Interrogative and standard disjunction in Mandarin Chinese[1]

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1 Introduction

Mandarin Chinese uses different disjunctors in alternative questions and in disjunctive statements:

(1) ***háishi* 還是/还是 ⇒ alternative question:**

Zhāng Sān xǐhuān Lǐ Sì ***háishi*** Wáng Wǔ (ne)?
Zhang San like Li Si IDISJ Wang Wu NE
'Does Zhang San like Li Si or Wang Wu?' (AltQ)

(2) ***huòzhe* 或者 ⇒ disjunctive statement:**

Zhāng Sān xǐhuān Lǐ Sì ***huòzhe*** Wáng Wǔ.
Zhang San like Li Si SDISJ Wang Wu
'Zhang San likes Li Si or Wang Wu.'

Equivalents of 'yes' or 'no' are not valid replies to (1) (Li and Thompson, 1981: 558–561).

► Following Haspelmath (2007) and Mauri (2008), I refer to *háishi* and *huòzhe*[2] as "interrogative disjunction" (IDISJ) and "standard disjunction" (SDISJ).

Today

- Mandarin *háishi* and *huòzhe* share a core syntax and semantics of *introducing alternatives* but then associate with different interpreting operators, leading to interrogative or disjunction readings.
- I then discuss non-interrogative uses of *háishi* and speaker variation therein:
  - There are broadly two populations of Mandarin speakers who differ in the range of contexts that allow for non-interrogative *háishi*.
  - ► I argue that the interpretation of *háishi* is syntactically enforced by one group of speakers, but only semantically restricted by the other group.

Roadmap

§2 Three properties • §3 Proposal • §4 Non-interrogative *háishi* • §5 Conclusion

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[2] *Huòzhe* can also be *huòshì* 或是 or simply *huò* 或, which are generally interchangeable (see e.g. Lü 1980: 196, Tsai 2015: 60ff). Here I simply use *huòzhe* throughout.

2 Properties of *háishi*

I first highlight three properties of *háishi*:

§2.1 *Háishi* disjunctions are not sensitive to syntactic islands
§2.2 *Háishi* and *huòzhe* pattern with *wh*-phrases in terms of restrictions on their scope-taking
§2.3 *Háishi* disjunctions are not (necessarily) of clausal size

These properties serve to argue against previous proposals for *háishi* and to set the groundwork for my own proposal.

2.1 Island insensitivity

- James Huang (1982: 276) suggests in passing that *háishi* alternative questions involve covert movement of the *háishi* disjunction to the interpreting complementizer.
- However, he later argued against this idea, demonstrating that *háishi* disjunction is *not* sensitive to syntactic islands (J. Huang, 1991).[3]

(3) **Interrogative disjunction is not sensitive to relative clause islands:**

a. Nǐ xǐhuān [[$_{\text{island}}$ ___ [[zūnzhòng nǐ] *háishi* [bù zūnzhòng nǐ]] de] rén]?
2sg like respect 2sg IDISJ NEG respect 2sg DE person
'Do you like people who respect you or people who don't respect you?' (J. Huang, 1988: 688)

b. Nǐ xǐhuān [[$_{\text{island}}$ [Zhāng Sān *háishi* Lǐ Sì] xiě ___ de] shū]?
2sg like Zhang San IDISJ Li Si write DE book
'Do you like the books that Zhang San wrote or the books that Li Si wrote?' (R. Huang, 2010a: 123)

► *Háishi* alternative question formation is insensitive to syntactic islands, just like in-situ argument *wh*-phrases.[4]

– *Háishi* can also be inside sentential subject islands (J. Huang 1988: 688, 1991: 313), complex NP islands (R. Huang, 2010a: 125–126), and adjunct islands (R. Huang, 2020: 211) and lead to higher alternative question interpretation.

– However, *háishi* disjunction is not unrestricted...

[3] Covert movement is still invoked by some subsequent works, however, such as in Akagi 2012: 123–124 for both types of disjunctions.

[4] *Wh*-in-situ in Mandarin Chinese exhibits an argument/adjunct asymmetry, whereby only *wh*-adjuncts exhibit sensitivity to island effects (Huang, 1982). But *háishi* is island insensitive, regardless of the argument/adjunct status of the disjuncts.

(4) **Interrogative disjunction ungrammatical in appositive relative clause:**[5] (He, 2011: 90)

*Nǐ zuì xǐhuān [$_{\text{appositive}}$ [Zhāng Sān *háishi* Lǐ Sì] xiě ___ de] nà-běn shū?
2sg most like Zhang San IDISJ Li Si write DE that-CL book
literally: 'Do you like that book, which Zhang San or Li Si wrote, the most?'

- Del Gobbo (2010: 403–405, 2015: 76–78) has shown that various interrogative constructions are ungrammatical in Mandarin appositive relatives. This reflects a more general restriction on semantics of appositive content (see e.g. AnderBois et al., 2015).

