

# Mandarin Chinese alternative questions are not disjoined polar questions

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# 1. Introduction

Alternative questions (AltQ for short) are a type of questions that offers options for an addressee to choose one from. Languages use different strategies to ask AltQs. One of the strategies is to introduce the options using a disjunction. This strategy can be further divided into at least three groups: i) disjunction plus intonation; ii) disjoin two (or more) yes/no questions (Y/NQ); iii) disjunction with a coordinator specific for AltQs.

English is one language that uses the disjunction plus intonation strategy. An example is given in (1). The sentence can have two readings, with the same word string. The first one is an AltQ reading. The available choices are rice and noodles, which are connected by the disjunctive coordinator *or*. The expected answer is either rice or noodles (1a). The second reading is a Y/NQ (1b). As long as the addressee wants either rice or noodles or both, the answer should be *yes*. Otherwise, the answer is *no*. In spoken English, the two readings have different intonations. While the intonation of a Y/NQ keeps rising until the end, the one of an AltQ is rising on the first disjunct and falling on the second (for a detailed description of the intonation, see, among others, Pruitt and Roelofsen 2013, Biezma and Rawlins 2015, Meertens et al. 2018).

- (1) Do you want rice or noodles?
- a. Possible AltQ answer: (I want) rice. *or* (I want) noodles.
- b. Possible Y/NQ answer: Yes *or* No

Another strategy of forming an AltQ is to disjoin two Y/NQs. This is argued for Japanese (Uegaki 2014) and Hindi-Urdu AltQs (Bhatt and Dayal 2020). Uegaki (2014) proposes that Japanese AltQs are formed by disjoining two Y/NQs with forward deletion. The reason for arguing each disjunct is a Y/NQ is that the question typing particle *ka* must be in each disjunct for an AltQ reading. The sentence in (2) exemplifies his analysis.

- (2) [Taro-ga koohii-o non-da-ka] (soretomo) [~~Taro-ga~~ ocha-o non-da-ka]  
Taro-NOM coffee-ACC drink-PAST-Q DISJ tea-ACC drink-PAST-Q  
“Which is true: Taro drank coffee or he drank tea.”  
(Uegaki 2014:(24))

Bhatt and Dayal (2020) pursue the same idea for Hindi-Urdu. They start with the distribution of the polar question particle *kya:* and establish that *kya:* is located in ForceP of Y/NQs. Based on the fact that *kya:* can also occur in AltQs with a similar distribution as in Y/NQs, they suggest that AltQs involve two ForcePs (i.e., Y/NQs).<sup>1</sup>

- (3) (*kya:*) tum ja:-oge ya: (*kya:*) vo aa-ega:?  
*kya:* you GO-FUT.2MPL OR *kya:* he come-FUT.3MSG

<sup>1</sup>The distribution of *kya:* in Y/NQs and AltQs is only *similar* but not the same because of one exception: while a final *kya:* is allowed in Y/NQs, it is ruled out in AltQs no matter the disjuncts are clausal or sub-clausal. See Bhatt and Dayal (2020:sec 5.1) for concrete examples and an explanation of why it is the case.

“Will you go or will he come?”

(Bhatt and Dayal 2020:(46b))

A third strategy, which is used by Mandarin Chinese (henceforth, Chinese), is to use the specialized coordinator *haishi* in AltQs, as in (4a). For cases other than AltQs, *huozhe*, the plain *or*, is used. For example, (4b) is a declarative with *huozhe*, and (4c) a Y/NQ. As indicated in (4b-c), *huozhe* cannot be replaced by *haishi*. In what follows, I will gloss *haishi* as *haishi*, and gloss *huozhe* as *or*.

- (4) a. ni chi mifan \**huozhe* / *haishi* miantiao?  
you eat rice \*or / *haishi* noodle  
AltQ reading only: Do you eat rice or noodles?
- b. ni chi mifan *huozhe* / \**haishi* miantiao.  
you eat rice or / \**haishi* noodle  
“You eat rice or noodles.”
- c. ni chi mifan *huozhe* / \**haishi* miantiao *ma*?  
you eat rice or / \**haishi* noodle *ma*  
Y/NQ reading only: Do you eat rice or noodles?”

The current paper investigates the strategy used in Chinese in detail. The aim is to understand the formation and interpretation of Chinese AltQs. It is argued that Chinese AltQs are not disjoined Y/NQs. Furthermore, the disjuncts are not necessarily always clausal, different from what Han and Romero (2004) propose for AltQs in general. It will be shown that when the disjuncts are of the same type (e.g., both are NPs or both are PPs) and size, their size is exactly the one seen on the surface. Only in certain cases is forward deletion required. To recover the meaning of the deleted part, a contrastive focus is needed.

The paper is organized as follows. Section 2 and 3 offer background on Chinese AltQs and Y/NQs. Then, Section 4 provides empirical data showing that Chinese AltQs are not disjoined Y/NQs, followed by Section 5 which proposes the derivation and interpretation of AltQs in Mandarin Chinese. Supporting evidence to the proposal will be offered in Section 6. After that, Section 7 answers the question of why disjoined Y/NQs do not form an AltQ in Mandarin Chinese. Towards the end of the paper, Section 8 compares the current analysis of Chinese AltQs to the one in Erlewine (2017). It will be discussed why the analysis in this paper is more desirable. Section 9 concludes.

## 2. Alternative Questions in Mandarin Chinese

The most common way of asking an AltQ in Chinese is to use *haishi* to introduce alternatives. Examples of matrix and embedded AltQs are given in (5-6).<sup>2</sup>

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<sup>2</sup>Here I focus only on *haishi* in AltQs but its occurrence is not restricted to AltQs. It can also occur under unconditionals as in (i). I will return to this in Section 6.

- (5) ni jintian *haishi* mingtian chufa?  
 you today *haishi* tomorrow depart  
 “Are you leaving today or tomorrow?”
- (6) tamen zai taolun jintian *haishi* mingtian chufa.  
 they PROG discuss today *haishi* tomorrow depart  
 “They are discussing whether they leave today or tomorrow.”

The size of disjuncts on the surface varies from CPs to, for example, classifiers. This is shown in (7). All examples in (7) ask the same question but differ in the surface size of disjuncts.

- (7) Question: Did you give him one book or two books?
- a. CP *haishi* CP  
 [ni gei le ta yi-ben shu] *haishi* [ni gei le ta liang-ben shu]?  
 you give ASP. he one-CL. book *haishi* you give ASP. he two-CL. book
- b. VP *haishi* VP  
 ni [gei le ta yi-ben shu] *haishi* [gei le ta liang-ben shu]?  
 you give ASP. he one-CL. book *haishi* give ASP. he two-CL. book
- c. Num. CL. N *haishi* Num. CL. N  
 ni gei le ta [yi-ben shu] *haishi* [liang-ben shu]?  
 you give ASP. he one-CL. book *haishi* two-CL. book
- d. Num. CL. *haishi* Num. CL.  
 ni gei le ta [yi-ben] *haishi* [liang-ben] shu?  
 you give ASP. he one-CL. *haishi* two-CL. book
- e. Num. CL. N *haishi* Num. CL.  
 ni gei le ta [yi-ben shu] *haishi* [liang-ben]?  
 you give ASP. he one-CL. book *haishi* two-CL.

An AltQ typically contains *haishi* but it can be omitted when the disjuncts are small and similar. Example (8) illustrates this. However, compared to AltQs with *haishi*, (8) requires a dedicated intonation: a high pitch contour on the first disjunct and a low one on the second.

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- (i) (wulun) xiaohai *haishi* / huozhe daren, dou yao fu menpiao.  
 no-matter kid *haishi* / or adult all need pay ticket  
 “Everyone, no matter kids or adults, needs to pay for the ticket.”

The same phrase *haishi* has other functions. It can be used as an adverb expressing continuation, a modal particle showing that a decision is made after comparison, or expressing counter-expectation. For more on these see Wu (2010).

(8) Num. CL. N Num. CL. N

ni gei le ta [yi-ben shu] [liang-ben shu]?  
you give ASP. he one-CL. book two-CL. book

This intonation strategy can only be applied when the disjuncts are both in small size (or short length) and phonetically as well as semantically similar (Huang et al. 2009:243-244). Otherwise, *haishi* is required. Example (9), adopted and modified from Huang et al. (2009:244 (42)), is bad. The reason is that, although *Zhangsan* and *ta* (him) have the same semantic meaning and the disjuncts are short, they are phonetically different.

(9) ni xihuan Zhangsan<sub>i</sub> \* (*haishi*) taoyan ta<sub>i</sub>?  
you like Zhangsan \* (*haishi*) detest him  
“Do you like Zhangsan or (do you) dislike him?”

AltQs without *haishi* have properties that AltQs with *haishi* do not have. However, a detailed discussion of them is out of the scope of the current paper.

### 3. Yes/No Questions in Mandarin Chinese

There are at least three ways to ask a Y/NQ in Chinese. The first one is (roughly speaking) to add the particle *ma* at the end of a declarative sentence, as in (10).<sup>3</sup> The particle *ma* occurs only in Y/NQs. Constituent questions (*wh*-Qs) and AltQs do not allow it.

(10) ni gei ta shu le *ma*?  
you give he book ASP. *ma*  
“Did you give him the book?”

The second common way to ask a Y/NQ is to use *A-not-A* structures. The *not* can be either *mei* or *bu*. For the purpose here, it is sufficient to know that *mei* encodes the perfective aspect while *bu* does not. The size and category of *A* can vary. For an overview of *A-not-A* questions, see Huang et al. (2009:sec 7.3).

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<sup>3</sup>It is possible for *ma* to occur in other positions but being sentence-initial is out of the question. I will leave the details aside where *ma* can occur and why.

- (i) a. ni chi pingguo *ma*?  
you eat apple *ma*  
“Do you want the apple?”  
b. ni chi *ma* pingguo?  
c. chi pingguo *ma* ni?  
d. \* *ma* ni chi pingguo?

- (11) a. ni gei-*mei*-gei ta shu?  
 you give-NEG.ASP-give he book  
 “Did you give him the book?”
- b. ni chi-*bu*-chi mifan?  
 you eat-NEG.-eat rice  
 “Do you eat rice?”

Lastly, there are rising intonation questions. The upward arrow in (12) indicates the rising intonation.

- (12) ni gei le ta yi-ben shu?  
 you give ASP. he one-CL. book ↑  
 “You gave him a book?”

Although *ma*-Qs, *A-not-A* questions, and rising intonation questions can all serve as Y/NQs, their behavior differs. The most significant distinction is that the former two are neutral in the sense that they can start a conversation (i.e., (13a-b) are good) but the rising intonation question (13c) cannot.<sup>4</sup> More precisely, rising intonation questions are biased questions. In the context below, the rising intonation question is understood as the tourist doubted there was a post office nearby, which is not appropriate here.<sup>5</sup> Because rising intonation questions are not genuine information seeking questions, I will not consider them in the rest of this paper.

- (13) Context: A tourist stopped a stranger and wanted to know if there was a post office nearby.
- a. (qing wen) fujin you youju *ma*?  
 (excuse me) nearby exist post-office *ma*  
 “Excuse me, is there a post office nearby?”
- b. (qing wen) fujin you-*mei*-you youju?  
 (Excuse me) nearby exist-NEG.ASP-exist post-office

<sup>4</sup>Thanks to Prof. María Biezma for suggesting me the context and test in (13).

<sup>5</sup>Sentence (13c) is good in the following context:

- (1) Context: A tourist has been looking for a post office for a long time in a certain area but couldn't find any. He stopped a stranger on the street.
- A: Excuse me, I'm looking for a post office.  
 Could you please tell me where I can find the closest one?
- B: Oh, there are three post offices nearby. Let me think which one is the closest.
- A: fujin you youju?  
 nearby exist post-office  
 “There is a post-office nearby?”

