Alternative questions through focus alternatives in Mandarin Chinese

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1 Introduction

In this paper I discuss the syntax/semantics of alternative questions in Mandarin Chinese. Alternative questions are similar to *wh*-questions in that they present possible answers which cannot simply be represented as *yes* or *no*, but the variation between different answers is introduced through a disjunction rather than through a *wh*-word. Alternative questions in Mandarin use the disjunction *háishi*.

(1) **Mandarin *háishi* alternative question:**
nǐ xiǎng hē kāfēi háishi hóngchá (ne)?[1]
you want drink coffee HAISHI tea Q
Alternative question: 'Do you want to drink coffee or tea?'[2]
Possible answers: ✓(I want) coffee; ✓(I want) tea; #Yes; #No

I argue that Mandarin alternative questions are computed through the pointwise computation of Rooth-Hamblin focus alternatives, as has been argued by Beck & Kim (2006) for alternative questions in other languages. The disjunction *háishi* in (1), for example, is a local disjunction of 'coffee' and 'tea,' and this disjunction stays in-situ for interpretation. I motivate this proposal through a careful look at *háishi*'s island sensitivity, focus intervention effects, and cooccurrence with the focus marker *shì*.

Mandarin Chinese is one of a number of languages which distinguishes the disjunctions used in alternative questions from those which can be used as boolean disjunction in declaratives. Alternative questions use *háishi* which I will call *interrogative disjunction* following Haspelmath (2000). The other (logical) disjunction is *huòzhe*.[3]

I propose that *háishi* projects only a focus-semantic value, as has been argued previously for in-situ *wh*-words by Kratzer & Shimoyama (2002) and Beck (2006). The logical disjunction *huòzhe* projects both an ordinary boolean disjunction meaning and a focus-semantic value, as is proposed by Alonso-Ovalle (2006) for English *or*. A prediction of this approach which I show to be correct is that in environments where only the focus-values of a disjunction are used for interpretation, the contrast between the two disjunctions will disappear. To my knowledge, this is the first concrete proposal made for how to model the difference between these two types of disjunctions, which is also attested in other languages.

[1] Here I assume that the sentence-final *ne* in alternative questions is the Q complementizer, with a phonologically null variant. See Constant (2011) for a recent, more detailed look at *ne*.

[2] In English "Do you want to drink coffee or tea?" can be an alternative question or a polar (yes/no) question, depending on the prosody. (1) is unambiguously an alternative question.

[3] The logical disjunction can also be pronounced *huòshì* or simply *huò*.

2 Proposal

Following the work of Hamblin (1973) and Karttunen (1977), we take the denotation of a question to be a set of (intensional) propositions corresponding to possible answers to the question. For the alternative question in (1) repeated below, we must yield the denotation in (2).

(1) nǐ xiǎng hē kāfēi háishi hóngchá (ne)?
you want drink coffee HAISHI tea Q
Alternative question: 'Do you want to drink coffee or tea?'

(2) $[\![(1)]\!] = \{$you want to drink coffee, you want to drink tea$\}$

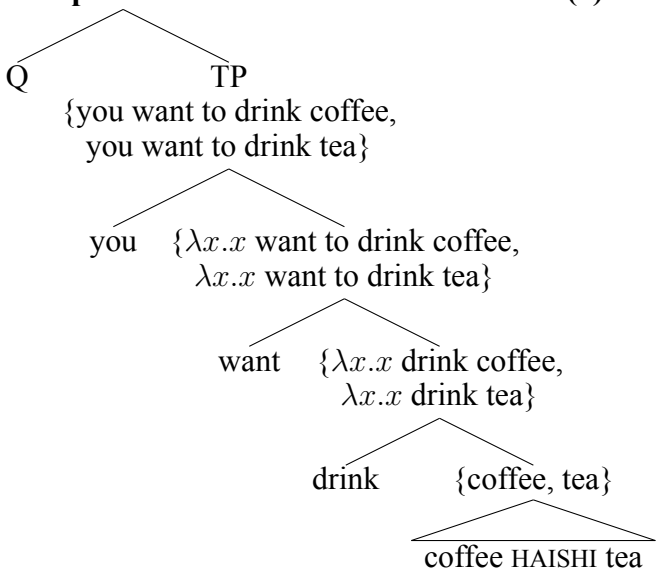
I argue following Beck & Kim (2006) that alternative questions in Mandarin are computed using a pointwise computation of Rooth-Hamblin focus alternatives, which are also used by focus-sensitive operators (Rooth 1985; 1992).

