

# Disjunctions and questions in Mandarin Chinese

[現代漢語析取連接詞與選言疑問句之研究]

Yuyun Iris Wang [王昱勻]

Ming Chuan University [銘傳大學]

This paper observes two disjunction markers in Mandarin Chinese: *haishi* and *huoshi*. The aim of this study is to investigate the grammatical distinctions between them. Although both disjunction markers convey logical disjunction meaning *or*, *haishi* is primarily associated with interrogative contexts, such as alternative questions, and encodes exclusivity, whereas *huoshi* is primarily found in declarative sentences, allowing inclusive interpretations. Consequently, I propose that *haishi* functions as an exclusive disjunction marker, imposing mutual exclusivity on alternatives, while *huoshi* serves as an inclusive disjunction marker, allowing overlap among alternatives. This proposal thus provides a systematic analysis that accounts for their patterns of interchangeability and non-interchangeability by examining their distributions in the following linguistic environments: alternative and polar questions, embedded clauses of *know*-predicate, cleft constructions, and downward-entailing contexts.

**Keywords:** disjunction, exclusive *or*, inclusive *or*, alternative questions, exhaustivity, downward entailment

**關鍵詞：**析取連接詞、排他性、兼容性、選言疑問句、窮盡性、向下蘊涵

## 1. Introduction

In Mandarin Chinese, the distinction between the disjunction markers *haishi* and *huoshi* presents an intriguing and nuanced aspect of the relationship between syntax and semantics. Although both markers serve to express disjunction (i.e., the logical *or*), they differ in their syntactic distributions. *Haishi* is predominantly used in interrogative sentences, such as alternative questions. In contrast, *huoshi* tends to appear in declarative sentences, often used to list options or alternatives in statements. This syntactic divergence can be observed in the following examples:

- (1) Zhangsan xihuan he cha haishi kafei ne?  
Zhangsan like drink tea or coffee Q  
'Does Zhangsan like to drink tea or coffee?'
- (2) Zhangsan xihuan he cha huoshi kafei.  
Zhangsan like drink tea or coffee  
'Zhangsan likes to drink tea or coffee.'

In (1), *haishi* is used to present an alternative question, prompting a choice between two options. In contrast, *huoshi* in (2) is used to describe a set of alternatives in a declarative context. Huang (1982) and Huang, Li & Li (2009) propose that this distributional difference can be attributed to a [+wh] feature associated with *haishi*. In other words, *haishi* can be analogized to other *wh*-phrases, such as *shei* 'who' and *shenme* 'what,' which also carry a [+wh] feature. This [+wh] feature associates *haishi* with question formation, explaining its occurrence in interrogative contexts. On the other hand, *huoshi*, which lacks the [+wh] feature, is confined to declarative contexts in which it functions as a simple disjunctive marker. It is important to clarify, however, that labeling *haishi* as [+wh] does not imply that it is itself interrogative. Following Kuroda (1988) and Aoun & Li (1993), a [+wh] feature indicates the potential to be bound or licensed by interrogative operators but does not inherently mark an expression as a question word. For instance, *shei* 'who' is [+wh], yet remains indeterminate unless licensed in a [+Q] environment. Similarly, *haishi* may appear in various contexts that license *wh*-indefinites, without necessarily contributing interrogativity on its own.

At first glance, this distinction might suggest that *haishi* and *huoshi* are in complementary distribution, meaning they do not overlap in usage and are restricted to specific sentence environments. However, Lin (2008) and Erlewine (2025) challenge this view by demonstrating that the two disjunction markers can appear interchangeably in certain environments, particularly under the scope of negation, (un)conditionals, and other non-veridical contexts. This interchangeability is illustrated in the following examples:

- (3) Wo mei you kanjian Zhangsan haishi/huoshi Lisi.  
I not have see Zhangsan or Lisi  
'I did not see Zhangsan or Lisi.' (Lin 2008: 11)
- (4) Ni keyi gen Zhangsan haishi/huoshi Lisi daqiu.  
you can with Zhangsan or Lisi play.ball  
'You can play ball with either Zhangsan or Lisi.'
- (5) Ruguo Zhangsan haishi/huoshi Lisi da dianhua lai, jiu shuo wo bu zai.  
if Zhangsan or Lisi call phone come then say I not in  
'If Zhangsan or Lisi calls, tell them I am not here.'
- (6) Wulun/buguan Zhangsan haishi/huoshi Lisi da dianhua lai, wo dou bu  
no.matter Zhangsan or Lisi call phone come I all not  
xiang jie.  
want answer  
'No matter whether Zhangsan or Lisi calls, I don't want to answer.'

The interchangeability of *haishi* and *huoshi* in these environments may be explained by the theory of downward entailment (DE) as described by (Ladusaw 1979, Giannakidou 2002, Chierchia 2013). DE contexts, which include negation, (un)conditionals, and other non-veridical operators, allow the truth of a proposition to be preserved when elements are replaced with more specific alternatives. This semantic property accounts for the flexibility observed with *haishi* and *huoshi*, suggesting that their syntactic distributions are relaxed under DE conditions. Thus, the interchangeability of the two disjunction markers in these contexts challenges the notion of their strict complementary distribution and raises questions about the interaction between Mandarin disjunction and DE environments.