(5) **Standard disjunction is not sensitive to relative clause islands:**

Tā mǎi-le [yī-běn [$_{\text{island}}$ [Zhāng Sān *huòzhe* Lǐ Sì] xiě ___] de shū].
3sg buy-PFV one-CL Zhang San SDISJ Li Si write DE book

a. 'He/she bought a book, which Zhang San or Li Si wrote.' (RC > or)

b. 'He/she bought [a book that Zhang San wrote] or [a book that Li Si wrote].' (or > RC)

2.2 Focus intervention effects

Wh-in-situ in many languages are subject to "focus intervention effects" (Kim, 2002, 2006; Beck, 2006):

(6) **Focus intervention effect:**
A focus-sensitive operator (*Op*; e.g. 'only') associating with a focus (XP) disrupts the interpretation of the *wh*-phrase by Q:
* [Q ... [*Op* [... [XP]$_{\text{F}}$ ... *wh* ...

(7) **Focus intervention effect with subject 'only':** (based on Kim, 2006: 166)

a. ?***Zhǐyǒu** [Zhāng Sān]$_{\text{F}}$ kàn-le *nǎ-běn* *shū* (ne)?
only Zhang San read-PFV which-CL book NE

b. (Shì) *Nǎ-běn* *shū*, **zhǐyǒu** [Zhāng Sān]$_{\text{F}}$ kàn-le *t* (ne)?
SHI which-CL book only Zhang San read-PFV NE
'Which book did only Zhang San read?'

(See Beck 2006 for a prominent explanation for these effects, revised in Erlewine to appear.)

► Alternative question formation with *háishi* as well as the scope-taking of *huòzhe* disjunction are susceptible to intervention effects.

[5] The relative clauses here in precedes a deictic demonstrative and hence must be appositive; see Sun and Lai 2019 and discussion there.

(8) **Focus intervention in Mandarin alternative questions:**

a. ***Zhǐyǒu** [Zhāng Sān]$_F$ chī-le [píngguǒ *háishi* júzi] (ne)?
only Zhang San eat-PFV apple IDISJ orange NE
Intended: 'Was it an apple or an orange that only Zhang San ate?' (Erlewine, 2014: 228)

b. Shì [píngguǒ *háishi* júzi], **zhǐyǒu** [Zhāng Sān]$_F$ chī-le *t* (ne)?
SHI apple IDISJ orange only Zhang San eat-PFV NE
'Was it an apple or an orange that only Zhang San ate?'

(9) **Object *huòzhe* disjunction leading to scope ambiguities:** (Jing, 2008: 169–170)

Zhè-lù chē bù tíng fǎyuàn *huòzhe* túshūguǎn.
this-route bus NEG stop courthouse SDISJ library
'This bus doesn't stop at the courthouse or the library.' (not > or, or > not)

(10) **Scope of standard disjunction restricted by subject 'only':** (Crain, 2012: 242–243)

Zhǐyǒu [Yuēhàn]$_F$ chī-le [píngguǒ *huòzhe* lí].
only John eat-PFV apple SDISJ pear
'Only John ate an apple or a pear.' (only > or, *or > only)
False in context where John ate an apple and a pear and Mary ate an apple and an orange.

Note that focus intervention (6) does *not* occur when the focus-sensitive operator itself associates with an in-situ *wh* (11a). The same is true with *háishi* interrogative disjunction and the scope-taking of *huòzhe*:

(11) **Focus association *with* the *wh* or disjunction does not trigger intervention:**

a. Tā **zhǐ** xǐhuān *shéi*?
3sg only like who
≈ 'Who *x* is such that he/she only likes *x*?' (Aoun and Li, 1993: 207)

b. Lǐ Bái **zhǐ** hē-le [kāfēi *háishi* hóngchǎ]?
Li Bai only drink-PFV coffee IDISJ tea
≈ 'Is it *x* tea or coffee such that Li Bai drank only *x*?' (Li and Law, 2016: 230)

c. Yuēhàn **zhǐ** chī-le [píngguǒ *huòzhe* lí].
John only eat-PFV apple SDISJ pear
'John only ate an apple or a pear.' (only > or)
'John only ate an apple or John only ate a pear.' (or > only) (based on Li and Law, 2016: 227)

2.3 The size of *háishi* disjunction

► *Háishi* (just like *huòzhe*) can take disjuncts of variable size (e.g. NP, VP, full clauses).

Specifically, I argue against previous suggestions (J. Huang et al. 2009: 250–257; R. Huang 2009, 2010a,b) that Mandarin alternative questions always involve disjunction of full clauses, but with processes like pro-drop and Conjunction Reduction giving the illusion of local disjunction:

(12) **Deriving apparent local disjunction via Conjunction Reduction:** (R. Huang, 2010a: 123, 127)

a. Nǐ xǐhuān Zhāng Sān *háishi* Lǐ Sì xiě de shū?
2sg like Zhang San IDISJ Li Si write DE book
'Do you like the books that Zhang San wrote or the books that Li Si wrote?'

b. [$_{TP}$ Nǐ xǐhuān Zhāng Sān ~~xiě de shū~~] *háishi* [$_{TP}$ *pro* ~~xǐhuān~~ Lǐ Sì xiě de shū]?
2sg like Zhang San write DE book IDISJ like Li Si write DE book