I will illustrate my analysis with the derivation of example (1). The disjunction in (1) is a local disjunction of 'coffee' and 'tea,' and this disjunction stays *in situ* throughout the derivation. The focus semantic value of the disjunctive projection, "coffee HAISHI tea," is the set of ordinary semantic values of its disjuncts, 'coffee' and 'tea.' Its ordinary semantic value is undefined.[4]

(3) $[\![$coffee HAISHI tea$]\!]^f = \{$coffee, tea$\}$; $[\![$coffee HAISHI tea$]\!]^o$ undefined

As subsequent material is merged into the structure, the new material will be composed with each of the existing focus alternatives. Thus the initial focus alternative 'coffee' will lead to the generation of the alternative 'you want to drink coffee' and the initial focus alternative 'tea' will lead to the generation of the alternative 'you want to drink tea.' Below is a simplified tree structure with focus-semantic denotations for each nonterminal node:

(4) **Computation of focus-semantic values in (1):**



[4]Here I use $[\![\cdot]\!]^f$ to indicate the focus-semantic value and $[\![\cdot]\!]^o$ to indicate the ordinary semantic value (Rooth 1985; 1992). Semantic values are represented here as extensional and stand in for intensional equivalents.

Because the ordinary semantic value of the *háishi* disjunction was undefined, the ordinary semantic values of subsequent projections will also all be undefined. We thus yield the following denotations for the clause at TP:

(5) $[\![\text{TP}]\!]^f$ = {you want to drink coffee, you want to drink tea};
$[\![\text{TP}]\!]^o$ undefined

At TP, the focus semantic value represents the two propositions corresponding to possible answers to the question, but the ordinary semantic value is undefined. I assume that the interpretation of a complete structure is the ordinary semantic value of its root node. Therefore I take the task of the question-type complementizer Q to be to lift the focus semantic value of its complement into an ordinary (question) semantic value (6) (Beck & Kim 2006). This yields the desired question interpretation, repeated below as (7).

(6) $[\![[\text{Q TP}]]\!]^o = [\![\text{TP}]\!]^f$

(7) $[\![(1)]\!]^o$ = {you want to drink coffee, you want to drink tea}

The analysis proposed here uses focus alternatives to interpret the *háishi* disjunction *in situ* without movement, and thus predicts that *háishi* alternative questions are not subject to syntactic islands. It does, however, predict that they are sensitive to so-called focus intervention effects (Beck 2006; Beck & Kim 2006), where intervening focus-operators can disrupt the proper interpretation of the question. In section 4 I show that both of these predictions in fact hold of *háishi* alternative questions.

In contrast to the alternative-question-triggering *háishi* which has a focus semantic value but no ordinary semantic value, I propose that the logical disjunction *huòzhe* has the ordinary semantic denotation of boolean disjunction while also projecting its disjuncts as focus alternatives. This is the meaning proposed by Alonso-Ovalle (2006) and Beck & Kim (2006) for disjunction in other languages which do not distinguish between logical disjunction and interrogative disjunction.

(8) **Denotations of Mandarin disjunctions**

a. Interrogative disjunction:
$[\![\text{A HAISHI B}]\!]^f = [\![\text{A}]\!]^f \cup [\![\text{B}]\!]^f$; $[\![\text{A HAISHI B}]\!]^o$ undefined

b. Logical disjunction:[5]
$[\![\text{A HUOZHE B}]\!]^f = [\![\text{A}]\!]^f \cup [\![\text{B}]\!]^f$; $[\![\text{A HUOZHE B}]\!]^o = [\![\text{A}]\!]^o \vee [\![\text{B}]\!]^o$

Because the interrogative disjunction *háishi* produces only a focus semantic value, an operator such as Q will be required to turn its output into an interpretable ordinary semantic value. This is the source of "question force" which is normally triggered by the use of *háishi*.