- c. # (qing wen) fujin you youju?  
(Excuse me) nearby exist post-office

*A-not-A* questions might be reminiscent of the ... *or not?* AltQs in English since both of them explicitly spell out the negation on the surface. Biezma (2009) observes that the ... *or not?* AltQs induce cornering effects which ‘force’ the addressee to give an answer.<sup>6</sup> Thus, as illustrated in (14), the ... *or not?* AltQ is ruled out in a context like (13). However, as an *A-not-A* question can be conversation initial as in (13b), it does not trigger any cornering effect.

- (14) Context: A tourist stopped a stranger and wanted to know if there was a post office nearby.
- a. (Excuse me.) Is there a post office nearby?  
b. # (Excuse me.) Is there a post office nearby *or not?*

One question one might ask is whether an *A-not-A* question is a Y/NQ or an AltQ. The status of *A-not-A* questions is still under debate (see, among others, Xu 2013 and Hagstrom 2017). In the sense of whether an *A-not-A* question can start a conversation, it resembles a *ma*-Q, as seen in (13), but does not resemble its AltQ counterpart. The AltQ in (15), which is asked in the same context as (13), triggers a cornering effect. The contrast between (13b) and (15) indicates that we cannot simply take *A-not-A* questions as AltQs. For this reason, in this paper, I will not consider *A-not-A* questions as AltQs but as Y/NQs as the *ma* questions.

- (15) Context: A tourist stopped a stranger and wanted to know if there was a post office nearby
- # (qing wen) fujin you (youju) *haishi* meiyou youju?  
(Excuse me) nearby exist (post-office) *haishi* not-exist post-office  
“Excuse me, is there a post office nearby or is there no post office nearby?”

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<sup>6</sup>The example given in Biezma (2009) to illustrate cornering effects is given below.

- (i) Scenario: You are in charge of coordinating the cooks for the colloquium dinner. John is one of the cooks. You talked to John yesterday and he said he would make stew but did not confirm whether he would also make pasta. Dinner is tomorrow and you need to know what is happening with the pasta.
- You: Are you making pasta?  
John: (Silence and dubitative faces)  
You: Are you making pasta or not?

## 4. Disjoining two Y/NQs

### 4.1 AltQs as disjoined Y/NQs for Japanese

In the study of AltQs, one pursued approach is that AltQs are two disjoined Y/NQs. This idea can be traced back at least to Bolinger (1958) who proposed that English AltQs are coordinated Y/NQs, which is, according to Bolinger, exactly what their surface structure suggests. In a recent study of Japanese AltQs, Uegaki (2014) suggests that Japanese AltQs are best analyzed as disjoined Y/NQs. His analysis is based on three empirical observations. The first observation is that the surface size of the disjuncts in Japanese AltQs has to be at least VP. This is illustrated in (16). The question in (16a) is embedded because, as Uegaki explains, the question particle *ka* is more natural in embedded questions than in root questions. He notes that a question being embedded or not does not affect his analysis.

(16) a. \*AltQ reading; ✓Y/NQ reading

[Taro-ga [koohii ka ocha]-o non-da-ka] (-ga mondai-da).  
Taro-NOM [coffee DISJ tea]-ACC drink-PAST-Q-PRT. (-NOM question-COP)  
“(It is a question) whether Taro drank coffee or tea.”

b. ✓AltQ reading

[Taro-ga [koohii-o non-da-ka (soretomo) ocha-o non-da-ka].  
Taro-NOM [coffee-ACC drink-PAST-Q-PRT. (DISJ) tea-ACC drink-PAST-Q-PRT.

?✓Y/NQ reading

[Taro-ga [koohii-o non-da-ka (\*soretomo) ocha-o non-da-ka].  
Taro-NOM [coffee-ACC drink-PAST-DISJ (\*DISJ) tea-ACC drink-PAST-Q-PRT.

(Uegaki 2014:(13) modified)

What (16a) shows us is that, when the disjuncts are smaller than VP, the only reading (16a) has is a Y/NQ. Notice that there are two *kas* in this question. The word *ka* has two functions in Japanese, one as the question particle and the other as the disjunction marker. The first *ka* in (16a) is the disjunction marker because its complement is a noun *koohii* (coffee) rather than a question. The second *ka*, on the other hand, is the question marker.

Turning to (16b), the disjuncts are VPs. The interpretation is ambiguous. The first reading (16b) can have is an AltQ. In this reading, both *kas* are question particles. This is supported by the fact that an optional coordinator *soretomo* can occur between the two disjuncts. The other reading (16b) can have is a Y/NQ. When being interpreted as a Y/NQ, *soretomo* cannot be added. Instead, the first *ka* functions as the disjunction marker and the second *ka* is the question particle.

Uegaki’s (2014) second observation is that a sentential operator that sits above a disjunction may not take scope over the disjunction. This suggests the disjuncts are probably



larger than just VP. Example (17) is taken and modified from Uegaki (2014:(18)). The sentential operator *hazu* (must), an empirical necessity operator, only occurs once in the second disjunct. The sentence is reported to have two readings, a Y/NQ and an AltQ.

- (17) a. Taro-ga [ [ koohii-o nomu *ka* ocha-o nomu ]-**hazu** ]-*ka*.  
 Taro-NOM [ [ coffee-ACC drink DISJ tea-ACC drink ]-**must** ]-Q-PRT.  
 Y/NQ reading: Is it true that Taro must drink coffee or tea?
- b. Taro-ga [ koohii-o nomu *ka* ] (soretomo) [ ocha-o nomu-**hazu-ka** ].  
 Taro-NOM [ coffee-ACC drink Q-PRT ] (DISJ) [ tea-ACC drink-**must-Q-PRT** ]  
 AltQ reading: Which is true: Taro drinks coffee or he **must** drink tea?

In the Y/NQ reading, the first *ka* is a disjunction coordinator. The sentential operator *hazu* takes wide scope over the whole disjunction. The final *ka* indicates that the sentence is a question. This reading is the only Y/NQ reading (17a) can have.<sup>7</sup> The interpretation given in (17b) is also the only AltQ reading the sentence can have. In this AltQ reading, the word *hazu* takes narrow scope within the second disjunct. Uegaki argues that the narrow scope of *hazu* is only possible when the disjuncts are at least of the size containing the site where the modal can occur. Since *hazu* (must) is an epistemic necessity operator and sentential (Takubo 2009, Larm 2018, Rieser 2019), its position is higher than VP or possibly higher than TP (Hacquard 2017).

The third observation that Uegaki (2014) presents concerns the question particles. In Japanese AltQs, each disjunct must have one question particle, either *ka* or *no*.<sup>8</sup> The particles in the disjuncts also must be the same in order for the sentence to be an AltQ.

<sup>7</sup>Can (17) have a third reading which is a Y/NQ with *hazu* (must) interpreted in the second disjunct only? This hypothetical reading is illustrated in (i). As it turns out, this reading is not viable, not even when (17a) is embedded. Thanks to Yoshio Miyata (p.c.) for the judgement and clarification.

- (i) Taro-ga [ [ koohii-o nomu ] *ka* [ ocha-o nomu-**hazu** ] ]-*ka*.  
 Taro-NOM [ [ coffee-ACC drink ] DISJ [ tea-ACC drink-**must** ] ]-Q-PRT  
 Y/NQ reading: Is it true that Taro drinks coffee or he must drink tea?

<sup>8</sup>However, Uegaki (2014) gives the example in (ii) as an AltQ, in which there is no question particle in the first disjunct on the surface. The surface size of the disjuncts is also smaller than VP, which is to the contrary of his first observation. Uegaki claims that the surface structure of the first disjunct is a result of backward gapping.

- (ii) ... [ Taro-ga koohii-o ~~non-da-ka~~ ] (soretomo) [ ~~Taro-ga~~ ocha-o non-da-ka ].  
 ... [ Taro-NOM coffee-ACC drink-PAST-Q-PRT ] DISJ [ ~~Taro-NOM~~ tea-ACC drink-PAST-Q-PRT ]  
 (Embedded) AltQ reading: Which is true: Taro drinks coffee or he drinks tea?

However, in such AltQs, it is not possible to put *hazu* (must) in the second disjunct and interpret it locally, no matter the question is embedded or not (Yoshio Miyata, p.c.). All sentences in (iii) are bad as AltQs. I leave open the question of why those sentences are bad and if they are counterexamples to Uegaki's proposal.

- (iii) a. \* ... Taro-ga koohii soretomo ocha-o nomu-**hazu-ka**.  
 ... Taro-NOM coffee DISJ tea-ACC drink-**must-Q-PRT**

## 4.2 AltQs as disjoined Y/NQs does not work for Mandarin Chinese

### 4.2.1 Disjoining Y/NQs with *haishi*

Turning to Chinese AltQs, we want to know whether they are also disjoined Y/NQs. The answer is no. At least the surface structure does not suggest so. As illustrated in (18), simply disjoining two Y/NQs with *haishi* does not give us an AltQ. As long as the distinct feature of each type of Y/NQs (i.e., the particle *ma* (18a) and A-not-A (18b)) is kept in the disjuncts, the sentences are bad in the sense of having no interpretable meaning at all.

- (18) Do you eat rice or noodles?
- a. \* [ni chi mifan *ma*] *haishi* [ni chi miantiao *ma*]?  
you eat rice *ma haishi* you eat noodle *ma*
- b. \* [ni chi-*bu*-chi mifan] *haishi* [ni chi-*bu*-chi miantiao]?  
you eat-NEG.-eat rice *haishi* you eat-not-eat noodle

Compared to their Japanese counterparts, Chinese AltQs behave differently. First of all, on the surface, the disjuncts in Chinese AltQs can be much smaller than VP or clausal, as illustrated in (7) while Japanese AltQs cannot (however, see the example in footnote 8).

Second, a sentential operator above the disjunction has to take wide scope. This is shown in (19a-b). For the disjunction to take scope over the operator, the disjuncts need to be clausal, as in (19c).

- (19) a. ta **bixu** [ he cha *haishi* kafei ] ?  
he **must** [ drink tea *haishi* coffee ]  
“Does he have to drink tea or coffee?”
- b. ta **bixu** [ he cha *haishi* he kafei ] ?  
he **must** [ drink tea *haishi* drink coffee ]  
“Does he have to drink tea or drink coffee?”
- c. [ ta **bixu** he cha ] *haishi* [ ta he kafei ] ?  
[ he **must** drink tea ] *haishi* [ he drink coffee ]  
“Does he have to drink tea, or does he drink coffee?”

If the disjuncts in (19a-b) were underlyingly clausal, as illustrated in (20), either the expected reading would be the same as (19c), or the deleted part would be not a constituent, or the reading is not the one perceived.

- 
- b. \* Taro-ga koohii soretomo ocha-o nomu-**hazu**-no.  
Taro-NOM coffee DISJ tea-ACC drink-**must**-Q-PRT
- c. \* Taro-ga koohii soretomo ocha-o nomu-**hazu**.  
Taro-NOM coffee DISJ tea-ACC drink-**must**

(20) a. Wrong LFs for (19a)

ta [ **bixu** he cha ] *haishi* [ he kafei ] ?  
he [ **must** drink tea ] *haishi* [ ~~drink~~ coffee ] ?

ta [ **bixu** he cha ] *haishi* [ ~~bixu~~-he kafei ] ?  
he [ **must** drink tea ] *haishi* [ ~~must~~-drink coffee ] ?

b. Wrong LF for (19b)

ta [ **bixu** he cha ] *haishi* [ he kafei ] ?  
he [ **must** drink tea ] *haishi* [ drink coffee ] ?