(12) illustrates how a quite unconstrained Conjunction Reduction operation could explain the island-insensitivity of *háishi*. But this same technique would overgenerate:

(13) **Focus intervention effect unexplained by Conjunction Reduction:**

a. ***Zhǐyǒu** [Zhāng Sān]$_F$ chī-le [píngguǒ *háishi* júzi] (ne)? =(8a)
only Zhang San eat-PFV apple IDISJ orange NE
Intended: 'Was it an apple or an orange that only Zhang San ate?'

b. [Zhǐyǒu [Zhāng Sān]$_F$ chī-le píngguǒ (ne)] *háishi* [zhǐyǒu [Zhāng Sān]$_F$ chī-le júzi (ne)]?
only Zhang San eat-PFV apple NE IDISJ only Zhang San eat-PFV orange NE
'Did only Zhang San eat an apple or did only Zhang San eat an orange?'

(14) ***Wh*-island effect unexplained by Conjunction Reduction:**[6]

a. *Nǐ xiǎng zhīdào [*shéi* xǐhuān [Lǐ Sì *háishi* Wáng Wǔ]] (ne)? (Erlewine, 2014: 226)
2sg want know who like Li Si IDISJ Wang Wu NE
Intended: 'Is it Li Si or Wang Wu that you wonder who likes?'

b. [Nǐ xiǎng zhīdào [*shéi* xǐhuān Lǐ Sì] (ne)] *háishi* [nǐ xiǎng zhīdào [*shéi* xǐhuān Wáng Wǔ] (ne)]?
2sg want know who like Li Si NE IDISJ 2sg want know who like Wang Wu NE
'Do you wonder who likes Li Si or do you wonder who likes Wang Wu?'

[6] *Wh*-island-sensitivity facts for *háishi* are in fact more complicated: see full paper Appendix B. However, as I show there, the (un)availability of *háishi* to scope out of an embedded question interestingly lines up with the (un)availability of *huòzhe* to scope out from the same contexts.

Summary:

Alternative question formation with *háishi*...

- is not sensitive to syntactic islands (no covert movement);
- is sensitive to focus intervention effects (like *wh*-questions);
- does not involve clausal disjuncts with ellipsis.

3 Proposal

► *Háishi* and *huòzhe* share a core syntax (size-neutral junction) and semantics (introducing alternatives).

- Semantically, *háishi*/*huòzhe*-phrases produce meanings that are similar to that of *wh*-phrases.
- Different operators then use these "alternatives" for question-formation or for quantification.
- *Háishi* and *huòzhe* have different syntactic specifications for which operators their alternatives can be used by.

3.1 Framework

My proposal is couched in the semantic framework of *Rooth-Hamblin Alternative Semantics*:

► Rooth (1985) proposed that we need a "two-dimensional" semantics for focus, keeping track of the ordinary meaning of expressions as well as a set of "alternatives" for focused expressions.

- Every node α has an ordinary semantic value $[\![\alpha]\!]^{o}$ and an alternative set value $[\![\alpha]\!]^{alt}$.
- By default, $[\![\alpha]\!]^{alt} = \{[\![\alpha]\!]^{o}\}$. But focused phrases have non-singleton alternative set values:

(15) a. $[\![\text{Amy}]\!]^{o}$ = Amy
b. $[\![\text{Amy}]\!]^{alt}$ = {Amy}

(16) a. $[\![[\text{Amy}]_{F}]\!]^{o}$ = Amy
b. $[\![[\text{Amy}]_{F}]\!]^{alt}$ = {Amy, Bob, Caray}

- Alternatives compose "pointwise" with other material, so that a focus-containing phrase has a corresponding set of alternatives which vary in the position of focus.

Notice that, in this Roothian framework, all meanings satisfy *Interpretability*:[7]

(17) **Interpretability:** (Erlewine 2019, in prep.)
To interpret α, $[\![\alpha]\!]^{o}$ must be defined and $\in [\![\alpha]\!]^{alt}$.

► I propose that full interpreted structures (entire utterances) must satisfy *Interpretability*. This will play an important role in my account.

[7] My Interpretability constraint in (17) synthesizes requirements that have been independently proposed as the "Principle of Interpretability" by Beck (2006: 16) (requiring the ordinary value to be defined) and as part of the "Focus Interpretation Principle" by Rooth (1992: 90) (requiring the ordinary value to be a member of the alternative set).

- Unbeknownst to Rooth (1985),[8] Hamblin (1973) proposed that *wh*-words introduce a set of "alternatives" that correspond to short answers to the question word. They compose "pointwise" with other material in the sentence to yield a denotation for the question as a set of answer propositions.

► Beck (2006) argues that Hamblin alternatives *are* Roothian alternatives; these are the same ontological/cognitive objects, explaining the behavior of focus intervention effects. See also Kotek 2019 and Erlewine to appear.