In the next section I will briefly sketch two previous approaches to alternative questions in Mandarin. In section 4 I will argue for my proposal based on evidence from island insensitivity, focus intervention effects, and the position of the

[5]Boolean disjunction $\vee$ can be defined over non-propositional types as well; see Appendix C of Alonso-Ovalle (2006). It does, however, require that DP disjuncts such as 'coffee' or 'tea' be interpreted as generalized quantifiers and take scope via QR.

focus marker *shì* in alternative questions. I will show that the previous analyses are unable to account for the facts presented. In section 5 I discuss environments in which *háishi* disjunction does not trigger interpretation as an alternative question, and show how they argue for the relationship between *háishi* and the logical disjunction *huòzhe* proposed in (8). I conclude in section 6.

3 Previous approaches

Two types of analyses have been previously proposed for Mandarin *háishi* alternative questions: covert movement and Conjunction Reduction.

J. Huang (1982) proposes that the *háishi*-disjunctive phrase moves covertly to Spec,CP, just as *wh*-words are argued to do. This movement is necessary to check a [+wh] feature on *háishi*, which the logical disjunction *huòzhe* does not have (Huang *et al.* 2009:242).

(9) **LF movement analysis of (1) (J. Huang 1982):**
[kāfēi háishi hóngchá]$_i$ [nǐ xiǎng hē t_i]
coffee HAISHI tea you want drink

R. Huang (2009; 2010) proposes that *háishi* alternative questions are always cases of clausal disjunction with Conjunction Reduction. In particular, R. Huang (2010) argues that *háishi* disjunctions are always underlyingly disjunctions of the minimal clauses which contain the surface-disjoined material.

(10) **Conjunction Reduction analysis of (1) (R. Huang 2009; 2010):**
[nǐ xiǎng hē kāfēi] háishi [~~nǐ xiǎng hē~~ hóngchá]
you want drink coffee HAISHI ~~you want drink~~ tea

It is unclear what principles govern this Conjunction Reduction operation. Han & Romero (2004) advocate for the Conjunction Reduction approach for alternative questions in other languages and adopt Schwarz's (1999) analysis of Conjunction Reduction as gapping, presenting parallels between the syntax of alternative questions and gapping in Hindi and Korean. Note, however, that Mandarin Chinese famously lacks gapping constructions (Tang 2001; a.o.).

4 Evidence

My proposal for Mandarin alternative questions lets us interpret the *háishi* disjunction *in situ* through focus alternative computation. The *háishi* disjunction does not move. In this section I will present a number of properties of *háishi* alternative questions which are predicted by this approach and cannot be explained under the previous analyses. I will show that *háishi* alternative questions are not sensitive to syntactic islands in section 4.1 and show the existence of focus intervention effects in section 4.2. In section 4.3 I give Mandarin-specific evidence for the interpretation of *háishi* through focus values, through its cooccurrence with the focus marker *shì*.

4.1 Island-(in)sensitivity

The first piece of evidence for the focus-alternative-based proposal comes from *háishi*'s pattern of island sensitivity. Rooth (1985) argues that association with focus between a focus-operator and a focus-marked constituent does not obey syntactic islands. Below is an example from Rooth (1985) to show the island-insensitivity of focus association with *only*:

(11) They **only** investigated [the question of whether you know the woman who chaired [the ZONING BOARD]$_F$]. (Rooth 1985)

This is a property of the way focus-semantic values are computed: denotations propogate compositionally through the entire structure without regard for intervening islands, just as do ordinary semantic values.

If, on the other hand, the disjunction had to move to the complementizer in order to take scope and be interpreted (J. Huang 1982; Larson 1985; Han & Romero 2004), we would expect questions to become ungrammatical if a syntactic island intervenes between the *háishi* disjunction and the associated complementizer.

As noted by J. Huang (1991), *háishi* alternative questions are not sensitive to sentential subject and relative clause islands. This is in contrast to the Mandarin "A-not-A" polar question form, for which J. Huang (1991) argues that null operator movement is involved. (J. Huang left off the optional final *ne* in these examples; its addition does not affect judgments.)

