for interpretation as a variable. Rather, I will show that the relevant fact is that those cases of wh-in-situ allowed for the wh-word to be in the scope of the appropriate trigger (in the sense of Cheng 1991) to license the non-interrogative interpretation.

As a prelude to the historical facts, let us first summarize the situation in modern Chinese. Modern Chinese is a wh-in-situ language. Wh-phrases typically remain in their base positions and do not move to [Spec, CP] prior to Spell-Out.

(1) Ni mai-le sheme?
   you buy-Asp what
   ‘What did you buy?’

It is also widely held that wh-words in modern Chinese should be analyzed as indefinites, having no quantificational force of their own (Cheng 1991; Tsai 1994; Lin 1998, 2004; among many others). When a wh-word is in the scope of a yes/no question particle, an existential interpretation obtains.

(2) Ni mai-le sheme ma?
   you buy-Asp what Q
   ‘Did you buy something?’

Wh-words can further be interpreted as negative polarity items when c-commanded by negation.

(3) Wo mei-you mai sheme.
   I not-have buy what
   ‘I did not buy anything.’
Following Heim’s (1982) analysis of indefinites and Nishigauchi’s (1986, 1990) analysis of Japanese wh-indefinites, Cheng (1991) proposes that Chinese wh-words derive their quantificational force from other elements in the clause, which she terms ‘triggers’. In (2), this is the yes/no question particle, which results in an existential interpretation. In (3), this is negation. In (1), the interrogative interpretation obtains in the scope of a phonetically null wh-particle. Tsai (1994) modifies this proposal by claiming that the unselective binder is a null operator merged in [Spec, CP].

The claim that the various possible interpretations for wh-words are obtained within the c-command domain of appropriate triggers implies a correlation between the lack of wh-movement and wh-words being indefinites in that language. However, this correlation has been brought into question recently by Haspelmath (1997) and Bruening (2007), who show that there are numerous languages with both wh-movement and wh-indefinites. In this paper, I show that archaic Chinese of the 5th to 3rd centuries BCE was also such a language. Specifically, I show that wh-movement coexisted with wh-indefinites in Chinese in the archaic period.

However, the claim made by Cheng (1991), that Chinese wh-words are licensed by triggers, will be maintained in this paper. I show that even though archaic Chinese had wh-movement and wh-indefinites, a non-interrogative interpretation of a wh-word was licensed when the wh-word appeared in the scope of the appropriate trigger. Specifically, I show that there was one construction in which wh-indefinites were interpreted as negative polarity items in the scope of negation. This construction, for independent reasons, involved wh-in-situ, leaving the wh-word in the scope of negation, thereby giving the appearance of an indirect correlation between wh-indefinites and wh-in-situ.

2 Wh-in-situ and wh-indefinites

Late archaic Chinese of the warring states period (5th – 3rd centuries BCE) was an SVO language, in which objects typically followed the verb. However, when the object was a wh-phrase, it was required to front to a position between the subject and VP. This is shown in (4a) and the first clause in (4b). The second clause in (4b) shows the non-interrogative object following the verb in the base order.

(4) a. 天下之父歸之，
    Tianxia zhi fu gui zhi
    world Gen father settle here

    其子焉往？
    qi zi yan [VP wang tyan ]?
    3.Gen son where go

    ‘If the fathers of the world settled here, where would their sons go?’

(Mencius, Lilou 1)
Furthermore, archaic Chinese *wh*-words did not typically function as polarity items. Thus, *wh*-words were not generally employed in order to express existential and negative polarity interpretations of (2) and (3). Rather, existential constructions were employed, in which headless relative clauses were embedded under existential verbs. Existential readings obtain in positive contexts, as in (5a), while negative polarity interpretations result in negative contexts, as in (5b). The key point here is that these constructions do not use *wh*-words but rather headless relative clauses.

(5) a. 力 有 所 不 能 舉。  
li [ei] you [ei] suo bu neng ju]  
strength exist Rel not able lift  
‘Strength cannot lift some things.’  
(*Hanfeizi, Guanxing*)

b. 是 不 材 之 木 也,  
[Shi bu cai zhi mu], ye,  
Dem Neg use Gen tree Top  
無 所 可 用。  
wu [ei] suo ke yong].  
not.exist Rel Pot use  
‘This useless tree cannot be used for anything.’  
(*Zhuangzi, Renjian*)

Thus, it appears that archaic Chinese was a *wh*-fronting language in which *wh*-words were quantificational operators and not indefinites. *Wh*-in situ begins to emerge in Chinese from the Han Dynasty (2nd century BCE to 2nd century CE). (6a) shows a *wh*-word following a preposition. In (6b), the object *wh*-phrase remains in post-verbal position.