Instead, I propose that the correct LFs for (19a-b) are the ones in (21). Details will be given in Section 5.

(21) a. Proposed LF for (19a)

ta **bixu** he [ cha *haishi* kafei ] ?  
he **must** drink [ tea *haishi* coffee ] ?

b. Proposed LF for (19b)

ta **bixu** [ he cha *haishi* he kafei ] ?  
he **must** [ drink tea *haishi* drink coffee ] ?

c. Proposed LF for (19c)

[ ta **bixu** he cha ] *haishi* [ ta he kafei ] ?  
[ he **must** drink tea ] *haishi* [ he drink coffee ]

So far, neither the surface structure nor the semantic interpretation suggests or prefers that Chinese AltQs are disjointed Y/NQs. However, it is not impossible to say that the disjuncts are underlyingly Y/NQs but the distinct features are deleted on the surface, as shown in (22a), where two *ma*-Qs are disjointed by *haishi*, and then *ma* is deleted from each disjunct.

(22) [ni chi mifan] *haishi* [ni chi miantiao]?

you eat rice *haishi* you eat noodle

“Do you eat rice or noodles?”

a. [ni chi mifan ~~*ma*~~] *haishi* [ni chi miantiao ~~*ma*~~]

If it is indeed the case, one question has to be asked: How can the question particles be deleted? One possibility is that there is a mechanism by which only *haishi* is realized when *ma* and *haishi* are next to each other. However, this cannot explain why the second *ma* can also be deleted as it is far away from *haishi* (Prof. Seth Cable, p.c.).<sup>9</sup> Another possible

<sup>9</sup>It will be shown in Section 7 and Section 8 example (78) that *ma* cannot co-occur with *haishi* at all.

explanation is to assume a split CP structure for Chinese (among others, Paul 2014, Pan and Paul 2016), and *ma* is located in a specific layer in such a structure. Perhaps, AltQs have certain constraints that the layer containing *ma* has to be deleted. But then, since the layer that hosts *ma* is bound to be deleted, why would it be generated in the first place? The situation is even more complicated if AltQs are formed by disjoined A-*not*-A questions because, at least for now, there is no clue how to delete the *not*-A part in each disjunct.

In this subsection, we have seen that *haishi* may not disjoin Y/NQs. This observation points out an important property of *haishi*. I will come back to it in Section 7.

#### 4.2.2 Disjoining Y/NQs with *huozhe*

One difference between Chinese AltQs on the one hand, and Japanese or Hindi-Urdu AltQs on the other is that the former has a specific coordinator *haishi* for AltQs but the latter two do not. What will happen, then, if we use *huozhe*, the plain *or*, to disjoin Y/NQs, imitating the Japanese and Hindi-Urdu AltQs? Let us consider the sentences in (23).

- (23) Do you eat rice or noodles?
- a. [ni chi mifan *ma*] *huozhe* [ni chi miantiao *ma*]?  
     you eat rice *ma* or      you eat noodle *ma*
- b. [ni chi-bu-chi mifan] *huozhe* [ni chi-bu-chi miantiao]?  
     you eat-*not*-eat rice or      you eat-*not*-eat noodle

In (23a), two *ma*-questions are disjoined by *huozhe*, and (23b) has two disjoined A-*not*-A questions. Compared to (18a-b), using *huozhe* as the coordinator saves the sentences from being uninterpretable but they are not AltQs. I will use (24) and (25) to explain the reason.

Examples (24) and (25) are an AltQ and a Y/NQ disjunction with *huozhe* respectively. Their possible answers are offered below each question.<sup>10</sup> If we follow the classic Hamblin (1976) Alternative Semantics and assume that the denotation of a question is a set of its possible answers, based the possible answers to (24) and (25), the denotation of (25) is different from the one of (24). Let us look at the possible answers to (24) first.

- (24) ni chi mifan *haishi* miantiao?  
     you eat rice *haishi* noodle  
     “Do you eat rice or noodles?”

**Possible answers:**

---

<sup>10</sup>My intuition is that (23b) behaves the same as (25) with respect to their possible answers. Thus, I do not discuss (23b) separately.

- |                     |           |               |
|---------------------|-----------|---------------|
| a. (I eat) rice.    | c. # Yes. | e. ? Both.    |
| b. (I eat) noodles. | d. # No.  | f. ? Neither. |

(25) [ni chi mifan *ma*] *huozhe* [ni chi miantiao *ma*]?  
 you eat rice *ma* or you eat noodle *ma*  
 “Do you eat rice? Or do you eat noodles?”

**Possible answers:**

- |                   |             |             |
|-------------------|-------------|-------------|
| a. I eat rice.    | c. (?) Yes. | e. Both.    |
| b. I eat noodles. | d. No.      | f. Neither. |

As shown in (24), the answers to an AltQ can be either just one disjunct or a whole sentence containing that disjunct (24a-b). These two answers are always acceptable to an AltQ no matter in what context the question is asked. Answering *yes* or *no* (24c-d) is out of the question as they do not solve the question at all. Lastly, following Biezma and Rawlins (2012), I consider *both* and *neither* as less compliant answers because their acceptability depends on contexts. Hence, (24e-f) are marked with a question mark.

The expected answers to (25) are obviously different from the ones to (24). For cases that one of the alternatives is correct, one needs to spell out the correct proposition, as in (25a-b). Simply saying *mifan* (rice) or *miantiao* (noodles) is not sufficient. This indicates that the alternatives are likely not merely the different part in each disjunct as in (24) but propositions. Moving onto (25d-f), they are perfectly fine with (25). This wouldn't be expected if (25) were an AltQ. The reason, as mentioned above, is that they are the less compliant AltQ answers which are only licensed in special contexts. Lastly, the answer in (25c), a simple *yes*, is not as bad as the *yes* answer in (24) but is a less compliant answer because it does not always offer sufficient information to solve the question. Suppose (25) is asked in the context (26a). The answers listed in (25) all offer enough information for the researcher to take the next step. That is, the researchers should either continue the data collection (25a-c,e) or exclude the subject from the study (25d,f). On the other hand, if the context is (26b), the *yes* answer wouldn't allow the researcher to move on to the next step because they need more information to decide which questionnaire to give.

(26) Context

- a. A researcher is collecting data for the study of Chinese eating habits. They only need the data from those who eat rice or noodle.
- b. A researcher is collecting data for the study of Chinese eating habits. They only need the data from those who eat rice or noodle. They have three sets of questionnaires. One is designed for those who only eat rice. Another is for the people who only eat noodles. The third one is for those who eat both.

Through the comparison between the possible answers to (24) and (25), it is clear that the two types of questions are different. However, of course, such a simple comparison is not sufficient. Since (25) is grammatical, we naturally want to know what it is.

Disjunctions of Y/NQs are not only observed in Chinese but also in English. Hoeks and Roelofsen (2020) study English Y/NQ disjunctions and find that Y/NQ disjunctions (e.g., (27)) form single questions, which are neither AltQs nor simply Y/NQs. Example (27) is a disjunction of two Y/NQs. The upward arrows indicate rising intonations. The possible answers to (27) are listed in (28).

- (27) Does Mary speak French  $\uparrow$  or does she speak German  $\uparrow$ ?  
(Hoeks and Roelofsen 2020:(16))
- (28) a. She speaks French (but not German).  
b. She speaks German (but not French).  
c. She speaks neither French nor German.  
d. She speaks both French and German.  
e. # Yes. / No.

Apparently, answering *yes* or *no* does not solve the question. Thus, (27) behaves differently from Y/NQs. As discussed above, answers meaning *neither* or *both* are not always acceptable responses to an AltQ. However, (28c-d) are possible answers to (27) no matter in what context the question is. Hence, (27) is also not an AltQ.<sup>11</sup>

Comparing (25) and (27-28) side by side, Y/NQ disjunctions in Chinese behave the same as what Hoeks and Roelofsen (2020) argue for the English ones. Thus, two *ma* questions disjoined by *huozhe* form neither an AltQ nor a Y/NQ but are a special kind of questions. One important question that remains to be answered is why Japanese and Hindi-Urdu Y/NQs disjunctions form AltQs but not the type of questions discussed in Hoeks and Roelofsen (2020). I have to leave this question for further study.

## 5. Deriving and interpreting an AltQ

In the previous section, it has been established that disjoining two Y/NQs does not form an AltQ in Mandarin Chinese. Then, how are Chinese AltQs derived and interpreted? The next two sections aim at answering this question. The current section discusses the derivation and interpretation of two types of AltQs, one with deletion and the other without. Section 5.1 to 5.2 focus on the AltQs without deletion, followed by Section 5.3 on AltQs with deletion. The analysis offered here assumes that *haishi* disjunctions introduce alternatives which have to be selected by the *Q* operator. Supporting evidence for this assumption will be presented in Section 6.

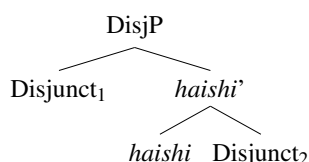
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<sup>11</sup>In Hoeks and Roelofsen (2020), (28d) is not directly listed as an answer to (27). Instead, (28d) is predicted to be an answer by an assumption the authors make: if a proposition *p* resolves the issue raised by a question and  $p' \subset p$ , then  $p'$  also resolves the issue. Because (28a-b) can resolve the issue, and (28d) is stronger than either of them, (28d) also resolves the issue raised by (27).

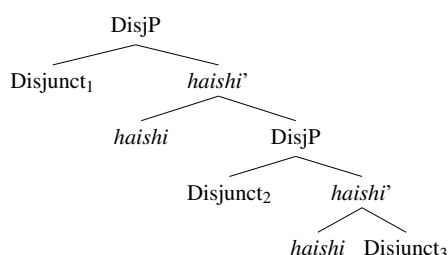
## 5.1 AltQs without deletion

I propose that a Chinese AltQ does not involve deletion when the disjuncts connected by *haishi* are of the same category and size. To start with, the structure in (29) is proposed for a *haishi* disjunction. A *haishi* disjunction forms a DisjP whose head is the coordinator *haishi*. The disjuncts are local. They are constituents of the same category and size which vary over a big range as illustrated in (7). Because of the wide variation, I assume that *haishi* is a disjunct collector which has no restrictions on the category of its disjuncts.<sup>12</sup> What *haishi* does is to put the disjuncts into a set as alternatives. This will be illustrated in detail in Section 5.2.

(29) DisjP with local disjuncts



(30) recursive DisjP



A DisjP can be recursive, as shown in (30). That means the disjuncts themselves can be a DisjP. This recursion is supported by empirical data. For example, (31) is a legitimate AltQ (although not a good one).

- (31) ni yao yi-jin *haishi* liang-jin *haishi* san-jin *haishi* si-jin ... xia?  
 you want one-CL. *haishi* two-CL. *haishi* three-CL. *haishi* four-CL. ... shrimp  
 “Do you want half a kilo, one kilo, one and a half kilos or two kilos ... of shrimp?”

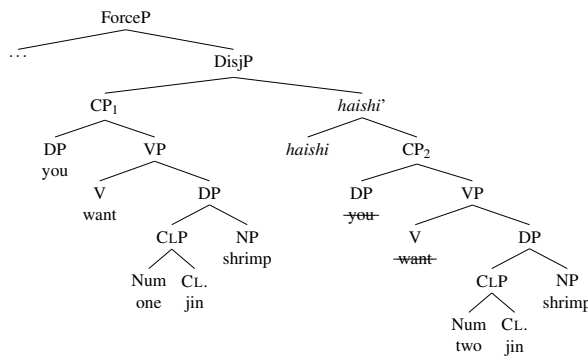
The advantage of (29) is that deletion is in general unnecessary. Suppose we want to ask the question in (32), which can have three surface realizations (32a-c). The example in (32c) is what I will argue that involves deletion. I will come back to it later. Focusing on (32a-b), what are the imaginable structures they could receive?