(12) **Sentential subjects (J. Huang 1991:313–314):**

a. *háishi* alternative question:
[$_{island}$ wǒ qù [měiguó] háishi [yīngguó]] bǐjiào hǎo
I go America HAISHI England comparatively good
Matrix alternative question: 'Is it better for me to go to America or to England?'

b. A-not-A question:
* [$_{island}$ wǒ qù bu qù měiguó] bǐjiào hǎo
I go NEG go America comparatively good
Intended: matrix alternative question: 'Is it better for me to go to America or not?'

(13) **Relative clauses (J. Huang 1991:314):**

a. *háishi* alternative question:
nǐ xǐhuān [$_{island}$ rènshì nǐ háishi bu rènshì nǐ] de rén
you like know you HAISHI NEG know you DE person
Matrix alternative question: 'Do you like people who know you or people who don't know you?'

b. A-not-A question:
* nǐ xǐhuān [$_{island}$ rènshì bu rènshì nǐ] de rén
you like know NEG know you DE person
Intended: matrix alternative question: 'Do you like people who know you or people who don't know you?'

However, *háishi* alternative questions are not without island sensitivity: *háishi* alternative questions are subject to *wh*-islands. The baseline in (14) shows that *háishi* can be embedded under the declarative-embedding verb *juéde* 'think.' In (15), the embedded clause is turned into a subject *wh*-question under the the question-embedding verb *xiǎng zhīdào* 'wonder.' The result is ungrammatical, despite the fact that the intended matrix alternative question interpretation is natural.

(14) **Baseline: *háishi* disjunction in embedded clause**
✓nǐ juéde [Zhāng Sān xǐhuān Lǐ Sì háishi Wáng Wǔ] (ne)?
you think Zhang San like Li Si HAISHI Wang Wu Q
Matrix alternative question: 'Do you think Zhang San likes Li Si or Wang Wu?'

(15) ***Háishi* is *wh*-island-sensitive:**
* nǐ xiǎng zhīdào [$_{wh\text{-}island}$ shéi xǐhuān Lǐ Sì háishi Wáng Wǔ] (ne)?
you wonder who like Li Si HAISHI Wang Wu Q
Intended: matrix alternative question: 'Is it Li Si or Wang Wu that you wonder who likes ___?'

The focus alternatives approach to *háishi* questions predicts this pattern of island-sensitivity, in the same way that Japanese *wh*-nominals yield *wh*-island effects according to Shimoyama (2006). Question-embedding verbs such as *xiǎng zhīdào* 'wonder' require that their complement be headed by Q, which will convert CP_2's focus semantic value into an ordinary semantic value. The complement of Q_1 will no longer contain multiple focus alternatives so CP_1 cannot be interpreted as a question.

(15') [$_{CP_1}$ Q_1 you wonder [$_{CP_2}$ Q_2 who like [Li Si HAISHI Wang Wu]]]

The previous analyses do not predict this pattern of islandhood. For J. Huang's (1982) covert movement approach, the lack of island effects may be expected for *háishi* disjunction of arguments: assuming covert movement can violate Subjacency/CED, *háishi* argument disjunctions would be island-insensitive just as *wh*-arguments are. As noted by R. Huang (2010), however, J. Huang's (1982) analysis predicts that embedded *háishi* disjunction of non-arguments would be island-sensitive, due to the ECP. Embedded *háishi* disjunctions of adjuncts can, however, be interpreted as matrix alternative questions, as seen in example (17).[6]

(16) **Adjunct *wh*-in-situ is sensitive to RC islands (R. Huang 2010:124):**
* nǐ xǐhuān [$_{island}$ Xiǎodi wèishénme xiě] de shū?
you like Xiaodi why write DE book
Intended: 'What is the reason x such that you like books which Xiaodi wrote for reason x?'

[6] R. Huang (2010:125) shows that the copula *shì* and conjunctive *ér* in (17) are independently required in this sentence and not due to the *háishi* disjunction.

(17) **Adjunct *háishi* is not sensitive to CNP islands (R. Huang 2010:125):**
nǐ xiāngxìn [$_{island}$ Xiǎodi shì [yīnwèi qiàn zhài] háishi [yīnwèi shī liàn]
you believe Xiaodi be because owe debt HAISHI because lose romance
ér zìshā] de shuōfǎ ne?
so suicide DE story Q
Alternative question: 'Do you believe the story that Xiaodi committed suicide because of owing debt or because of falling out of love?'