(6) a. 陛下 與 誰 取 天下 乎?  
Bixia [yu shei] qu tianxia hu?  
sire with who conquer world Q  
‘Sire, with whom will you conquer the world?’

b. 此 女 常 有 何 病?  
Ci nu chang [you he bing]?  
this woman previously have what illness  
‘What illness has this woman had?’  
(*Han period translation of Buddhist sutra*)
In this period, examples can also easily be found of *wh*-indefinites. Most common is the use of a *wh*-word in negative polarity contexts, in the scope of a marker of negation.

(7)  

a. 雖有百秦，將無奈齊何。
Sui you bai Qin jiang *wu* nai Qi *he*.
even exist 100 Qin Mod Neg treat Qi what
‘Even if there were 100 Qin, (they) would not be able to do *anything* about Qi.’

(Shiji 70)

b. 既死氣絕，不可如何。
Ji si qi jue, *bu* ke ru *he*.
Perf dead *qi* stop Neg Pot treat what.
‘(The person) having died and the *qi* stopped, *nothing* could be done about (it).’

(Lunheng 45)

The question which must be asked at this point is whether there was a correlation between *wh*-in situ and *wh*-indefinites in the Han period. There is clearly not a direct correlation, since a second look at archaic Chinese does in fact reveal instances of *wh*-indefinites in this earlier stage of the language. I have found sixteen examples like the following in archaic period texts. Twelve of these are cases of negative polarity, as in (8).

(8)  

a. 孤無奈越之先君何。
Gu *wu* nai Yue zhi xian jun *he*.
I Neg treat Yue Gen former lord what
‘I could do *nothing* about the former lord of Yue.’

(Guoyu, Wu)

b. 諸侯兵困力極，
Zhuhou bing kun li ji,
lords army tired strength depleted
無奈何。
*wu* nai *he*.
Neg treat what
‘Their army exhausted and their strength depleted, the feudal lords could do *nothing* about (it).’

(Hanfeizi, Cun Han)

Since archaic Chinese was a *wh*-movement language, we see that movement coexisted with *wh*-indefinites in this period. The question to be entertained in the next section is what is responsible for the licensing of the negative polarity interpretation in examples like (8).
3 Indefinites and triggers

Recall first that archaic wh-words were not commonly used as polarity items. This function was rather performed by headless relative clauses in existential constructions.

(9) 是不材之木也，
   [Shi bu cai zhi mu], ye,  
   Dem Neg use Gen tree Top  
   無所可用。
   wu [ e; suo ke yong].  
   not.exist Rel Pot use  
   ‘This useless tree cannot be used for anything.’ (Zhuangzi, Renjian)

This is undoubtedly due to the fact that archaic Chinese wh-movement targeted a position above negation.

(10) a. 何城不克?
   [He cheng] bu [VP ke twh]?  
   what city not conquer  
   ‘What city would (you) not conquer?’ (Zuo zhuan, Xi 4)

b. 我何為乎? 何不為乎?
   wo he wei hu? he bu [VP wei twh] hu?
   I what do Excl what Neg do Excl  
   ‘What should I do? What should I not do?’ (Zhuangzi, Qiushui)

Therefore, since wh-movement generally placed wh-words outside the scope of negation, wh-words could not typically be interpreted as NPI. How is it, then, that the wh-words in (8) do not front and remain in the scope of negation? (8a) and (8b) belong to a particular construction employing a wh-word as the predicate of an embedded small clause introduced by the matrix verb nai/ruo/ru1. The wh-word never undergoes fronting in this construction, even when it receives an interrogative interpretation. (11) shows examples of this type. There is no negation in the matrix clause, and the wh-word has an interrogative interpretation. What is important is that the wh-word does not front but remains in its base position, following the embedded verb.

1 I gloss this verb as ‘treat’, but it is often interpreted idiomatically in combination with the wh-word as ‘do what’ or ‘become what.'
(11)  a. 伯氏不出，奈吾君何?
伯氏 Neg come treat our lord what
‘If you (Boshi) do not come (to his aid), then what will become of our lord?’  (Guoyu, Jin 2)

b. 子若國何?
You treat nation what
‘What will you do about the nation?’  (Zuozhuan, Xi 23)

c. 君使臣，臣事君，如之何?
lord use official official serve lord treat this what
‘A lord using his official and an official serving his lord, what is done about this?’  (Analects, Bayi)

The reason that the wh-word does not front in this construction is not well understood. Aldridge (2006) proposes that predicates do not front because archaic Chinese wh-movement was short focus fronting to a position between the subject and VP, which would make fronting of predicates string vacuous and thereby give the appearance of wh-in-situ. Full exploration of the analysis of wh-predicates is beyond the scope of this paper. What is relevant to the discussion at hand is the fact that these wh-words do not front. (12) shows that wh-words functioning as nominal predicates did not front in general in archaic Chinese. Archaic Chinese did not have a copula, but the declarative particle ye frequently appears in clause-final position. The predicate nominal directly follows the subject.