- (32) Do you want half a kilo of shrimp or one kilo of shrimp?
- a. ni yao [ yi-jin xia ] *haishi* [ liang-jin xia ]?  
 you want [ one-CL. shrimp ] *haishi* [ two-CL. shrimp ]
- b. ni yao [ yi-jin ] *haishi* [ liang-jin ] xia?  
 you want [ one-CL. ] *haishi* [ two-CL. ] shrimp
- c. ni yao yi-jin xia *haishi* liang-jin?  
 you want one-CL. shrimp *haishi* two-CL.

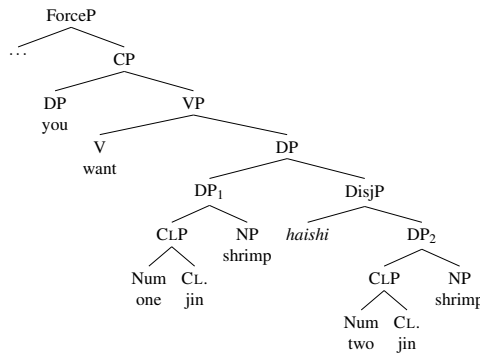
<sup>12</sup>This will be revised in Section 7.

Starting with (32a), one derivation of it can be to disjoin two CPs and delete *you want* in the second disjunct. This is illustrated in (33a).<sup>13</sup> The problem of this deletion is that the deleted part is not a constituent. The second logically possible structure for (32a) has the VPs as the disjuncts. Forward deletion is then applied to remove the second verb *want*. This structure does not have non-constituent deletion. However, (33b) is an even more economical way to derive the same surface structure without any deletion. Here, the disjuncts are two DPs with identical internal structures.

- (33) you want one-CL. shrimp *haishi* two-CL. shrimp  
 a. Two CPs with deletion in the second disjunct



- b. Local disjuncts without deletion



<sup>13</sup>I assume that the nouns in Chinese are projected to DP just for the sake of exposition. Besides that, each AltQ projects at least to the ForceP level. Many details are left out but the sketches should suffice the purpose here.

Concerning the syntactic structure of [Num. CL. N], a growing body of research has begun to reach a consensus that the two structures below are needed for [Num. CL. N]. See Jiang et al. (2020), Jiang (2008, 2017), Jin (2013), and Zhang (2013) for details. There are two structures, (i-ii) below, suggested for [Num. CL. N] structure. Jiang et al. point out that although researchers agree the co-existence of the two structures, it's not clear yet which structure is responsible for which types of classifiers. Nevertheless, people agree on that measure classifiers, like *jin* (half a kilo), form a constituent with the numeral. That is, (ib) is the structure we should consider.

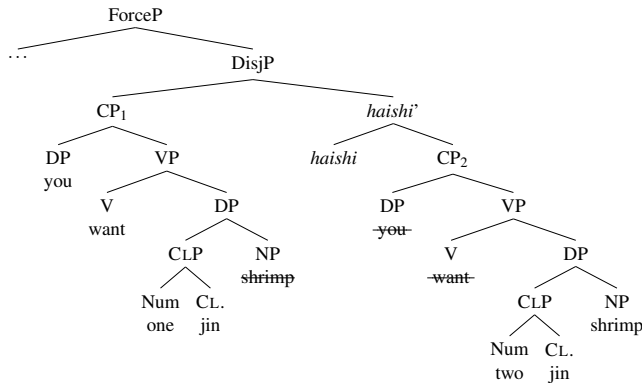
- (i) a. CL. and NP form a constituent  
 [ Num. [ CL. NP ] ]  
 b. Num. and CL. form a constituent  
 [ [ Num. CL. ] NP ]



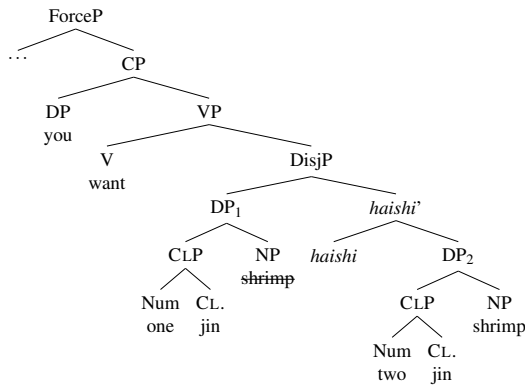
Turning to (32b), repeated in (34), the most succinct derivation is the one in (34c). If the disjunct size is CP as in (34a) (or VP), the derivation will involve deletions in both disjuncts. If the disjuncts are of size DP as in (34b), the backward deletion is needed. Once again, when the disjunction happens locally, as in (34c), no deletion is needed.

(34) you want one-CL. *haishi* two-CL. shrimp

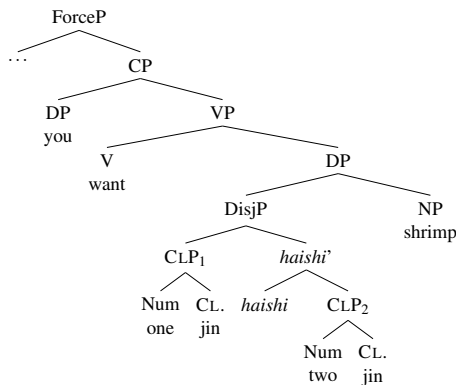
a. Two CPs with deletion in both disjuncts



b. Two DPs with deletion in the first disjunct



c. Local disjuncts without deletion



Up to this point, the only advantage of the local disjunction proposal is that no deletion is needed. However, Erlewine (2017) presents empirical data that supports the no deletion account. The data concern the distribution of the focus-sensitive operator *shi*. This operator, which is also used as a copula, has cleft-like semantics (Paul and Whitman 2008, Erlewine 2015). It can only adjoin to the clausal spine and needs to be as low as possible in the structure (Erlewine 2017). Erlewine provides (35) as an example to illustrate that. The focused item is the object *kafei* (coffee). Because *shi* needs to be as low as possible but stay on the clausal spine, the only possible position is the VP.

- (35) { \*shi } wo { ✓shi } mai le { \*shi } [kafei]<sub>F</sub> gei Zhangsan.  
 shi I shi buy<sub>ASP</sub> shi coffee give Zhangsan  
 "I bought [coffee]<sub>F</sub> for Zhangsan." (... not tea)

The same distribution of *shi* is found in AltQs. Erlewine's example is reported in (36). In order to focus the object, the focus operator *shi* can only be attached to VP.

- (36) { \*shi } ni { ✓shi } mai le { \*shi } [kafei haishi hongcha]<sub>F</sub> gei Zhangsan.  
 shi you shi buy<sub>ASP</sub> shi coffee haishi tea give Zhangsan  
 AltQ reading only: Did you buy coffee or tea for Zhangsan?

If the disjuncts were underlyingly clausal, as Erlewine points out, the predicted position of *shi* would be the beginning of the sentence so that *shi* could have the disjunction in its scope. This is illustrated in Erlewine's example modified and cited below as (37).

- (37) { \*shi } [ [ni mai le kafei gei Zhangsan] haishi [ni mai le hongcha gei  
 shi [ [you buy<sub>ASP</sub> coffee give Zhangsan] haishi [you buy<sub>ASP</sub> tea give  
 Zhangsan] ]?  
 Zhangsan] ]  
 Intended AltQ reading: Did you buy coffee or tea for Zhangsan?

Of course, the predicted position in (37) is wrong. The correct position of *shi* is between *ni* (you) and *mai* (buy), as in (36). Thus, the disjuncts *kafei haishi hongcha* are not underlyingly clausal.

## 5.2 Interpretation of AltQs without deletion

This subsection presents how a Chinese AltQ is interpreted in Hamblin's (1976) Alternative Semantics which assumes that every lexical item denotes a set. If the item does not introduce alternatives, its denotation is a singleton set containing the usual lexical entry. Otherwise, the item denotes a set of alternatives (Cable 2018:(13a)).

First of all, the function of *haishi* is to collect alternatives which are later selected by the *Q* operator. Because Chinese AltQ disjuncts vary in their size and category, I suggest that

*haishi* has the syncategorematic lexical entry in (38). The  $Q$  operator (39) is an identity function whose argument is of type  $\langle s, t \rangle$ . Following Hamblin (1976), I assume that the denotation of a question is a set of its possible answers.

$$(38) \quad \llbracket \alpha_\tau \textit{ haishi} \beta_\tau \rrbracket^{w,g} = \{ \llbracket \alpha_\tau \rrbracket^{w,g} \} \cup \{ \llbracket \beta_\tau \rrbracket^{w,g} \}$$

$$(39) \quad \llbracket Q \rrbracket^{w,g} = \{ \lambda P_{\langle s, t \rangle}. P \}$$

The alternatives introduced by *haishi* grow into larger structures via Pointwise Function Application in (40) (Cable 2018:(13b)) until they encounter the appropriate quantificational operator  $Q$  in ForceP. This is illustrated in example (41).

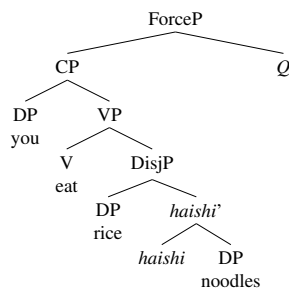
(40) Pointwise Function Application

If  $X$  has two daughters  $Y$  and  $Z$ , and  $\llbracket Y \rrbracket$  is a set of objects of type  $\alpha$ , while  $\llbracket Z \rrbracket$  is a set of objects of type  $\langle \alpha, \beta \rangle$ , then  $\llbracket X \rrbracket = \{ f(x) : f \in \llbracket Z \rrbracket \text{ and } x \in \llbracket Y \rrbracket \}$

(41) ni chi mifan *haishi* miantiao?

you eat rice *haishi* noodles

“Do you eat rice or noodles?”



$$a. \quad \llbracket \textit{ DisjP} \rrbracket^{w,g} = \{ \llbracket \textit{ rice} \rrbracket^{w,g} \} \cup \{ \llbracket \textit{ noodles} \rrbracket^{w,g} \} \\ = \{ \textit{rice}, \textit{noodles} \}$$

$$b. \quad \llbracket \textit{ VP} \rrbracket^{w,g} = \{ f(x) : f \in \llbracket \textit{ eat} \rrbracket^{w,g} \text{ and } x \in \llbracket \textit{ DisjP} \rrbracket^{w,g} \} \\ = \{ f(x) : f \in \{ [\lambda x. \lambda y. y \textit{ eats} x] \} \text{ and } x \in \{ \textit{rice}, \textit{noodles} \} \} \\ = \{ [\lambda y. y \textit{ eats rice}], [\lambda y. y \textit{ eats noodles}] \}$$

$$c. \quad \llbracket \textit{ CP} \rrbracket^{w,g} = \{ \textit{you eat rice}, \textit{you eat noodles} \}$$

$$d. \quad \llbracket \textit{ ForceP} \rrbracket^{w,g} = \{ f(x) : f \in \llbracket Q \rrbracket^{w,g} \text{ and } x \in \llbracket \textit{ CP} \rrbracket^{w,g} \} \\ = \{ \textit{you eat rice}, \textit{you eat noodles} \}$$

### 5.3 AltQs with deletion

This subsection presents AltQs that involve deletion. An example is given in (42). I claim that (42) involves deletion under identity in the second disjunct. Depending on where we put the contrastive focus in the rest of the sentence, the recovered meaning of the second disjunct varies, as shown in (42a-c). Without the focus, the sentence is ambiguous.