4.2 Intervention effects

Beck (2006) argues that *intervention effects* occur when a focus-sensitive operator (*intervener*) intervenes between a *wh*-item and its corresponding complementizer. Beck (2006); Beck & Kim (2006) show that such intervention effects also occur with alternative questions. In (19b), the intervener (in bold) is negation.

(18) **Beck's (2006) schema for focus intervention effects:**
* [Q_i ... [**Focus-Op** [... wh_i ...]]]

(19) **Intervention effects in alternative questions (Beck & Kim 2006:172):**
a. ✓ Did Sue read ['Pluralities'] or ['Barriers']?
b. * **Didn't** Sue read ['Pluralities'] or ['Barriers']?

Below we see that the focus-sensitive negation *bu* yields intervention effects in Mandarin *háishi* alternative questions:

(20) **Baseline:**
✓nǐ xiǎng [sǎo dì] háishi [xǐ wǎn] (ne)?
you want sweep floor HAISHI wash dishes Q
Alternative question: 'Do you want to sweep the floor or wash dishes?'

(21) **Negation above the disjunction is ungrammatical:**
* nǐ **bu** xiǎng [sǎo dì] háishi [xǐ wǎn] (ne)?
you NEG want sweep floor HAISHI wash dishes Q
Intended: alternative question: 'Do you not want to sweep the floor or not want to wash dishes?'

The addition of the negation *bu* above the disjunction of 'sweep the floor' and 'wash dishes' leads to ungrammaticality. Note that the intended alternative question is not infelicitous. The problem can be avoided by choosing to introduce the disjunction higher than the intervener, as in (22). (22) grammatically expresses the intended meaning of (21), by producing the negation and control verb 'want' in both disjuncts.

(22) **No intervention with disjuncts which include the negation:**
✓nǐ [**bu** xiǎng sǎo dì] háishi [**bu** xiǎng xǐ wǎn] (ne)?
you NEG want sweep floor HAISHI NEG want wash dishes Q
Alternative question: 'Do you not want to sweep the floor or not want to wash dishes?'

My proposal accounts for this contrast, as the focus-sensitive negation intervenes between Q and the *háishi* disjunction in (21) but not in (22).

Similarly, subject focus constructions which have been shown to produce intervention effects in Chinese *wh*-questions (Yang 2006) and alternative questions in other languages (Beck & Kim 2006) also trigger intervention effects in *háishi* alternative questions.[7]

(23) **Subject focus triggers intervention effects (Beck & Kim 2006):**
* Did **only** [John]$_F$ drink coffee or tea?

(24) a. * **shi** [Zhāng Sān]$_F$ chī le [píngguǒ] háishi [júzi] (ne)?
SHI Zhang San eat LE apple HAISHI orange Q
Intended: alternative question: 'Was it an apple or an orange that it was Zhang San who ate ___?'

b. * **zhǐyǒu** [Zhāng Sān]$_F$ chī le [píngguǒ] háishi [júzi] (ne)?
only Zhang San eat LE apple HAISHI orange Q
Intended: alternative question: 'Was it an apple or an orange that only Zhang San ate ___?'

The existence of focus intervention effects in *háishi* alternative questions is unpredicted by previous approaches. Under the covert movement approach (J. Huang 1982), no intervention effects are predicted as the disjunction will always move to Spec,CP at LF, above the interveners. Focus intervention effects do not occur when the question-triggering element (here, the *háishi* disjunction) moves above the intervener, regardless of whether this movement is covert or overt (Beck 2006).

The Conjunction Reduction approach (R. Huang 2009; 2010) also cannot explain these intervention effects. For example, under the Conjunction Reduction approach, the same underlying structure is posited for the ungrammatical (21) and grammatical (22), repeated below as (25a,b), with differing extents of Conjunction Reduction. No theory is given as to how this surface deletion process would be restricted by focus interveners.