In the unified Rooth-Hamblin framwork, *wh*-words have an alternative set denotation, but no ordinary value (Ramchand, 1997; Beck, 2006; Kotek, 2019):

(18) a. $[\![\text{who}]\!]^{o}$ undefined

b. $[\![\text{who}]\!]^{alt} = \{x : x \text{ animate}\}$

► Notice that, in the context of Interpretability (17), *wh*-(containing) phrases are problematic as they have no defined ordinary value, and hence violate Interpretability. Beck proposes that a question operator Q converts such meanings into an interpretable question meaning:

(19) **Beck's question operator Q:** (from Beck, 2006: 16; also called AltShift in Kotek 2019: 32)

a. $[\![\text{Q } \alpha]\!]^{o} = [\![\alpha]\!]^{alt}$

b. $[\![\text{Q } \alpha]\!]^{alt} = \{[\![\text{Q } \alpha]\!]^{o}\} = \left\{[\![\alpha]\!]^{alt}\right\}$ ← "reset," ensuring that Interpretability is satisfied

c. [Q α] presupposes that $[\![\alpha]\!]^{o}$ is undefined.

For much of the rest of the talk, I will give a somewhat simplified presentation:

- red/dashed = "alternatives" (alternative set, where ordinary value is undefined)
- orange/wavy = "needs repair" (ordinary value, but violates Interpretability)
- green = "interpretable meaning" (ordinary value, satisfying Interpretability)

► At the end of the day, the whole utterance (or clause) must be a green, interpretable meaning.

(20) a. who ⇝ {Amy, Bob, Cara, ...}

b. [$_{VP}$ you see who] ⇝ {**see**(2sg,Amy), **see**(2sg,Bob), **see**(2sg,Cara), ...}

c. [$_{CP}$ Q [$_{TP}$ ... [$_{VP}$ you see who]]] ⇝ {**see**(2sg,A), **see**(2sg,B), **see**(2sg,C), ...} (ignoring tense)

[8] As noted in Rooth 1992: 84 note 7.

3.2 J and friends

► The common core of *háishi* and *huòzhe* is the junctor head J (Den Dikken, 2006). JP has an alternative set denotation that includes the individual disjuncts, but no ordinary value.

(21) a. $[\![\text{J } x_1, ..., x_n]\!]^{o}$ undefined

b. $[\![\text{J } x_1, ..., x_n]\!]^{alt} = [\![x_1]\!]^{alt} \cup ... \cup [\![x_n]\!]^{alt}$

(22) [$_{JP}$ Lǐ Sì *háishi/huòzhe*$_{J}$ Wáng Wǔ]
$\rightsquigarrow$ {Li Si, Wang Wu}

- A JP-containing structure will have an alternative set with members that correspond to each individual disjunct in JP, but with no ordinary value, just like *wh*-containing phrases.

(23) Zhāng Sān xǐhuān Lǐ Sì *háishi/huòzhe* Wáng Wǔ =(1/2)
Zhang San like Li Si IDISJ/SDISJ Wang Wu
háishi: 'Does Zhang San like Li Si or Wang Wu?' (alternative question)
huòzhe: 'Zhang San likes Li Si or Wang Wu.' (declarative)

► There are exactly three operators in the grammar that can take the meaning of a *wh*- or JP-containing phrase (red) and form something useful (Erlewine, 2019, in prep.): Q above in (19) and two variants of an existential closure operator:

(24) a. $[\![\exists_{reset}\ \alpha]\!]^{o} = \bigvee [\![\alpha]\!]^{alt}$

b. $[\![\exists_{reset}\ \alpha]\!]^{alt} = \left\{\bigvee [\![\alpha]\!]^{alt}\right\}$

(25) a. $[\![\exists_{pass}\ \alpha]\!]^{o} = \bigvee [\![\alpha]\!]^{alt}$

b. $[\![\exists_{pass}\ \alpha]\!]^{alt} = [\![\alpha]\!]^{alt}$

$\exists_{reset}$ "resets" the alternative set to a singleton set of the new ordinary value, whereas $\exists_{pass}$ simply "passes" its sister's alternative set. (See also Erlewine to appear on "resetting" vs "passing.")

(26) a. Q produces an alternative question:
✓ [Q [$_{TP}$ ... [$_{VP}$ ZS likes [$_{JP}$ LS J WW]]] $\rightsquigarrow$ {**like**(ZS, LS), **like**(ZS, WW)}

b. $\exists_{reset}$ produces a disjunctive proposition, satisfying Interpretability:
✓ [$\exists_{reset}$ [$_{TP}$ ... [$_{VP}$ ZS likes [$_{JP}$ LS J WW]]] $\rightsquigarrow$ **like**(ZS, LS) $\vee$ **like**(ZS, WW)

c. $\exists_{pass}$ produces a disjunctive meaning that still needs a further "repair":
* [$\exists_{pass}$ [$_{TP}$ ... [$_{VP}$ ZS likes [$_{JP}$ LS J WW]]] $\rightsquigarrow$ **like**(ZS, LS) $\vee$ **like**(ZS, WW)

► In general, [$\exists_{reset}$ [... *wh*/JP ...]] will satisfy Interpretability, but [$\exists_{pass}$ [... *wh*/JP ...]] will not.

3.3 *Háishi* vs *huòzhe*

Given the framework above, in the basic case, we want to ensure that *háishi*-JPs are interpreted by Q and *huòzhe*-JPs are interpreted by $\exists_{\text{reset}}$.