- (42) ta gei le John yi-ben shu *haishi* Tom?  
 he give ASP. John one-CL. book *haishi* Tom
- a. Focus on *he*  
**he** give ASP. John one-CL. book *haishi* Tom  
 “Did he give John a book or did Tom give John a book?”
- b. Focus on *John*  
 he give ASP. **John** one-CL. book *haishi* Tom?  
 “Did he give John a book or did he give Tom a book?”
- c. Focus on *book* (but not necessary)  
 he give ASP. John one-CL. **book** *haishi* Tom?  
 “Did he give John a book or did he give John Tom?”

Let us go through each example in (42) together. Example (42a) has the contrastive focus stress on the subject and *Tom*. In the recovered meaning, *Tom* is the subject. In (42b), the indirect object *John* and *Tom* are contrastively focused. Correspondingly, *Tom* becomes the indirect object in the recovered meaning. For (42c), although the direct object *book* can take the contrastive focus, it is not necessary because it yields the same reading as the one we get without the focus (i.e., the local disjunction reading).

The fact that the reading of (42) varies with the position of the contrastive focus verifies that deletion is involved in the second disjunct. Otherwise, we wouldn't have been able to the reconstruct different readings. One might argue that what happened in (42) is movement rather than deletion. For example, the LF for (42a) could be as in (43).

- (43) [he  $t_i$  give ASP. John one-CL. book] [*haishi* Tom]<sub>i</sub>

However, looking at data like (44), it is hard to say how it is derived via movement since *Shanghai* and *fast* do not form a constituent.<sup>14</sup> But with the deletion under identity analysis, what we need to do is to delete *to Germany*, a constituent, in the second disjunct, as illustrated in (44a).

- (44) beijing qu deguo kuai *haishi* shanghai kuai?  
 Beijing to Germany fast *haishi* Shanghai fast  
 “Which flight is faster: Beijing to Germany, or Shanghai to Germany?”
- a. LF with deletion under identity  
 [Beijing to Germany fast] *haishi* [Shanghai go ~~Germany~~ fast]

Example (45) makes the same point. It a possible AltQ although it is hard to accommodate a good context.

<sup>14</sup>The example is from a real conversation between me and a friend.

- (45) [ta zai John shengri de shihou gei le John yi-ben shu] *haishi* [Tom zai he on John birthday<sub>DE</sub> time give<sub>ASP.</sub> John one-CL. book *haishi* Tom at guonian de shihou]?  
new-year<sub>DE</sub> time

“Which is true: he gave John a book on John’s birthday, or Tom gave John a book when it was the new year?”

- a. LF with deletion under identity  
[he on John birthday<sub>DE</sub> time give<sub>ASP.</sub> John one-CL. book] *haishi* [Tom at new-year<sub>DE</sub> time ~~give<sub>ASP.</sub> John one-CL. book~~]

What we see in (45) is that the second disjunct is a proper name with a prepositional phrase. For such phrases, the movement account is impossible because the words do not form a continuous phrase. On the other hand, with the deletion under identity account, (45) is derived by deleting the VP in the second disjunct, which is a constituent.

After recovering the deleted site with the help of contrastive focus, the disjuncts in AltQs with deletion have the same size and category. Hence, the derivation and interpretation of AltQs with deletion should be just the same as the one proposed for AltQs without deletion in Sections 5.1 and 5.2.

To sum up, compared to the clausal disjunct analyses of AltQs offered by Han and Romero (2004) for cross-linguistic data, the current proposal claims that deletion only occurs when it is necessary, or from an opposite perspective, we could say that reconstruction only happens when it is needed. For the meaning reconstruction, contrastive focus is essential. Its position determines what reading an AltQ gets. In other cases, that is, AltQs without deletion, the disjuncts are local. This is not only economic but is also supported by empirical data (Erlewine 2017).

## 6. *haishi* is restricted to interrogative environment

The analysis in Section 5 assumes that the alternatives introduced by *haishi* have to be selected by the *Q* operator. This section provides evidence to support the assumption.

Mandarin Chinese has two coordinators for disjunctions, *haishi* for AltQs and *huozhe* for other cases. Based on this distribution, at first glance, it seems that *haishi* must occur in interrogative environment. It is indeed the case. Song (2018) searched in the CCL online corpus and shows that *haishi* only occurs in matrix AltQs, embedded AltQs, and unconditionals. In (46) are two examples of embedded AltQs taken from Song (2018:(67-68)). That matrix and embedded AltQs contain the *Q* operator should be uncontroversial.

- (46) a. The compulsory education should be extended to 12 years. ...  
zhengyi shi xiangshang *haishi* xiangxia yanshen ...  
controversy is upward *haishi* downward extend

“... The controversy is whether this extension should be upward (to senior high school education) or downward (to preprimary education) ... ”

b. In the field of social history, ...

panduan mou yi xianxiang shi xianjinde *haishi* luohoude ...  
decide certain one phenomenon is advanced *haishi* outdated

“... in order to decide whether a phenomenon is advanced or outdated...”

Below are two examples of *haishi* in unconditionals taken from Erlewine (2017). Following Lin (1996), I take (47b) as an unconditional as well. Erlewine does not do that but classifies (47b) as *haishi* disjunction under *dou* (all) universal quantification. I will explain below why I take (47b) as an unconditional.

(47) a. In *no matter* unconditional

wulun Zhangsan *haishi* Lisi dadianhua lai, wo dou bu zai.  
no-matter Zhangsan *haishi* Lisi call come, I all not present  
“No matter whether Zhangsan or Lisi calls, I’m not here.”

b. Under *dou* universal quantification (essentially unconditional)

Zhangsan *haishi* Lisi *dou* jin lai le.  
Zhangsan *haishi* Lisi all enter come ASP.  
“Both Zhangsan and Lisi came in.”

Lin (1996) does not discuss *haishi* disjunctions in unconditionals. He only used it in one example to show that an empty pro subject can be anaphoric to the clausal alternatives introduced in the *wulun*-adjunct.<sup>15</sup> What Lin focuses on is unconditionals with an indeterminate phrase. He argues that the following two constructions should receive the same analysis (Lin 1996:78).

(48) a. *wulun* ... indeterminate phrase ... *dou* ...

wulun ni zuo shenme, wo dou mei yijian.  
no-matter you do what I all not opinion  
“No matter what you do, I won’t have an opinion.”

b. ... indeterminate phrase ... *dou* ...

---

<sup>15</sup>The example is cited below (Lin 1996:78).

- (i) *wulun* ta qu *haishi* bu qu, *pro* dou yu wo wu guan.  
no-matter he go *haishi* not go *pro* all with me no relation  
“No matter whether he goes or he does not go, it has no relation with me.”

ni zuo shenme, wo dou mei yijian.  
 you do what I all not opinion  
 “No matter what you do, I won’t have an opinion.”

In each construction, there is an indeterminate phrase *shenme* (what) in the adjunct and the operator *dou* in the main clause. The difference is that (48a) has *wulun* (no matter) on the surface but (48b) doesn’t. In his Chapter 3, Lin offers a detailed discussion of why and how the two constructions receive the same analysis. For this subsection, I will not reproduce his discussion but want to point out that indeterminate phrases and *haishi* disjunctions are comparable, and Lin’s analysis can be extended to *haishi* disjunctions in unconditionals.

First of all, both *haishi* disjunctions and indeterminate phrases are argued to introduce alternatives (Kratzer and Shimoyama 2002, Shimoyama 2006, Dong 2009, Biezma and Rawlins 2015). Second, both indeterminate phrases and *haishi* disjunctions are found in interrogative environment.<sup>16</sup> Indeterminate phrases typically occur in constituent questions and *haishi* typically in AltQs. Third, they both occur in the adjunct of unconditionals, as in the examples above. Fourth, when it comes to island effects, they are degraded to different degrees when they are embedded in islands but need to take wide scope (e.g., sentential subject islands, adjunct islands, and relative islands) but are judged as bad when being in *wh* islands. Song (2018) conducted a questionnaire experiment to investigate the island sensitivity of the two phrase types. Below are examples of indeterminate phrases and *haishi* disjunctions in sentential subject islands (49) and *wh* islands (50).

(49) Context: Your kids school is going to have a parents meeting. Only one of the parents need to attend this meeting. You ask your child:

- a. [ baba *haishi* mama qu jiazhang hui ] bijiao hao?  
 [ father *haishi* mother go parent meeting ] comparatively good  
 “Which is better: dad attends the parents meeting or mom attends it?”
- b. [ shei qu jiazhang hui ] bijiao hao?  
 [ who go parent meeting ] comparatively good  
 “Who is the better one to attend the parents’ meeting?”

(50) Context: There are only two girls in your class, A and B. Your classmate W always knows a lot. And you know only one of the following situation is true: W knows who likes A, or, W knows who likes B. You want to make sure which one he knows. Your deskmate happens to be the best friend of W. So you ask your deskmate:

- a. W zhidao shei xihuan A *haishi* B?  
 W know who like A *haishi* B

---

<sup>16</sup>The Chinese indeterminate phrases occur in other contexts as well, for example, with an existential operator (*bu*, negation). However, since we only care about the behavior of indeterminate phrases and *haishi* disjunctions in unconditionals, the other contexts are irrelevant.

Intended: Between A and B, whom does W know that who likes?  
Literal: Uninterpretable

- b. W zhidao [ shei xihuan shei ] ?  
W knows [ who like who ]  
Intended: Whom does W know that who likes?  
Literal: W knows who likes whom ↑?

On average, in the questionnaire, a *haishi* disjunction embedded in a sentential subject island given its context, for example (49a), received 5.33 points out of seven while an indeterminate phrase in the same island and context received 4.44 points. For *wh* islands, a *haishi* disjunction embedded in a *wh* island was rated on average 2.27 points, and the score of an indeterminate phrase in the same island was 2.17. As noted in Song (2018), however, the questionnaire had a shortcoming in its design. The target sentence in (50a) was uninterpretable while other target sentences in the questionnaire were interpretable and were only bad in the given contexts. Nonetheless, Song consulted Chinese native speakers with (51) and confirmed that the sentence can only have a Y/NQ reading but not an AltQ one, which means the embedded *haishi* disjunction cannot take wide scope.

- (51) ni xiang zhidao Lisi mai le Huawei *haishi* iPhone?  
you want know Lisi buy <sub>ASP</sub> Huawei *haishi* iPhone  
Intended: Which of Huawei and iPhone do you want to know that Lisi bought?  
Literal: Do you want to know whether Lisi bought Huawei or iPhone?

Coming back to the unconditionals with *haishi*. Examples in (52) form a minimal pair of *haishi* unconditionals with and without *wulun* (no matter). The first sentence is mine, and the second one is the same as in (47b). What we see is that *haishi* disjunctions can occur in the (*wulun*) ...*dou* ... structure, just as indeterminate phrases in (48). The sentences in (52) are also both acceptable and express the same semantic content.<sup>17</sup> Because *haishi* disjunctions and indeterminate phrases behave alike in interrogative environment, I consider both sentences in (52) as unconditionals.

- (52) a. *wulun* Zhangsan *haishi* Lisi *dou* jin lai le.  
no-matter Zhangsan *haishi* Lisi all enter come <sub>ASP</sub>.  
“No matter it was Zhangsan or Lisi, they both came in.” / “Both Zhangsan and Lisi came in.”