(25) **Patterns of intervention unexplained under Conjunction Reduction:**

a. * [nǐ **bu** xiǎng sǎo dì] háishi [~~nǐ~~ **~~bu~~** ~~xiǎng~~ xǐ wǎn] (ne)?
you NEG want sweep floor HAISHI ~~you~~ ~~NEG~~ ~~want~~ wash dishes Q
Intended: alternative question: 'Do you not want to sweep the floor or not want to wash dishes?' (=21)

b. ✓ [nǐ **bu** xiǎng sǎo dì] háishi [~~nǐ~~ **bu** xiǎng xǐ wǎn] (ne)?
you NEG want sweep floor HAISHI ~~you~~ NEG want wash dishes Q
Alternative question: 'Do you not want to sweep the floor or not want to wash dishes?' (=22)

[7] The sentence-initial *shì* in (24) has a cleft-like semantics and must associate with the subject (Paul & Whitman 2008). *Shì* will be discussed in more detail in section 4.3.

4.3 The position of the focus marker *shì*

In this section I discuss the morpheme *shì* which optionally occurs to the left of a *háishi* disjunction, exemplified below in (26).

(26) ***shì* marking the left edge of a *háishi* disjunction**
nǐ shì [xiǎng hē kāfēi] háishi [xiǎng hē hóngchá] (ne)?
you SHI want drink coffee HAISHI want drink tea Q
Alternative question: 'Do you want to drink coffee or tea?'

The same morpheme *shì* also occurs in Mandarin focus constructions, such as subject clefts and narrow focus constructions, and thus has been described as a *focus marker* in previous literature (Paul & Whitman 2008; Erlewine 2010; a.o.).[8] In this section I argue that the *shì* which occurs optionally in *háishi* questions *is* the focus marker *shì*. The unified distribution of *shì* in both *háishi* questions and focus constructions can be straightforwardly captured if the interpretation of *háishi* disjunction produces focus values, as proposed here.

Paul & Whitman (2008) describe the distribution of the focus marker *shì* and, in so doing, identify three different uses of the focus marker *shì*. *Shì* can occur either sentence-medially (pre-VP) or sentence-initially (pre-subject). Sentence-medial *shì* indicates narrow focus on a constituent within VP. Sentence-initial *shì* indicates focus on either the subject or the entire proposition. These patterns are summarized in table 1.

position	focused constituent
sentence-medial	constituent within VP
sentence-initial	subject (cleft)
sentence-initial	entire sentence

Table 1: Positions and associated foci of the focus marker *shì* (Paul & Whitman 2008)

I will show that for each position in the clause where focus alternatives may be produced—either through focus-marking or *háishi* disjunction—the distribution of the focus marker *shì* is identical between the focus constructions and alternative questions. I begin with cases where focus alternatives originate within the VP.

(27) **Focus within VP ⇒ sentence-medial *shì***
(*shì) wǒ (shì) xiǎng (*shì) [SǍO DÌ]$_F$
SHI I SHI want sweep ground
'I want to [SWEEP THE FLOOR]$_F$' (...not wash dishes)

(28) **Disjunction within VP ⇒ sentence-medial *shì***
(*shì) nǐ (shì) xiǎng (*shì) [sǎo dì] háishi [xǐ wǎn] (ne)?
SHI you SHI want SHI sweep ground HAISHI wash dishes Q
Alternative question: 'Do you want to sweep the floor or wash dishes?'

In both the narrow focus construction and alternative question above, *shì* can only occur in one position: in sentence-medial position, to the left of the main verb.[9]

[8] *Shì* is also homophonous and homographous with the copula. I assume that this use as a lexical verb is, at least synchronically, a separate lexical item.

[9] I will not explain the inability of *shì* to occur within the control verb *xiǎng* 'want' here.

Focus on the subject can be indicated by a sentence-initial *shì*, yielding exclusive, cleft-like semantics (Paul & Whitman 2008). When *háishi* disjunction is in subject position, *shì* can optionally occur in sentence-initial position.

(29) **Focus on subject ⇒ sentence-initial *shì***
shì [MĀO]$_F$ (*shì) tōu le yú.
SHI cat SHI steal LE fish
'It's [the CAT]$_F$ that stole the fish.' (...not the dog)

(30) **Disjunction in subject ⇒ sentence-initial *shì***
(shì) [māo] háishi [gǒu] (*shì) tōu le yú (ne)?
SHI cat HAISHI dog SHI steal LE fish Q
Alternative question: 'Did the cat or the dog steal the fish?'