(12)  a. 君與我此何也?  (Guoyu, Jin 1)
[Jun yu wo ci] he ye?
lord give me this what Decl
‘Why is it that my lord gives me these things?’

b. 追我者誰也?  (Mencius, Lilou 2)
[Zhui wo zhe] shei ye?
pursue me Det who Decl
‘Who is the one pursuing me?’

I should point out that the lack of movement in the construction shown in (8) and (11) is not due to the inability of wh-phrases to move out of embedded domains. Movement from nonfinite complement clauses is perfectly acceptable.

(13)  a. 公誰欲與?  (Zhuangzi, Xu Wugui)
Gong shei yu [yu e ]?
you who want give
‘Who do you want to give (it) to?’
b. 吾誰敢怨? 

(Wu shei gan [yuan e]?)

I who dare resent

‘Who do I dare to resent?’

Note also that the embedded small clause is not in itself an opaque domain. It is possible for the embedded subject to undergo NP-movement. First observe a monoclusal example of NP-movement. This can be seen in the archaic Chinese passive potential construction, in which internal argument moves to subject position. In (14), the theme of ren ‘bear’ moves to subject position in the bracketed clause.

(14) 八佾舞於庭, 是可忍也,

Bayi wu yu ting, [shi ke ren ti] ye,
Bayi perform in home this Pot bear Decl

shu bu ke ren ye.
what Neg Pot bear Decl

‘Bayi performed in the home, if this can be borne, then what cannot be borne?’

The subject of the small clause embedded by nai/ruo/ru ‘treat’ can move to matrix subject position, as in (15). The third person pronoun subject of the small clause has moved to subject position of the clause with nai as the main verb. It appears in genitive case, because it is the subject of the complement clause selected by zhi ‘know’. In archaic Chinese, subjects of finite embedded clauses received genitive case.

(15) 知其不可奈何而安

Zhi [qi bu ke nai [ti he]] er an
know 3.Gen Neg Pot treat what Conj embrace

zhi ruo ming, de zhi zhi ye.
3.Obj as destiny virtue Gen extreme Decl

‘Knowing that nothing can be done about it and embracing it as your destiny is virtue in the extreme.’

(Zhuangzi, Renjian)

In another archaic Chinese construction in which we find embedded small clauses, the main verb is wei ‘call’. Again, there is no movement of the embedded wh-predicate.
(16) a. 國謂君何？（Zuozhuan, Xi 15）
Guo wei [jun he]? nation call lord what
‘How does the nation speak of our lord?’
b. 先後其謂我何？（Zuozhuan, Xi 24）
Xian hou qi wei [wo he]? father mother Mod call me what
‘How will my father and mother (lit. the former king and queen) speak of me?’

Note that the subject of the small clause embedded under wei can also become the matrix subject in a passive potential construction.

(17) 周之德可謂至德已矣。（Analects, Taibo）
Zhou de ke wei ti de yi.
‘The virtue of Zhou can be said to be the ultimate virtue.’

Wh-motion of the embedded subject is also possible, in fact obligatory when the embedded subject is a wh-phrase.

(18) a. 何謂德義？（Guoyu, Jin 7）
Hei wei [ti de yi]? what call virtue righteousness
‘What is referred to as virtue and righteousness?’
b. *謂何德義？（Guoyu, Jin 7）
Wei [hei, de yi]? call what virtue righteousness
‘What is referred to as virtue and righteousness?’

Therefore, it does not seem to be a locality constraint which prevents movement of the wh-words in (8), (11), and (16). Regardless of what it is that prevents movement of wh-predicates, what is relevant to the discussion at hand is the fact that these wh-words do not front in such constructions. This allows embedded wh-predicates to remain in the scope of matrix negation, where they can be interpreted as NPI when c-commanded by matrix negation, as in (8).

There is still, however, an important question which needs to be answered regarding the correlation between wh-indefinites and wh-in-situ. Is it being in-situ or merely being in the c-command domain of the licensor which allows a wh-word to function as an indefinite? The answer must be the latter. This is because
we can find examples in which a moved wh-word has a non-interrogative interpretation. In (20), the moved wh-words receive an existential interpretation inside embedded clauses, a complement clause in (20a) and a conditional clause in (20b).