- ► I propose that *huòzhe* has a [u∃] feature which must be checked by $\exists_{\text{reset}}$ or $\exists_{\text{pass}}$.[9]
  - $\exists_{\text{reset}}$ can only be adjoined in order to check a [u∃] feature. Therefore, $\exists_{\text{reset}}$ can't freely adjoin to form a disjunctive statement using *háishi*.
    $\exists_{\text{reset}}$ can adjoin at different heights, leading to scope ambiguities (as in (9)).
  - Q can adjoin freely, forming alternative questions using *háishi*. It is not used with *huòzhe*, as its [u∃] feature will then be unchecked.[10]
  - $\exists_{\text{pass}}$ can adjoin freely, but it does not result in an interpretable meaning by itself (but will play a role in the next section).

- The span between JP and its operator (Q/$\exists_{\text{reset}}$/$\exists_{\text{pass}}$) is subject to focus intervention, just like the span between *wh* and Q, explaining their parallel focus intervention behavior in §2.2.

Q: What is the link between *háishi* and Q? Is the link enforced in the syntax or the semantics?

A: Both are possible, and indeed attested by different groups of Mandarin Chinese speakers...

4 Non-interrogative uses of *háishi*

Mandarin *háishi* and *huòzhe* have been described as "interrogative" versus "standard disjunction" (Haspelmath, 2007; Mauri, 2008). It is true that, in many simple cases — e.g. (1) vs (2) — they seem to be one-to-one with alternative questions and disjunctive statements.

- ► However, in some cases, *háishi* does *not* lead to an alternative question interpretation.

  §4.1 Universal *háishi* with *dōu*

  §4.2 Wide-scope existential *háishi* with speaker ignorance/irrelevance

  §4.3 Narrow-scope existential *háishi* under certain licensing operators (for some speakers)

  The nature of these environments — and speaker variation therein — holds to key to understanding the frequent, conventional link between *háishi* and question formation.

- ► I refer to the two groups of speakers as Type A and Type B: Type A allow only the first two types of non-interrogative uses, but Type B allows for all three.

[9] This follows the syntactic treatment of various types of specialized indefinites (e.g. polarity items, free choice items, modal indefinites, etc.) in Kratzer and Shimoyama 2002, Kratzer 2005, Chierchia 2013 (see for example discussion on page 168), which require feature-checking by its corresponding semantic operator.

[10] It is possible for a different kind of question (e.g. polar question or *wh*-question) to include a logical disjunction within. In such cases, $\exists_{\text{reset}}$ applies at a lower point in the structure first, with Q above forming a question with a different alternative source.

– Type A appears to reflect most speakers in mainland China. Yuan Mengxi (2021) reports on an acceptability judgement experiment with 175 speakers in mainland China. Her participants' results reflect the Type A pattern of judgments.

– Type B licensing environments are well described in Lin Hsin-yin (2008), and Type B judgments are also reported by Hsieh Miao-Ling (2004), Ray Huang (2010a), and Edwin Tsai (2015) — all scholars from Taiwan.

(But Type A vs B is not a simple dialectal split, due to individual exceptions in both directions.)

► Lin Hsin-yin (2008) concludes that *háishi* has non-interrogative uses in exactly the same set of contexts that *wh*-words do (for Type B grammars). Recall that JPs are the same types of semantic objects as *wh*-phrases (non-trivial alternative sets with no defined ordinary value).

► I propose that Type B speakers do *not* syntactically restrict the interpretation of *háishi*, leading to the exact same interpretational profile as *wh*-words.

• In contrast, Type A *háishi* syntactically enforces association with particular operators (Q or a variety of ∃), deriving its limited range of non-interrogative contexts.

(27) **A featural difference between Type A and Type B speakers:**

a. Type A: *háishi* = [J, uR]; *huòzhe* = [J, u∃]
where [uR] can be checked by association with Q or $\exists_R$ (see §4.2)

b. Type B: *háishi* = [J]; *huòzhe* = [J, u∃]

4.1 Universal *háishi* with *dōu*

All Mandarin speakers allow for universal *háishi* with *dōu* (sometimes glossed 'all'):

(28) **Universal *háishi* via unconditionals:** (Lü, 1980: 173)

Wúlùn shàngbān *háishi* xiūxí, tā dōu zài zhuómó xīn-de shèjì fāng'àn.
no.matter at.work IDISJ rest 3sg DOU PROG polish new-DE design plan
'Both when at work and resting, he/she is always crafting new design plans.'

► *Wúlùn/bùguǎn* 'no matter' phrases are "unconditionals" that quantify over embedded questions (Cheng and Huang 1996: 147–149, Lin 1996: 76–77; see also Rawlins 2008a,b, 2013). See especially the A-not-A form (29b), which otherwise does not have non-interrogative uses:

(29) **Mandarin unconditionals:** (based on Lin, 1996: 76–77)

a. [$_{\text{uncond}}$ (Wúlùn/bùguǎn) nǐ yāoqǐng shéi], wǒ dōu huānyíng tā.
no.matter 2sg invite who, 1sg DOU welcome 3sg

'No matter who you invite, I will welcome him/her.'

b. [$_{\text{uncond}}$ (Wúlùn/bùguǎn) nǐ qù-bú-qù], wǒ dōu yào qù.
no.matter 2sg go-NEG-go 1sg DOU want go

'No matter whether you go or not, I want to go.'