---

<sup>17</sup>However, (52b) is degraded compared to (52a). One possible explanation is that, without *wulun*, an addressee processes the sentence as an AltQ when they hear *haishi* since *haishi* only occurs in these two contexts, either AltQs or unconditionals with the later typically led by *no matter*. But later, when hearing *dou*, they need to switch the interpretation from an AltQ to an unconditional. That takes extra effort. Hence the sentence is judged degraded. For unconditionals with indeterminate phrases, because the interpretation of indeterminate phrases heavily relies on the context, hearing an indeterminate phrase will not trigger an interrogative reading of it immediately.



- b. Zhangsan *haishi* Lisi *dou* jin lai le.  
 Zhangsan *haishi* Lisi all enter come ASP.  
 “Both Zhangsan and Lisi came in.”

As a result, what Erlewine (2017) classifies as two scenarios in (47) are actually both unconditionals. The question now is whether the adjunct in an unconditional provide interrogative environment. The answer is *yes*.

That the adjunct in an unconditional has an interrogative semantics is not a new idea. It is explored in Rawlins (2013) for English and briefly discussed in Lin (1996) for Chinese. Rawlins (2013) offers an analysis of English unconditionals couched within Hamblin’s (1976) Alternative Semantics. He discusses three types of unconditionals, as listed in (53). It is claimed that the unconditional adjuncts in all three types of unconditionals introduce alternatives (i.e., by *or not*, *who* and *whoever*).

- (53) a. Alternative unconditional  
 $\forall [Q$  [Whether or not Alfonso goes to the party], it will be fun.]
- b. Headed unconditional  
 $\forall [Q$  [No matter who goes to the party], it will be fun.]
- c. Constituent unconditional  
 $\forall [Q$  [Whoever goes to the party], it will be fun.]

As illustrated in the example above, Rawlins (2013) assumes the presence of the *Q* operator in the adjuncts, which is either required by the *wh* elements (i.e., *whether*, *who* and *whoever*), or is incarnated as *no matter/regardless of*.<sup>18</sup> What *Q* does is to take the alternatives in the adjunct and returns them as a set. This set functions as the domain restriction to a main clause operator. In the above examples, the operator is the modal *will*. The composition of the adjunct and main clause is done via Pointwise Function Application. That gives us a set of alternatives as the denotation which is roughly:

$$\left\{ \begin{array}{l} \text{If Alfonso goes to the party, it will be fun} \\ \text{If James goes to the party, it will be fun} \\ \text{If Ann goes to the party, it will be fun} \\ \dots\dots \end{array} \right\}$$

The matrix clauses in (53), however, are declaratives. A set of propositions cannot be the denotation of a declarative. To solve this issue, Rawlins assumes that a Hamblin universal operator is inserted by default for assertions to return a singleton set. It functions as a generalized conjunction. In a nutshell, there are three main components in English unconditionals. The first one is alternative introducing elements in adjuncts. The second one is

<sup>18</sup>Rawlins (2013:147) assumes that *no matter* or *regardless of* licenses interrogative complements.

the *Q* operator that selects the alternatives. Lastly, a universal operator is needed to return a singleton set.

Among the three types of unconditionals, the Chinese unconditionals containing *haishi* disjunctions, for example (54), resemble superficially the headed unconditionals the most. Both of them are led by a phrase containing negation, *no matter* in English and *wulun* in Chinese.<sup>19</sup> Both phrases are followed by a clause, *who goes to the party* in the English example and *Zhangsan haishi Lisi lai* in (54). Although Rawlins (2013) does not mention it, it is worth noting that English also has unconditionals as the one in (55), which match the surface structure of (54) except for the existence of *whether*.<sup>20</sup>

(54) *wulun Zhangsan haishi Lisi lai, dou shuo wo bu zai.*  
 no-matter Zhangsan *haishi* Lisi come, always say I not present  
 “No matter Zhangsan or Lisi comes, tell them I’m not here.”

(55) No matter whether **Mary** or **Joe** comes to the party, it will be fun.

Like what Rawlins (2013) argues for English unconditionals, Lin (1996) points out that *wulun* (no matter) only take question-like complements. His argument is that *A-not-A* question can occur in the adjunct in an unconditional. Lin offers the example in (56) to illustrate that.

(56) *wulun ni qu-bu-qu, wo dou yao qu.*  
 no-matter you go-not-go I all want go  
 “No matter whether you go or not, I want to go.”

That *A-not-A* questions can occur in unconditional adjuncts also confirms that Chinese unconditional adjuncts contain alternatives, together with the fact that *haishi* disjunctions and indeterminate phrases can occur in unconditionals, as they all introduce alternatives. On the other hand, if an adjunct does not contain alternatives, the sentence is ungrammatical. For example, declaratives and *ma* questions cannot occur in the adjunct of an unconditional, as shown in (57).

(57) a. \* *wulun ta shi xianfan, dou xian zhua-qi-lai.*  
 no-matter he be suspect all first catch  
 Intended: No matter whether he is the suspect, catch him first.

b. \* *wulun ta shi xianfan ma, dou xian zhua-qi-lai.*  
 no-matter he be suspect *ma* all first catch  
 Intended: No matter whether he is the suspect, catch him first.

<sup>19</sup>Besides *wulun*, Chinese unconditionals can be led by *bulun* and *buguan*. All three words start with a negation character, either *wu* or *bu*. The second characters *lun* and *guan* can mean *say* or *matter*.

<sup>20</sup>Thank you to Prof. Seth Cable for pointing out this fact to me. The words in bold in (55) indicates accent. Such an accent pattern is reminiscent of the one of the disjunction in English AltQs.

To sum up, *haishi* disjunctions only occur in interrogative contexts and introduce alternatives. Therefore, the assumption in Section 5 that only the *Q* operator can select *haishi* alternatives is valid.

## 7. Why *haishi* disjoining Y/NQs does not form AltQs

Earlier in Section 4.2, it was shown that *haishi* or *huozhe* disjoining two Y/NQs does not form an AltQ in Mandarin Chinese. There, I explained that Y/NQs disjoined by *huozhe* do not get an AltQ interpretation because they form a special kind of questions other than Y/NQs or AltQs. It is not clear yet, however, why *haishi* disjoining Y/NQs is uninterpretable in Chinese. This section argues that the badness of Y/NQ disjunction with *haishi* reveals an important property of the AltQ coordinator—*haishi* does not disjoin speech acts (Section 7.1). Alternatively, from a syntactic perspective, we might say that *haishi* requires its disjuncts to be smaller than a certain size (Section 7.2).

For the explanation purpose, only *ma* questions are considered. The reason is that the status of A-not-A questions is still under debate, and its syntactic structure is unclear. Nevertheless, knowing why *ma* questions disjoined by *haishi* or *huozhe* does not form an AltQ can shed light on the general question of why Chinese does not use the Y/NQ disjunction strategy to form AltQs.

### 7.1 *haishi* may not disjoin speech acts

Section 4.2.1 showed that *haishi* cannot disjoin Y/NQs. In fact, *haishi* also cannot disjoin sentences ending in, for example, particles *ba*, *ou*, *ei*, and *la*. Two examples are given in (58). Just as *haishi* disjoining Y/NQs, the sentences in (58) have no interpretable meaning.

- (58) a. \* ni chi mifan *ba haishi* ni chi miantiao *ba*?  
           you eat rice *ba haishi* you eat noodle *ba*
- b. \* ni chi mifan *ou haishi* ni chi miantiao *ou*?  
           you eat rice *ou haishi* you eat noodle *ou*

The particles mentioned above often come at the end of a sentence. They are called sentence-final particles (SFP). The exact meaning and functions of each SFP are still disputed because of the nuances and variety of their meanings. For the purpose here, we can roughly divide Chinese SFPs into two categories. One category of SFPs encodes hardcore grammatical information, for example, aspects (e.g., *zhe*, *laizhe*, *le*). The other SFPs express discourse-sensitive, speaker oriented meanings, and speech acts (Simpson 2014, Tang 2015, Pan and Paul 2016). Using the particle *ba* as an example, it can be used to express the speaker's uncertainty, to solicit agreement from an addressee, to indicate a compromise, to offer a suggestion, or to mitigate an imperative, et cetera. (Li and Thompson 1989, Li 2006, Kendrick 2018, Fang and Hengeveld 2020). Three examples are given in (59). Concerning the interaction between SFPs and *haishi* disjunctions, the observation is that the particles that cannot occur in *haishi* disjunctions belong to the second category.

- (59) a. Uncertainty  
 ta chi guo zaofan le *ba*.  
 he eat PAST breakfast PERF. *ba*  
 “He has had his breakfast (I think).”
- b. Solicit agreement  
 jintian shi zhouri *ba*?  
 today be Sunday *ba*  
 “Today is Sunday, right?”
- c. Imperative (e.g., dad to his son)  
 qu chi fan *ba*!  
 go have meal *ba*  
 “Go have your meal (little buddy)!”

The particle *ma* is also a SFP. Unlike other SFPs, the distribution and function of *ma* are unambiguous: it occurs in root clauses and marks Y/NQs (Li 2006, Huang et al. 2009, Simpson 2014, Pan and Paul 2016). With that being said, it does not mean *ma* realizes the C[+Q] feature or other interrogative features alike. There are mainly two reasons.

The first reason is that *ma* is not obligatory for a Y/NQ. As presented in Section 3, besides *ma* questions, there are A-not-A questions for asking a Y/NQ. As a matter of fact, more strategies are available in Mandarin Chinese. Some of them are listed in (60), with the part that signals Y/NQs underlined.

- (60) a. ni qu chi fan mei (you)?  
 you go eat rice NEG.ASP exist  
 “Have you went for a meal?”
- b. ni qu chi fan bu (chi)?  
 you go eat rice not eat  
 “Are you going for a meal?”
- c. ni shi fou qu chi fan?  
 you yes no go eat rice  
 “Are you going for a meal?”

The strategies listed above are more causal compared to *ma* questions and A-not-A questions.<sup>21</sup> Nonetheless, they can be used in the post office context in Section 3, repeated below in (61).

<sup>21</sup>Of course, there are other differences between *ma* questions and other types of Y/NQs. For example, the adverb *daodi* (on earth) fits the other Y/NQs better than *ma* questions (Huang et al. 2009, Tang 2015).

(61) Context: A tourist stopped a stranger and wanted to know if there was a post office nearby.

The second reason is that, even within Y/NQs, the distribution of *ma* is restricted. It only occurs in root Y/NQs. As (62) shows, the *ma* has to take matrix scope as in (62a). An embedded reading of *ma* (62b) is impossible.

(62) ta zhidao zhe-ge hetong yijing qian le ma  
 he know this-CL. contract already sign ASP. ma

- a. matrix *ma* is good  
 Does he know that the contract is signed?
- b. embedded *ma* is bad  
 \*He knows whether the contract is signed.

Bhatt and Dayal (2020) report a case where *ma* occurs in an embedded Y/NQ and takes the embedded scope. However, the authors also note that this kind of cases is rare. The example is in (63). They point out that, to make embedded *ma* possible, the matrix predicate must be rogative (i.e., *xiang zhidao* want to know). Besides the rogative predicate, Bhatt and Dayal also observe that *ma* is preferred to be not sentence-final, hence the adverb *zuotian* (yesterday) at the end.

(63) John \*(xiang) zhidao xiayu le ma zuotian.  
 John want know rain ASP. ma yesterday  
 “John \*(wants to) know whether it rained yesterday.”

(Bhatt and Dayal 2020:(19))

My intuition agrees with the judgment reported in Bhatt and Dayal (2020). However, it seems that having a rogative matrix predicate is not enough to embed *ma*. The verb *tan-tao* (*explore-discuss*, probe into, discuss), for example, behaves the same as *xiang zhidao* (want to know). They both can take either NP as their complement (64a) or an embedded question (64b) but not non-interrogative clauses (64c). However, *tantao* cannot take an embedded *ma* question, even when *ma* is not sentence-final (64d).