(20) a. 不 知 我 者 謂 我 何 求。
    Bu zhi wo zhe wei wo he [qiu the ].
    Neg know 1s Det say 1s what seek
    ‘Those who do not know me say that I am looking for something.’
    (Shijing, Shuli)

b. 誰 之 不 如，可以 求 之。
    [Shei zhi bu [ru tshel ]}, keyi qiu zhi.
    who Gen Neg compare can rely 3.Obj
    ‘If you don’t measure up to someone, you can rely on him.’
    (Guoyu, Jin 6)

Examples like those in (20) clearly show that wh-movement and wh-indefinites could not have been mutually exclusive. Therefore, wh-in-situ could not have been a necessary condition for the emergence of wh-indefinites. However, wh-movement does not necessarily place the wh-word outside of the scope of a trigger which can license the non-interrogative interpretation. As for the existential readings in (20), particularly the conditional clause in (20b), I assume with Lin (1998, 2004) and others that there is an operator located in the C domain of the embedded clause which functions as the trigger. In section 4, I discuss archaic Chinese wh-movement in greater detail and show that the landing site must be internal to TP, which allows a moved wh-word to remain in the scope of an operator in the C domain.

4 Short wh-movement
As Aldridge (2006) has proposed, the reason is because archaic Chinese wh-movement was short focus movement to a position between the subject and predicate\(^2\).

\(^2\) The focus movement analysis is essentially parallel to that proposed for languages such as Hungarian, Malayalam, and Chadic put forth by Farkas (1986), Kiss (1987, 1995), Tuller (1992), Jayaseelan (2001)
Evidence for the short movement analysis includes arguments like the following. Fronted *wh*-words follow modals, as in (22).

(22) 我 將 何 求？
    Wo jiāng he qiú?
    ‘What will I ask for?’

Movement can also take place inside islands, while the *wh*-word takes matrix scope. (23) shows *wh*-movement inside a relative clause. This shows that the movement does not target the scope position of the *wh*-word. If it did, then the *wh*-word would have to move outside of the relative clause, resulting in a subjacency violation.

(23) 天 何 欲 何 惡 者 也?
    Tiān [he₁ yù ti₃ he₃ wù ti₃ zhe₃] ye?
    ‘Heaven is one who desires what and despises what?’

A similar example is (24), in which *wh*-movement takes place inside one conjunct in a coordinate structure. Again, the *wh*-word cannot be moving to matrix [Spec, CP], since this would invoke a violation of the Coordinate Structure Constraint.
The short movement proposal also allows the account of the existential interpretation in conditional and other embedded clauses discussed in the previous section. Since wh-movement targets a position internal to TP, it remains in the scope of the appropriate operator in [Spec, CP].

As we have seen, wh-movement in archaic Chinese was short focus fronting and did not place the wh-word in its [Spec, CP] scope position. This means that the interrogative interpretation also requires an unselective binder in the C domain. Therefore, moved interrogative wh-words are also treated as indefinites by the computational system. This fact perhaps most clearly shows that there was no correlation between wh-movement and wh-indefinites in archaic Chinese.

The fact that archaic Chinese wh-movement was short focus movement also suggests an account of the loss of this movement and the change to wh-in-situ. Since short movement does not place the wh-word in the interrogative scope position, it is essentially useless as wh-movement. The lack of a clear semantic correlate to the movement, then, could have prompted acquirers of the language to abandon the movement strategy for wh-question formation. In syntactic terms, the change which occurred can be formulated in terms of the loss of the strong feature which triggered focus movement. It is not unsurprising, then, that this change culminated in the Han dynasty, because it was in this period that the lexicon underwent a fundamental change, which resulted in the disyllabification of a large number of words, including wh-words, replacing the older monosyllabic wh-words with disyllabic ones. We can therefore posit that the new wh-words entered the language without the strong focus feature, eventually resulting in the complete loss of wh-movement. In this regard, it is instructive to point out that in the transitional Han period, disyllabic wh-words and wh-phrases are found in-situ, while monosyllabic wh-words continued to undergo short movement. (26a) shows wh-in-situ with a disyllabic wh-phrase. (26b) shows movement of a monosyllabic wh-word.
5 Against a possible alternative account

Before concluding this paper, I will consider and ultimately reject an alternate account of archaic Chinese wh-movement and its loss. Feng (1996) claims that archaic Chinese wh-movement was not syntactic movement to a specifier position but rather cliticization of the wh-word to the verb. This prosodic analysis of the movement is also claimed to account for the loss of wh-fronting in the Han period. This is particularly relevant regarding the asymmetry in (26). Feng’s account is that the prosodically weaker monosyllabic wh-words continued to front, while their prosodically heavier disyllabic counterparts remained in-situ.