Hence, these structures include the question operator Q and so do not actually counterexemplify the link between *háishi* and Q.

One challenge comes from *argument unconditionals*, which appear to saturate an argument position:

(30) **Argument unconditional serves as the subject, rather than anteceding it:** (He, 2011: 81)

[$_{\text{uncond}}$ Wúlùn Zhāng Sān *háishi* Lǐ Sì] ($^{??}$tā) dōu hěn cōngmíng.
no.matter Zhang San IDISJ Li Si 3sg DOU very smart

'Zhang San and Li Si are both smart.'

Lin (1996) considers the possibility that these are also embedded questions, with pro-drop and optional copula-drop: underlyingly [*wúlùn pro* ~~COP~~ [ZS IDISJ LS]] in (30).

However, He (2011) argues that this cannot be the case:

(31) **Minimal pair demonstrating clausal vs nominal argument unconditionals:** (He, 2011: 80)
Context: I heard that someone is going to jump off the building and someone asks me who it is.

[$_{\text{uncond}}$ Wúlùn *(shì) Zhāng Sān *háishi* Lǐ Sì], wǒ dōu bù yuànyì.
no.matter COP Zhang San IDISJ Li Si 1sg DOU NEG hope

'Both that it is Zhang San and that it is Li Si, I do not hope.'

► My proposal can be extended to such cases as well: *Wúlùn/bùguǎn* 'no matter' can select for Q, which produces the right set type denotation for the unconditional semantics, even if it is not of clausal size. See the full paper for further details.

4.2 Wide-scope existential *háishi* with speaker ignorance/irrelevance

All Mandarin speakers also allow for wide-scope existential uses of *háishi* which are however subject to certain pragmatic requirements.

(32) **Wide-scope existential *háishi*:** (Yuan, 2021: 73, based on a corpus example)

Máo zhǔxí zài 1943-nián *háishì* 1944-nián gěi tā xiě-guò yī-ge jiǎngzhuàng...
Mao chairman LOC 1943-year IDISJ 1944-year to 3sg write-EXP one-CL certificate

Jùtǐ nǎ-nián jì-bù-qīng-le.
concrete which-year remember-NEG-clear-PFV

'Chairman Mao had written him a certificate of merit in 1943 or 1944... I can't remember exactly which year.'

► This use of *háishi* directly parallels a non-interrogative use of Mandarin *wh*-words as epistemic indefinites (Alonso-Ovalle and Menéndez-Benito, 2013, 2015), and their analysis can be adopted.

First, they have obligatory ignorance effects: the speaker cannot (currently) know which alternative makes the sentence true:

(33) **Epistemic indefinite *shéi* 'who' with speaker ignorance:** (Liu and Yang, 2021: 587)

Gǒuxióng zhèngzài dī-shēng hé *shéi* jiǎnghuà. (#Wǒ kàn-de-qīngqīngchǔchǔ,
Gouxiong PROG low-voice with who speak 1sg see-DE-clear

nà-ge rén jiù shì Xīngxīng.)
that-CL person then COP Xingxing

'Gouxiong is talking to someone quietly.' (# 'I could see clearly; that person was Xingxing.')

I adopt the analysis for epistemic indefinites as in Liu and Yang 2021, which involves three ingredients:

(34) a. TP including a *wh* (or JP):
* [$_{TP}$ Gouxiong talks to *who*] $\rightsquigarrow$ $\{\mathbf{talk}(GX, ZS), \mathbf{talk}(GX, LS), ...\}$

b. Apply $\exists_{pass}$ (here called $\exists_R$):
* [$\exists_{\mathbf{R}}$ [$_{TP}$ Gouxiong talks to *who*]] $\rightsquigarrow$ $\exists x \,.\, x \text{ animate} \wedge \mathbf{talk}(GX, x)$

c. Assume assertions have a covert speaker certainty operator ($\Box_s$): (see e.g. Meyer, 2013)
* [$\Box_{\boldsymbol{s}}$ [$\exists_R$ [$_{TP}$ Gouxiong talks to *who*]]] $\rightsquigarrow$ $\Box_s\,(\exists x \,.\, x \text{ animate} \wedge \mathbf{talk}(GX, x))$

d. Adding covert ONLY (*O*): (see e.g. Chierchia, 2013)
✓ [***O*** [$\Box_s$ [$\exists_R$ [$_{TP}$ Gouxiong talks to *who*]]]]
$\rightsquigarrow$ $\Box_s\,(\exists x \,.\, x \text{ animate} \wedge \mathbf{talk}(GX, x)) \wedge \neg\,\Box_s\,\mathbf{talk}(GX, ZS) \wedge \neg\,\Box_s\,\mathbf{talk}(GX, LS) \wedge \ldots$

(35) a. $[\![[O\ \alpha]]\!]^{o} = [\![\alpha]\!]^{o} \wedge \forall q \in [\![\alpha]\!]^{alt} [([\![\alpha]\!]^{o} \not\Rightarrow q) \rightarrow \neg q]$

b. $[\![[O\ \alpha]]\!]^{alt} = \{[\![[O\ \alpha]]\!]^{o}\}$ ← "reset"

Note that the result of $\exists_{R}$ is not interpretable unless $\Box_{s}$ and O apply in this order, hence necessarily deriving the obligatory ignorance inferences.