Finally, in cases where the entire clause is emphasized in contrast to other propositions, sentence-initial *shì* is used. Similarly, in *háishi* disjunctions of entire clauses, *shì* can occur sentence-initially.

(31) **Focus on entire clause ⇒ sentence-initial *shì***
Context: "The computer's broken. Did you break the computer?"
(shì) [diànnǎo zìjǐ dāngjī le]$_F$
SHI computer ZIJI crash LE
'(It's that) the computer crashed by itself.'

(32) **Disjunction over distinct clauses ⇒ sentence-initial *shì***
(shì) [nǐ (*shì) nòng cuò le] háishi [diànnǎo zìjǐ dāngjī le] (ne)?
SHI you SHI make wrong LE HAISHI computer ZIJI crash LE Q
Alternative question: 'Did you make a mistake or did the computer crash by itself?'

As can be seen from the pairs above, the position of the focus marker *shì* in focus constructions and the position of the optional *shì* in *háishi* alternative questions are identical. I argue that the *shì* which optionally marks *háishi* alternative questions is the standard Mandarin focus marker *shì*. Under the proposal made here, we are able to unify the *shì* in these different environments with a simple generalization:

(33) **Descriptive generalization of *shì* position:**[10]
The focus marker *shì* optionally occurs immediately above VP or TP when its complement has a non-trivial focus semantic value.[11] *Shì* should be on the lowest position possible.

Other analyses involving covert movement or Conjunction Reduction would have to stipulate the availability of *shì* in alternative questions, with coincidentally the same distribution as the focus marker *shì*.

[10] See also Erlewine (2010) which argues that the focus marker *shì* marks the position where focus alternatives are computed.

[11] Recall that constituents which contain no focus-alternative-generating constituents, such as focus-marking or *háishi* disjunctions, have a focus value which is the singleton set of its ordinary semantic value. A non-trivial focus semantic value means having a non-singleton set of focus alternatives.

5 Non-question uses of *háishi*

In most cases—and in all cases discussed thus far—the interrogative disjunction *háishi* clearly contrasts with the "logical" disjunction *huòzhe*, in that the use of *háishi* forces an alternative question interpretation. This contrast is observed in minimal pairs such as (34).

(34) **Normally *háishi* and *huòzhe* require differing interpretations:**

a. Zhāng Sān xiǎng hē kāfēi *háishi* hóngchá (ne)?
Zhang San want drink coffee HAISHI tea Q
✓ Alternative question: 'Does Zhang San want to drink coffee or tea?'
* Declarative: Zhang San wants to drink coffee or tea.

b. Zhāng Sān xiǎng hē kāfēi *huòzhe* hóngchá
Zhang San want drink coffee or tea
* Alternative question: 'Does Zhang San want to drink coffee or tea?'
✓ Declarative: Zhang San wants to drink coffee or tea.

However, there are environments in which *háishi* and *huòzhe* are interchangeable. Note in particular that in these environments, *háishi* does not trigger an alternative question interpretation.

(35) **The antecedent of a conditional (based on R. Huang 2010:128):**
yàoshì Akiu [cízhí] {háishi/huòzhe} [tuìxiū] dehuà, qǐng gàosù wǒ
if Akiu resign HAISHI/or retire the.case please tell me
'If Akiu resigns or retires, please tell me.'

(36) **Under a modal (based on R. Huang 2010:130):**
tā kěnéng xǐhuān [Zhāng Sān] {háishi/huòzhe} [Lǐ Sì]
s/he might like Zhang San HAISHI/or Li Si
'S/he might like Zhang San or Li Si.'

I argue that the environments where the interrogative disjunction *háishi* and logical disjunction *huòzhe* are interchangeable are precisely those environments which interpret disjunction through their focus semantic values only. As *háishi* lacks an ordinary semantic value, it requires an operator such as Q in order to be interpreted, unless another operator has already constructed an ordinary focus value out of the focus semantic value of *háishi*. Thus these environments block the alternative question "force" of *háishi*.

Alonso-Ovalle (2006) has shown that, for independent semantic reasons, disjunction in certain environments must be interpreted by accessing the individual disjuncts and cannot be computed through a standard boolean disjunction semantics. He argues that the individual disjuncts are projected through focus alternatives, as proposed independently by Beck & Kim (2006). In these environments, only these focus alternatives are used in the interpretation of the disjunction.