However, there are numerous problems with this analysis. The main problem is that it predicts the wrong position for fronted wh-words in the archaic period. Cliticization to the verb would require adjacency between these constituents. But as we have seen, archaic Chinese wh-movement targeted a position outside of VP and above negation. The reader is referred to Aldridge (2006) for more discussion of this point.

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表 名 垂 譽 乎？ (Lunheng 25)

What did (they) use to establish their virtue, educate people, leave their names, and be praised by posterity?

The explanation I offer for the lack of fronting in cases like (28) is that the Han period was a time of transition from *wh*-movement to *wh*-in-situ, with *wh*-in-situ as the norm. In-situ monosyllabic *wh*-words as in (28) indicate that the transition was nearly complete.

A third reason to reject the cliticization analysis is because *wh*-movement behaves differently from true pronominal cliticization in archaic Chinese. (29) shows examples of pronominal cliticization in archaic Chinese. In negative clauses, object pronouns moved out of VP and right-adjoined to the marker of negation.

(29) a. 驪 而 不 亡 者，
    Jiao er bu wang zhe,
    arrogant and not lose Det
    未 之 有 也。
    wei zhi [vp you tzi] ye.
    not yet 3.Obj exist Decl
    ‘There has not yet been one who is arrogant and does not lose everything.’ (Zuozhuang, Ding 13)

b. 不 患 人 之 不 己 知。
    Bu huan ren zhi bu ji [vp zhi tji].
    Neg worry others Gen Neg self understand
    ‘Do not worry that others do not understand you.
     (Analects, Xueer)

Not only is the landing site of pronominal cliticization different from *wh*-movement, the former following negation and the latter preceding it, the two types of movement are subject to different locality restrictions. (31) shows that pronominal cliticization was clause-bound. Pronouns in embedded clauses – even nonfinite clauses – do not move into the matrix clause. This is true of embedded object pronouns, as in (31a), as well as embedded subject pronouns, as in (31b).

(30) a. 吾 不 欲 觀 之 矣。(Analects, Bayi)
    Wu bu yu [guan zhi] yi.
    I Neg want see 3.Obj Asp
    ‘I no longer wish to see this.’
b. 而子不欲我見伊尹。
   Er zi bu yu wo jian Yiyin.
   ‘But you don’t want me to see Yiyin.’ (Mozi 47)

Interestingly, cliticization is also not allowed from the small clause in the
nai/ruo/ru construction.

(31) 虽有堯舜之德，
     Sui you Yao Shun zhi de,
     even have Yao Shun Gen virtue
     無如之何。
     wu ru zhi he.
     ‘Even if (one) had the virtue of Yao and Shun, (one) could not do
     anything about it.’ (Wuyue Chunqiu 9)

Wh-movement, on the other hand, was not clause-bound, as we have seen in
section 3, example (13), repeated below as (32). A wh-word can freely move from
object position in a nonfinite complement clause.

(32) a. 公誰欲與?
      Gong shei yu [yu e]?
      you who want give
      ‘Who do you want to give (it) to?’

b. 吾誰敢怨?
   Wu shei gan [yuan e]?
   I who dare resent
   ‘Who do I dare to resent?’

The above discussion clearly shows that archaic Chinese wh-movement was
not cliticization of the wh-word to the verb. The invalidity of the cliticization
analysis also significantly weakens the possibility of a prosodic account of the
loss of wh-movement in the subsequent Han period.

6 Conclusion
We have seen in this paper that there is no direct correlation between wh-in-situ
and wh-indefinites. However, we saw that it was not necessary to abandon the
Clausal Typing Hypothesis altogether. This is because the main point I have
demonstrated is that the interpretation of a wh-word in both archaic and modern
Chinese depends on the trigger which licenses that interpretation. Returning to the
discussion of wh-movement, we have seen that this was short movement to a
position below the subject and does not target the [Spec, CP] scope position. Consequently, moved interrogative wh-words also had to obtain their interpretation through binding by an operator in the C domain. The fact that archaic Chinese wh-movement did not target the interrogative scope position also suggests an explanation for the loss of this movement. The lack of a clear semantic connection between the movement and its interrogative interpretation encouraged language learners to abandon movement as the strategy for forming wh-questions. Since the interrogative interpretation was obtained through binding regardless of whether the wh-word was moved, principles of economy should dictate that wh-in-situ be preferred over wh-movement.

References