► I propose that the lexicon includes one more existential operator: $\exists_{\mathbf{R}}$:

- $\exists_{R}$ has the same semantics as $\exists_{pass}$: $[\![\exists_{R}]\!] \equiv [\![\exists_{pass}]\!]$
- $\exists_{R}$ is limited to appearing in the periphery of root clauses.
- Type A *háishi* has a feature [uR] (R for "root") which can be checked by Q or $\exists_{R}$.

> We predict the availability of wide-scope existential *háishi* for all speakers (unlike contexts in the next section), but always with obligatory ignorance inferences.

Second, they have obligatory irrelevance effects: the speaker's ignorance cannot detract from the the "main point" of the utterance.

► Yuan (2021) observes a contrast in acceptability between "short" and "long" examples with intended wide-scope existential *háishi*, as in (36).[11] She suggests that continuation as in (36b) makes it natural to understand the disjunction as "backgrounded."

(36) **Testing the effect of elaborations that shift the main point:** (Yuan, 2021: 71)

a. ?? Xiǎo-Lín zhōu-mò qù-le [JP Xiānggǎng *háishi* Àomén].
little-Lin week-end go-PFV Hong Kong IDISJ Macao
'Lin went to Hong Kong or Macao over the weekend.'

b. Xiǎo-Lín zhōu-mò qù-le [JP Xiānggǎng *háishi* Àomén] gòuwù, mǎi-le
little-Lin week-end go-PFV Hong Kong IDISJ Macao shop buy-PFV
yī-dà-duī huàzhuāngpǐn.
one-large-pile cosmetics
'Lin went shopping in Hong Kong or Macao over the weekend and bought a lot of cosmetics.'

► This explains why simple examples with *háishi* (e.g. (1)) are often described as unambiguously interrogative.

[11] On a 1–5 Likert scale, average ratings for these conditions were 2.31 vs 3.41. These were given as representative of each condition design.

4.3 Narrow-scope existential *háishi* in certain environments (Type B)

► A subset of speakers (Type B) also allow for narrow-scope existential *háishi* in certain "licensing" environments. Lin (2008) concludes that these are the same environments that license existential uses of *wh*-phrases.

Here, % = * for Type A speakers, ok for Type B speakers.

(37) **Existential *háishi* (Type B) and *wh* under negation:**

a. %Wǒ méiyǒu kànjiàn Zhāng Sān *háishi* Lǐ Sì.
1sg NEG.PFV see Zhang San IDISJ Li Si
'I didn't see Zhang San nor Li Si.' (Hsieh, 2004: 89)

b. Tā méiyǒu mǎi *shénme*.
3sg NEG.PFV buy what
'He/she didn't buy anything.' (Cheng, 1984: 102)

(38) **Existential *háishi* (Type B) and *wh* in conditionals:**

a. %Rúguǒ [JP Lǎo Wáng *háishi* Lǎo Lǐ] lái dehuà, qǐng tōngzhī wǒ.
if old-Wang IDISJ old-Li come COND please notify 1sg
'If Wang or Li comes, please notify me.' (Lin H.-Y., 2008: 141)

b. Rúguǒ *shénme rén* xǐhuān tā, jiù gēn wǒ jiǎng.
if what person like 3sg then with 1sg speak
'If someone likes him/her, then tell me.' (Li, 1992: 136)

(39) **Existential *háishi* (Type B) and *wh* under epistemic necessity modals:**

a. %Tā yīdìng jiàn-guò [JP Zhāng Sān *háishi* Lǐ Sì].
3sg must see-ASP Zhang San IDISJ Li Si
'He/she must have seen Zhang San or Li Si.' (Lin H.-Y., 2008: 80)

b. Tā yīdìng shì bèi *shénme shì* gěi dāngē le.
3sg must SHI PASS what thing make delay LE
'He/she must have been delayed by something.' (Lin J.-W., 1998: 223)

- As noted above, Type B judgments are reported by various other native speaker linguists (all of Taiwan), including Hsieh (2004: 89), R. Huang (2010a: 130–131), and Tsai (2015: 49–50).[12]
- Yuan's (2021) acceptability judgement study explicitly included a number of these environments as in (37–39), but they were judged by her participants (175 mainland Chinese speakers) to be unnatural (all <2.5 on the 1–5 scale). I call those Type A speakers.