- (64) a. tamen tantao le fazhan qianjing.  
 they discuss ASP. development prospect  
 “They discussed the future development.”
- b. tamen tantao le gongsi shi fou hui shang shi jin nian.  
 they discuss ASP. company yes no will on market current year  
 “They discussed whether the company will be on the market this year.”

- c. \* tamen tantao le gongsi hui shang shi jin nian.  
 they discuss<sub>ASP</sub> company will on market current year  
 Literal: They discussed that the company will be on the market this year.
- d. \* tamen tantao le gongsi hui shang shi ma jin nian.  
 they discuss<sub>ASP</sub> company will on market ma current year  
 Intended: They discussed whether the company will be on the market this year.

One possible explanation of the contrast between *xiang zhidao* (want to know) and *tantao* (probe into, discuss) (also *zixun* consult, *taolun* discuss, etc.) can be the “three-way distinction among rogative predicates” proposed in Dayal (2020), which suggests that rogative predicates can be divided into finer categories. For the cases at hand, this amounts to say that predicates like *xiang zhidao* (want to know) are, in a sense, strong rogatives which can take full fledged questions (e.g., auxiliary inverted questions in English) while predicates like *tantao* (probe into, discuss) are less strong rogatives which can only take ‘reduced’ questions (e.g., English embedded question without auxiliary inversion). Yet, this account has one shortcoming for Chinese data because other Y/NQ strategies (as well as constituent questions and AltQs) have no problem to be embedded and take the embedded scope, even when the embedding predicate is not rogative. This is illustrated in (65).

- (65) a. ta zhidao zuotian xia-meì-xia yu.  
 he know yesterday fall-NEG.ASP-fall rain  
 “He knows whether it rained yesterday.”
- b. ta zhidao zuotian xia yu le meì.  
 he know yesterday fall rain ASP. NEG.ASP  
 “He knows whether it rained yesterday.”
- c. ta zhidao zuotian shi fou xia yu le.  
 he know yesterday yes no fall rain ASP.  
 “He knows whether it rained yesterday.”
- d. ta zhidao John qu chi fan bu chi.  
 he know John go eat rice not eat  
 “He knows whether John will go for a meal.”

Another viable explanation of the contrast is that, just like other SFPs that encode speaker-oriented meaning or speech act (e.g., *ba*), the particle *ma* exhibits root phenomenon and expresses interrogative speech act (Deng 2015). The root phenomenon of *ma* is supported by the empirical data that *ma* can hardly be embedded. In related work, Tang (2015) proposes that *ma* in contemporary Mandarin Chinese is grammaticalized as a particle that

encodes the speech act of a speaker. Thus, the question of why *ma* questions cannot be embedded is ultimately the question of why speech acts are hard to embed.<sup>22</sup>

Based on the discussion above, the Chinese data prefer the second explanation over the “three-way distinction among rogative predicates” account. Thus, I consider the particle *ma* as a root Y/NQ particle that encodes interrogative speech act. The fact that *haishi* cannot disjoin *ma* questions (and all clauses ending in speech act SFPs) indicates that *haishi* may not disjoin speech acts.<sup>23</sup>

## 7.2 *haishi* disjuncts syntactically may not be large

From the perspective of syntax, the restriction of *haishi* on its disjuncts can be formulated as that *haishi* disjuncts cannot be larger than a certain size in syntax.

Inspired by Rizzi’s (1997, 2004) split CP proposal, authors, for example, Li (2006), Paul (2014), Pan and Paul (2016), suggest that SFPs are located in CP which have a fine structure. The structure contains several layers. The order of the layers corresponds to the SFP string ordering in empirical data (Simpson 2014). In Mandarin Chinese, one sentence can have a string of SFPs at its end. The order of the SFPs follows linear constraints. For instance, (66), an example from Chao (1968) which is cited in Simpson (2014:(8)), has a SFP string *de le ba* at the end. The SFPs must be in this order. Permutations of them are not possible (i.e., *ba de le* or *le ba de* is impossible).

- (66) ta bu hui daying ni de le ba.  
 he not will promise you *de le ba*  
 “He won’t promise you now, don’t you think?”

<sup>22</sup>Why can *ma* question be embedded in (63)? From a historical linguistics perspective, by studying diachronical Chinese literature, Ota (1987) suggests that *ma* historically evolved from the negation *wu* (not) (Tang 2015), which is arguably also the origin of the aspectual negation *mei* (Pan 2002). Since Y/NQs marked by *mei* can be embedded, the occasional cases like (63) could be impacted by the historical development of *ma* and *mei*. Of course, this is only a hypothesis. Systematic study is needed.

<sup>23</sup>Those who are familiar with Chinese AltQs might raise the question of why the SFP *ne* can occur in AltQs, even massively. Along the line of the discussion so far, the occurrence of *ne* in AltQs shows that this *ne* does not express speech acts. As other SFPs, *ne* has many functions (Chao 1968, Li 2006, Constant 2011). Constant (2011) convincingly shows that the *ne* used in AltQs is a contrastive topic marker. This conclusion coincides with the purpose of an AltQ: to contrast options and let the addressee choose one of them. Thus, the massive occurrence of *ne* in AltQs is not surprising. On the other hand, if *ne* is used to express speaker-oriented information, for example, how surprised the speaker is, as in (1a), the clause containing *ne* cannot be disjoined by *haishi*, as shown in (1b).

- (1) a. ni zhang hao gao le ne!  
 you grow very tall ASP. ne  
 “How tall you are now!”  
 b. \*ni zhang hao gao le ne haishi ni bian shou le ne?  
 you grow very tall ASP. ne haishi you become thin ASP. ne

Simpson (2014) reviews two proposals of split CP for Chinese which are listed below in (67) (Li 2006, Paul 2014, Pan and Paul 2016).<sup>24</sup> Although the two proposals differ in the number of layers and the exact function of each layer, what they have in common is that aspect/state markers (e.g. *le*) are in a low position in the split CP (i.e., LowC and Deik respectively), and speaker-oriented and speech act particles (e.g., *ba*, *la*, and *ma*) are located higher in the layers in bold.

- (67) a. Paul (2014), Pan and Paul (2016)  
**AttitudeP** > **ForceP**<sup>25</sup> > LowC
- b. Li (2006)  
**Epistemic** > **Discourse** > **Degree** > **Evaluative** > Deik > Fin

Taking the structure Low CP < ForceP < AttitudeP proposed by Pan and Paul (2016) as an example, and using the aspect particle *le* as a reference, empirical data show that the particles that cannot occur in *haishi* disjuncts cannot precede *le*. Taking (68a) as an example, the aspect marker *le* must precede the Y/NQ marker *ma*. The inverted order *ma le* is ungrammatical. I provide (68b-d) as further examples.

- (68) a. ta bi ye le ma / \*ma le?  
she finish study<sub>ASP</sub> ma / \*ma<sub>ASP</sub>.  
“Has she graduated?” (Pan and Paul 2016:(4))
- b. ni chi suan le ba / \*ba le.  
you eat garlic<sub>ASP</sub> ba<sub>uncertainty</sub> / \*ba<sub>ASP</sub>.  
“(I guess) you had garlic.”
- c. ni chi huoyao le o / \*o le.  
you eat gunpowder<sub>ASP</sub> o<sub>surprise</sub> / o<sub>ASP</sub>.  
“You had gunpowder.” (Why are you angry? What’s wrong with you?)
- d. wo zhidao le la / \*la le.  
I know<sub>ASP</sub> la / \*la<sub>ASP</sub>.  
“I know it. (You don’t need to repeat it again to me.)”

Although it is still under debate what the fine CP structure exactly is, from the data above, it is clear that, syntactically, SFPs like *ma* are in a position higher than the place where aspect is expressed in syntax. If we assume the split CP proposed in Pan and Paul (2016), empirical data and the study of SFPs in Chinese suggest that *haishi* disjuncts may not be larger than LowC in CP.

<sup>24</sup>Simpson (2014) reviews several movement accounts of Chinese SFPs. However, as the author notes, those accounts involve complex multiple movements which need to be supported by further study of SFPs.

<sup>25</sup>Recall that, in Section 5, the *Q* operator was located in ForceP. It was only for the illustration purpose. I stay neutral to the question whether that ForceP is the same as the one in the split structure in (67a).

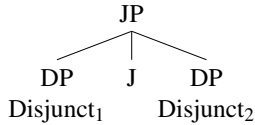


## 8. Erlewine's (2017b) analysis of AltQs

Before ending the paper, I would like to compare the current analysis of Chinese AltQs to the one offered in Erlewine (2017).

Erlewine (2017) proposes that *haishi* disjunctions and *huozhe* disjunctions form JP that introduces alternatives. His structure is reproduced in (69).

(69) The structure of a JP



The difference between *haishi* and *huozhe* disjunctions, according to Erlewine, is that the latter requires an existential quantifier. However, he leaves the question open when and where the existential quantifier should be applied. There is also few data reported to support the idea that *huozhe* requires an existential quantifier. Nonetheless, it is suggested that *haishi* and *huozhe* are interchangeable when they are in the immediate scope of an operator that can select the alternatives before the existential closure happens to *huozhe* disjunctions. Such operators include the Q operator, universal operators, and existential operators. Erlewine reports the following examples to support his proposal.

(70) a. In *no matter* unconditional

wulun Zhangsan *haishi* Lisi dadianhua lai, wo dou bu zai.  
 no-matter Zhangsan *haishi* Lisi call come, I all not present  
 “No matter whether Zhangsan or Lisi calls, I’m not here.”

b. Under *dou* universal quantification

Zhangsan *haishi* Lisi *dou* jin lai le.  
 Zhangsan *haishi* Lisi all enter come ASP.  
 “Both Zhangsan and Lisi came in.”

c. Under *meiyou* high negation

wo meiyou kanjian Zhangsan *haishi* Lisi.  
 I ASP.NEG see Zhangsan *haishi* Lisi  
 “I haven’t seen Zhangsan or Lisi.”

d. Under *bushi* high negation<sup>26</sup>

ta bushi xihuan Zhangsan *haishi* Lisi.  
 he NEG like Zhangsan *haishi* Lisi

<sup>26</sup>The translation is mine. The *bushi* high negation has a reading similar to English cleft sentences. Erlewine’s translation is *She doesn’t like Zhangsan nor Lisi*.

“It isn’t Zhangsan or Lisi that he likes.”

e. Under epistemic modals

ta dagai / keneng xihuan Zhangsan *haishi* Lisi.  
he probably / might like Zhangsan *haishi* Lisi  
“He probably / might like(s) Zhangsan or Lisi.”

f. In *ruguo* conditional

ruguo (you) Zhangsan *haishi* Lisi *dadianhua* lai, jiu shuo wo bu zai.  
if have Zhangsan *haishi* Lisi call come, then say I not present  
“If Zhangsan or Lisi calls, say that I’m not here.”

The current paper has discussed the first two cases (70a-b) and argued that they are both unconditionals. Therefore, before the alternatives in (70b) encounter the universal quantifier *dou*, they already have met the Q operator in the adjunct. As to the examples in (70c-f), Erlewine notes in his footnotes 18 and 20 that there is speaker variation concerning (70c) and (70e). According to the native speakers I consulted and my own intuition, (70c-d) have an overwhelmingly prominent AltQ reading but not the ones Erlewine gives. The sentences in (70e-f) are unacceptable although people can acquire the intended reading after a second thought. Why the speakers can marginally get the intended meaning of (70e-f)? One reason might be that *haishi* is indeed possible in those contexts. However, after searching in CCL corpus, this reasoning is not supported by the results. Without giving a detailed study of why the speakers were able to get the intended reading, I suggest it is the result of speakers being cooperative and accommodative.