The environments that Alonso-Ovalle (2006) identify as interpreting disjunction through focus alternatives include counterfactual conditionals and modals. The interpretation of disjunction in non-counterfactual conditionals is also amenable to an analysis which uses focus semantic values only. This describes the environments identified in the examples (35–36) above.

Consider Alonso-Ovalle's (2006) example of disjunction within the scope of a modal:

(37) Sandy may have ice cream or cake. (Alonso-Ovalle 2006)

A salient deontic reading of (37) asserts that Sandy may have ice cream *and* that Sandy may have cake. In particular, this reading of (37) is judged as false if Sandy is only allowed to have ice cream or only allowed to have cake. If the *or* in (37) were the standard boolean disjunction, the sentence would instead be predicted to be true in such cases. In order to compute the correct assertion, he argues, *or* must project its individual disjuncts in its focus semantic value. In addition, the ordinary semantic value projects the standard boolean disjunction meaning.

(38) $[\![\text{ice cream OR cake}]\!]^f = \{\text{ice cream, cake}\}$,
$[\![\text{ice cream OR cake}]\!]^o = \text{ice cream} \vee \text{cake}$

Alonso-Ovalle (2006) shows how the individual disjuncts projected through the focus value of *or* interact with the semantics of counterfactual conditionals and modals to yield the correct interpretations. In such environments, the ordinary semantic value of boolean disjunction is not used. Instead, only the focus semantic values projected by the disjunction are considered.

I analyze the Mandarin disjunctions *háishi* and *huòzhe* to be the same in both projecting their disjuncts as focus values, but differing in whether ordinary semantic values are defined. Thus, in environments where disjunctions are interpreted solely through their focus semantic values, it is predicted that they will be interchangeable.

My analysis predicts that (a) *háishi* and *huòzhe* are interchangeable and (b) *háishi* loses its alternative question "force," precisely in the scope of those operators which must use the focus alternatives of disjunction instead of boolean disjunction for their proper interpretation.[12] Following the work of Alonso-Ovalle (2006), these effects within the antecedent of conditionals (35) and modals (36) is explained through the semantics of these environments.

Previous analyses of Mandarin alternative questions do not attempt to explain these environments in which the disjunctions are interchangeable. For example, Huang *et al.* (2009) suggests that *háishi* has a [+wh] feature but the logical disjunction *huòzhe* does not. This feature-based approach incorrectly predicts that the *háishi* variants of (35–36) will necessarily be interpreted as alternative questions, unless conditionals and modals somehow have the ability to check a [+wh] feature.

[12] However, this predicts that *huòzhe* disjunction can also be interpreted as an alternative question, given Q. It is possible that transderivational competition makes such a reading marked.

6 Conclusion

I presented a new approach to Mandarin alternative questions which uses the Rooth-Hamblin computation of focus alternatives. The proposal explains *háishi* alternative questions' insensitivity to strong syntactic islands, sensitivity to *wh*-islands, and their intervention effects. I showed that the *shì* which optionally occurs to the left of *háishi* disjunctions is in fact the general Mandarin focus marker *shì* (Paul & Whitman 2008; Erlewine 2010). I proposed that *háishi* projects only a focus-semantic value while the logical disjunction *huòzhe* also produces an ordinary semantic value, explaining the difference between *háishi* and *huòzhe*, as well as their neutralization in environments which interpret disjunction through focus alternatives only (Alonso-Ovalle 2006).

Different lexical items for logical and interrogative disjunctions are also attested in a number of other languages.[13] The proposal here provides an approach to the formal semantics of these disjunctions, and makes concrete predictions about their distributions. I note that previous approaches involving covert movement (J. Huang 1982) and Conjunction Reduction (R. Huang 2009; 2010) do not adequately account for these facts.

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[13] Amharic, Syrian Arabic, Basque, Buriat, Finnish, Gothic, Kannada, Latin, Lithuanian, Sinhala, Vietnamese, and Yoruba (see Moravcsik 1971; Alonso-Ovalle 2006; Slade 2011 and references therein).

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