[12] In addition to the environments in (37–39) above, Lin Hsin-yin (2008) reports that existential *háishi* is grammatical for Type B

Here too, I adopt the analysis for the distribution of existential *wh* in these environments from Liu and Yang 2021 and extend it to Type B *háishi*. Consider a basic example without and with negation:

(40) a. TP including a *wh* (or JP):
* [$_{TP}$ I saw *who*] $\rightsquigarrow$ {**see**(1sg, ZS), **see**(1sg, LS), ...}

b. Apply $\exists_{pass}$:
* [$\exists_{\mathbf{R}}$ [$_{TP}$ I saw *who*]] $\rightsquigarrow$ $\exists x$. *x* animate $\wedge$ **saw**(1sg, *x*)

c. Apply $\exists_{pass}$, then *O*:
* [***O*** [$\exists_{pass}$ [$_{TP}$ I saw *who*]]]
$\rightsquigarrow$ ($\exists x$. *x* animate $\wedge$ **saw**(1sg, *x*)) $\wedge$ $\neg$**see**(1sg, ZS) $\wedge$ $\neg$**see**(1sg, LS)$\wedge$ ... Contradiction!

(41) a. Adjoin $\exists_{pass}$ under negation:
* [**NEG** [$\exists_{\mathbf{pass}}$ [$_{TP}$ I saw *who*]]] $\rightsquigarrow$ $\neg\exists x$. *x* animate $\wedge$ **saw**(1sg, *x*)

b. Then add *O* above (37):[13]
✓ [***O*** [NEG [$\exists_{pass}$ [$_{TP}$ I saw *who*]]]] $\rightsquigarrow$ $\neg\exists x$. *x* animate $\wedge$ **saw**(1sg, *x*)

Similar logic applies for other licensing contexts: see Liu and Yang 2021.

- ► I propose that $\exists_{pass}$ and *O* can be freely adjoined for all Mandarin Chinese speakers. This explains the general availability of non-interrogative, existential uses of *wh*-phrases in these licensing contexts for all speakers.
- For Type B speakers, there is no syntactic requirement on *háishi* to associate with a particular operator, and hence the *wh* logic extends immediately.
- For Type A speakers, *háishi* cannot be interpreted by $\exists_{pass}$ as above, because there is no Q or $\exists_R$ in these derivations to check *háishi*'s [uR] feature.

In all of the constructions in this section, the standard disjunctor *huòzhe* can be used by all speakers to express the same reading.

- This is predicted. *Huòzhe* bears [u$\exists$] which can be checked by $\exists_{pass}$ or $\exists_{reset}$.
- ► The interchangeability of *háishi* and *huòzhe* for Type B speakers in these environments argues against an alternative account, where there is a single disjunctor J whose pronunciation is determined post-syntactically based on the choice of operator it associates/Agrees with.

speakers in the following environments, which all license existential *wh*-phrases: in *ma* and A-not-A polar questions (pp. 63–65), under negative adverbs (pp. 65–68, 87), under epistemic possibility modals (pp. 75, 118), under a deontic possibility modal (pp. 80, 103), under non-factive embeddings such as 'think' and 'hope' (pp. 76–78), and with sentence-final *le* (p. 88).

[13] *O* is actually vacuous in this case, but it has the side effect of "resetting" the alternative set to satisfy Interpretability (17).

5 Conclusion

- I investigated the two disjunctors in Mandarin Chinese, *háishi* and *huòzhe*.

  In simple examples, they correspond one-to-one with forming alternative questions and disjunctive propositions. However, the distributions of use and interpretations for the two disjunctors is much more complicated than suggested by this first look.

► There are a variety of non-interrogative uses of *háishi*, with speaker variation:

  – For some (Type A), *háishi* lexically specifies association with Q (or $\exists_R$ for existential uses with ignorance inferences).

  – For others (Type B), *háishi* simply has the semantics of *wh*-words, with its full range of interrogative and non-interrogative uses.

- The shape of variation across Mandarin Chinese speakers highlights two ways of being an "interrogative disjunction:" this may be enforced syntactically (e.g. with Q) or by its semantics alone.

- Various other languages have so-called "interrogative" versus "standard" disjunctions. Looking for exceptional, non-interrogative uses of an "interrogative disjunctor" — and potentially, exceptional cases where "standard disjunctor" leads to an alternative question — are particularly informative.

A first look indeed shows that other such languages vary in the nature of their interrogative disjunctions:

(42) **Vietnamese conditional clause licenses non-interrogative, existential *hay* IDISJ:**

[$_{\text{cond}}$ Nếu [$_{\text{JP}}$ Minh { ✓*hoặc* / ✓*hay* } Kim] gọi đến] thì bảo là tôi đang họp.
if Minh SDISJ / IDISJ Kim call come then say that 1sg PROG meeting
'If Minh or Kim calls, say that I'm in a meeting.' (Anne Nguyen, p.c.)

(43) **Finnish conditional clause does not license non-interrogative *vai* IDISJ:**[14]

Olen onnellinen, [$_{\text{cond}}$ jos [$_{\text{JP}}$ Pekka { ✓*tai* / **vai* } Liina] tulee].
COP.1sg happy if Pekka SDISJ / IDISJ Liina comes
'I will be happy if Pekka or Liina comes.' (Hanna Parviainen, p.c.)

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[14] The Finnish interrogative disjunctor *vai* inside a conditional clause can lead to the formation of an alternative question at the level of the containing clause, but this requires the addition of a question particle *-ko*, making the *vai* option in (43) simply ungrammatical.

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