The differences between *huozhe* and *haishi* are more than just the requirement of an existential operator. Earlier in example (42), it was shown that depending on the position of the contrastive focus, *haishi* AltQs with deletion under identity in the second disjunct can have different readings. This is not the case for *huozhe* disjunctions. An example is given in (71).

- (71) ta gei le John yi-ben shu *huozhe* Tom.  
he give ASP. John one-CL. book or Tom  
“He gave a book or Tom to John.”

The sentence has only one declarative reading no matter where we put a contrastive focus. In this reading, *book* and *Tom* are both indirect objects. This observation has nothing to do with whether the sentence is a question or not. Even when we turn (71) into questions as in (72) and try different focus positions, each question still has only one reading in which *book* and *Tom* are indirect objects. What these examples show is that, unlike *haishi* disjunctions, *huozhe* disjunctions have an even stronger preference for local disjuncts.

- (72) a. ta gei le John yi-ben shu *huozhe* Tom *ma*?  
 he give ASP. John one-CL. book or Tom *ma*  
 “Did he give a book or Tom to John?”
- b. ta gei-*mei*-gei John yi-ben shu *huozhe* Tom?  
 he give-NEG.ASP-give John one-CL. book or Tom  
 “Did he give a book or Tom to John?”

Another difference between *haishi* and *huozhe* disjunctions is that *haishi* disjunctions can take scope over a modal but *huozhe* cannot.<sup>27</sup> In example (73), the *haishi* disjunction takes the widest scope because it is selected by matrix the Q operator.

- (73) *haishi*  $\gg$  must

ta bixu mai yi-ben *haishi* liang-ben shu?  
 he must buy one-CL. *haishi* two-CL. book  
 “Does he have to buy one book or does he have to buy two books?”

On the other hand, if *haishi* in (73) is replaced by *huozhe* as in (74a), the *huozhe* disjunction can only take scope under the modal *bixu* (must). Only when the *huozhe* disjunction is syntactically higher than the modal can it take wide scope over the modal, as in (74b).

- (74) a. must  $\gg$  *huozhe*

ta bixu mai yi-ben *huozhe* liang-ben shu.  
 he must buy one-CL. or two-CL. book  
 “He must buy one or two books.”

- b. *huozhe*  $\gg$  must

ta bixu mai yi-ben shu *huozhe* ta bixu mai liang-ben shu.  
 he must buy one-CL. book or he must buy two-CL. book  
 “He must buy one book, or he must buy two books.”

The differences between *huozhe* and *haishi* mentioned above cannot be accounted for by simply saying *huozhe* requires an existential operator but *haishi* does not. We need a thorough study of the behavior of *huozhe* and of the question when and where an existential operator is applied. With all that being said, if the data in (70c-f) are indeed acceptable, what the proposal in the current paper needs to do is to loosen the requirement that *haishi* disjunctions have to be selected by the Q operator. The loosened requirement would be that *haishi* disjunctions can be selected by the operators mentioned in Erlewine (2017) as well. However, then, it is hard to explain why *haishi* and *huozhe* both exist in Chinese.

<sup>27</sup>Thanks to Prof. Rajesh Bhatt for bringing this up to me and inspiring the examples.

Although I do not fully agree with Erlewine’s (2017) analysis of *huozhe* and *haishi*, I agree with his assumption that *huozhe* requires an existential operator. As Erlewine does not discuss why he makes that assumption, I would like to offer my data and report supporting evidence from historical linguistics study.

First, empirical data show that *huozhe* may occur in *ma* questions but *haishi* may not. To understand why this supports Erlewine’s (2017) assumption, we first need to know that *ma* is incompatible with alternatives. For example, *ma* does not co-occur with focus stress, constituent questions, and *haishi* disjunctions.

Focus stress introduces alternatives (Rooth 1985, 1992, Beck 2006). Example (75) is a Y/NQ containing a focus stress on the object *mifan* (rice). The sentence is bad unless the stress on the object is removed. Even if a cooperative speaker might understand (75) as in the given translation, (75) is not a genuine information seeking Y/NQ.

- (75) \*/? ni chi [mifan]<sub>F</sub> ma?  
           you eat rice        *ma*  
           “(I’m not asking you about other food but asking you) Do you eat rice?”

Constituent questions denote a set of alternatives which are the possible answers to the question (Hamblin 1976). Example (76a) is a Chinese constituent question with its denotation roughly sketched below it. What interesting is that if *ma* is attached to (76a), as in (76b), the sentence is turned into a Y/NQ.

- (76) a. ta chi shenme?  
           he eat what  
           “What does he eat?”  
           {he eats rice, he eats noodles, he eats chocolate, he eats mangoes, ... }  
       b. ta chi shenme *ma*?  
           he eat what    *ma*  
           “Does he eat something?”

Here, I follow Biezma and Rawlins’s (2012) analysis of Y/NQs and assume that Y/NQs denote a singleton set {he eats something} in semantics, which is later coerced into a two-alternative denotation {he eats something, he doesn’t eat anything} via the pragmatic mechanism (77). Hence, the semantic content of (76b) is a singleton set. So is the complement of the particle *ma*.

- (77) Anti-singleton coercion  
       If  $\|\llbracket \alpha \rrbracket\| = 1$ , where  $\alpha$  is (a question) of type  $\langle s, t \rangle$  and denotes  $\{A\}$ , the  $\alpha$  can be coerced (as a last resort) into the denotation  $\{\lambda w. A(w), \lambda w. \neg A(w)\}$ .

That Y/NQs denote a singleton set in semantics is supported by the formation of Hindi-Urdu AltQs. As mentioned before, Bhatt and Dayal (2020) analyse Hindi-Urdu AltQs as

disjoined Y/NQs. The denotation of an AltQ is the union of the semantic denotation of the Y/NQs. To achieve a denotation of AltQs as a set of alternatives corresponding to each disjunct (i.e., Y/NQ), the denotation of a Y/NQ should be a singleton set.

Lastly, *ma* is incompatible with *haishi* disjunctions. Earlier in Section 7, we have seen that *ma* cannot appear in each *haishi* disjunct. The reason was that *ma* encodes interrogative speech act but *haishi* and speech acts repel each other. This time, as in example (78), *ma* is attached to an AltQ. The sentence turns out to be bad. The badness is because *haishi* disjunctions introduce alternatives but *ma* cannot take them as its complement.<sup>28</sup>

- (78) \* ni chi mifan *haishi* miantiao *ma*?  
you eat rice *haishi* noodle *ma*  
Intended as Y/NQ: Do you eat rice or noodles?

Based on the discussion above and the fact that *huozhe* can occur in *ma* questions, the alternatives in *huozhe* disjunctions must have been evaluated by an operator before they encounter *ma*. The relevant operator should be an existential operator. This is supported not only by the fact that *huozhe* is always interpreted existentially but also partially by the distinct diachronic development of *huozhe* and *haishi*.

On the one hand, the disjunct *haishi* consists of two characters: *hai* and *shi*. Its first occurrence in AltQs as a coordinator can be traced back to the Southern Song Dynasty (1127-1279 AD) (Mai 1978, cited in Li 1990). Before that, *hai* alone already existed in A-not-A questions and AltQs although its function was to add emphasis. On the other hand, the coordinator *huozhe* is developed from *huo*, which can function as, for example, an indefinite pronoun (which can mean, for example, *someone*), an adverb (e.g., *sometime* or *some time*), and later a hypothetical conjunction and alternative conjunction (Yao 2012, Jing-Schmidt and Peng 2016). The phrase *huozhe* used as a pure alternative conjunction is found at the earliest in the Ming Dynasty (1368-1644 AD). Since *huozhe* has *huo* that has an existential meaning as its ancestor, it shouldn't be surprising that *huozhe* requires an existential operator to convert alternatives into an existential proposition.

To sum up this section, the fundamental difference between Erlewine's (2017) analysis of AltQs and the one offered in the current paper is that the former allows *haishi* disjunctions to associate with operators other than the Q operator while the latter strictly requires *haishi* disjunctions to be selected by the Q operator. It was argued that the differences between *haishi* and *huozhe* cannot be simply reduced to the existence of the existential closure, which according to Erlewine (2017) is required by *huozhe* but not *haishi*. Further study should be conducted to carefully investigate the similarities and distinctions between *haishi* and *huozhe*.

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<sup>28</sup>Moreover, such an example also argues against the idea that *ma* is the realization of the Q operator. If it were, we would expect (78) to be a legitimate AltQ.

## 9. Conclusion

The current paper discussed the formation and interpretation of Chinese AltQs. It starts with an investigation whether Uegaki's (2014) analysis of Japanese AltQs can be extended to Chinese AltQs. According to Uegaki, Japanese AltQs are formed by disjoining two Y/NQs. The same idea is pursued in Bhatt and Dayal (2020) for Hindi-Urdu AltQs. Unfortunately, Section 4 showed that this analysis is not extendable to Chinese AltQs. Two types of Y/NQ disjunctions were considered, one with *haishi* and the other with *huozhe*. For Y/NQs disjoined by *huozhe*, by comparing those sentences to the disjoined Y/NQs analysed in Hoeks and Roelofsen (2020), it turned out that Y/NQs disjoined by *huozhe* form a kind of questions that is neither Y/NQs nor AltQs. The reason why Y/NQs disjoined by *haishi* have no interpretable meaning was given in Section 7.

Section 5 was dedicated to the analysis of AltQs in Mandarin Chinese. It was argued that Chinese AltQs are not derived from Y/NQs but have their own structure. There are two types of AltQs. One type of AltQs has local disjuncts. It was proposed that the size of disjuncts in such AltQs is exactly what is seen on the surface. There is no movement or deletion involved. The other type of AltQs involves deletion under identity in the second disjunct. In those AltQs, contrastive foci are needed to recover the meaning of the deletion site. As to the interpretation of AltQs, couched within Alternative Semantics (Hamblin 1976), the current paper argues that *haishi* disjunctions in AltQs introduce alternatives that have to be selected by the Q operator after being composed with the rest of the sentence via Pointwise Function Application.

It was assumed in Section 5 that *haishi* disjunctions can only be selected by the Q operator. Section 6 provided supporting evidence to that. It was demonstrated there that *haishi* disjunctions introduce alternatives and only occur in matrix or embedded AltQs as well as unconditionals, which are all interrogative environments. Another assumption made in Section 5 was that *haishi* has no restriction on its disjuncts with respect to their size and category. However, this was revised in Section 7. Based on the fact that *haishi* cannot disjoin *ma* questions as well as other clauses ending in SFPs that encode speech acts, it was concluded that *haishi* may not disjoin speech acts.

Finally, Section 8 compared my analysis of Chinese AltQs to the one proposed by Erlewine (2017). While Erlewine argues that *haishi* disjunctions can be associated with other operators, my analysis requires that *haishi* disjunctions have to be selected by the Q operator. This requirement is not only supported by the empirical data but also provides a succinct account for the distribution, derivation and interpretation of AltQs.

There are of course many important aspects of AltQs that the current paper did not touch on. Just to mention two of them, first, it is often observed that AltQs involve exhaustivity and exclusivity. There is a long debate on whether those two properties are required by semantics or pragmatics. Second, to understand the typology of AltQs better, other languages with a special AltQ coordinator like Chinese need to be investigated. It is important to know what AltQs in those languages have in common with Chinese AltQs and where

they differ. The current paper provides some insights into Chinese AltQs with *haishi* disjunctions. Many interesting aspects of AltQs are waiting for a thorough investigation.

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