The primary goal of this paper is to explore these contexts in which *haishi* and *huoshi* overlap and to investigate the syntactic and semantic factors that allow for their interchangeability. Specifically, this paper aims to address the following research questions: (a) What are the syntactic and semantic constraints that govern the use of *haishi* and *huoshi*? (b) How do DE environments influence their distribution? (c) What implications do these findings have for our understanding of Mandarin Chinese *wh*-constructions and disjunction markers more broadly? In a nutshell, I propose that *haishi* functions as an exclusive disjunction marker, whereas *huoshi* serves as an inclusive disjunction marker.

This paper is organized as follows: Section 2 reviews prior analyses of Mandarin Chinese disjunction, with a focus on Lin (2008) and Erlewine (2025), and identifies potential shortcomings in their accounts. Section 3 presents the main proposal, which distinguishes *haishi* as an exclusive disjunction marker and

*huoshi* as an inclusive one, and extends this proposal to the analysis of alternative questions, polar questions, and the interchangeability between the two disjunction markers. Section 4 discusses the implications of these findings and concludes the paper. This study aims to deepen our understanding of how disjunction interacts with syntax and semantics in Mandarin Chinese.

## 2. Literature review

The disjunction markers *haishi* and *huoshi* in Mandarin Chinese have been extensively studied in the literature. In this section of the literature review, I will examine the analyses proposed by Lin (2008) and Erlewine (2025) respectively. Lin analyzes *haishi* from the perspective of negative polarity items (NPIs), while Erlewine compares it to *wh*-phrases. However, both approaches face empirical and theoretical challenges in fully explaining the distribution and interpretation of *haishi*. This section critically reviews the key claims of these analyses and highlights several unresolved issues that require further investigation.

### 2.1 Lin (2008): NPI analysis

Lin (2008) observes that *haishi* is not confined to alternative questions and can also appear in non-interrogative contexts, such as DE environments, as illustrated in (3)–(6) above.<sup>1</sup> She connects this observation to the behavior of *wh*-phrases, which also adopt non-interrogative interpretations in DE contexts, as shown in the following examples:

- (7) Wo mei you kanjian shei.  
I not have see who  
'I did not see anyone.'
- (8) Wulun/buguan shei da dianhua lai, wo dou bu xiang jie.  
no.matter who call phone come I all not want answer  
'No matter who calls, I do not want to answer.'
- (9) Shei dou keyi canjia zhe-ge-yanjiang.  
who all can participate this-CL-lecture  
'Anyone can attend this lecture.'

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1. In addition to these examples, Lin (2008) carefully compiled other possible syntactic environments in which non-interrogative *haishi* can occur in her master's thesis (cf. [120] in Lin 2008: 51).

The syntactic and semantic properties of *wh*-phrases in Mandarin Chinese have been widely explored in the literature (e.g., Li 1992, Lin 1996, Kuo 2003), particularly their behavior in environments associated with NPIs. NPIs are typically restricted to negative or non-veridical contexts, such as DE environments, due to their sensitivity to specific semantic conditions. Accordingly, *wh*-phrases like *shei* ‘who’ and *shenme* ‘what’ in Mandarin Chinese are often analyzed as NPI-like elements when appearing in non-interrogative contexts.

Lin (2008) follows Kuo (2003) in assuming that non-interrogative *haishi* is also an NPI because it can be licensed in DE contexts. Furthermore, she emphasizes that non-interrogative *haishi*-phrases are not just limited to DE environments but are better explained by the concept of non-veridicality, as articulated by Giannakidou (2002). As a result, she assumes that the non-interrogative *haishi* must be licensed by the DE operators and nonveridical operators, though she does not provide a detailed account of this licensing mechanism.

While Lin (2008) presents an intriguing parallel between *haishi* and *wh*-phrases in non-veridical and DE environments, this analysis faces significant empirical challenges. Most notably, both *wh*-phrases and *haishi* readily appear in veridical and upward-entailing contexts as well, as demonstrated by the examples below:

- (10) Zhangsan zhidao shei lai-le.  
 Zhangsan know who come-ASP  
 ‘Zhangsan knows who came.’
- (11) Zhangsan zhidao Lisi he-le cha haishi kafei.  
 Zhangsan know Lisi drink-ASP tea or coffee  
 ‘Zhangsan knows whether Lisi drank tea or coffee.’

The verb *zhidao* ‘know’ is a veridical predicate, and both *shei* ‘who’ and *haishi* can be embedded under it. Contrary to potential assumptions that *haishi* might carry an interrogative reading here or function as an NPI, I propose that *haishi* is fundamentally treated as a disjunction marker with an exclusive meaning. Therefore, when *haishi* appears in the complement of *zhidao* ‘know’, the *haishi*-phrase does not necessarily have an interrogative reading. Its occurrence in this veridical, upward-entailing environment is specifically intended to demonstrate that it can survive in such contexts, which directly challenges Lin’s analysis of *haishi* as an NPI. Instead of treating *haishi* primarily as an interrogative element or an NPI, its observed distribution patterns are better accounted for by its core role as an exclusive disjunction marker. Moreover, the upward entailing nature of these contexts is clearly evidenced by valid inferences like (12) and (13) below:

- (12) a. Zhangsan zhidao waiyu xi de xuesheng lai-le.  
 Zhangsan know foreign.language department MOD student come-ASP  
 ‘Zhangsan knows foreign language department students came.’  
 → b. Zhangsan zhidao xuesheng lai-le.  
 Zhangsan know student come-ASP  
 ‘Zhangsan knows students came.’

The verb *zhidao* ‘know’ also creates an upward entailing context because knowing a proposition about a more specific subset entails knowing the corresponding proposition about the larger set. Therefore, the inference is valid because the truth of (12a) guarantees the truth of (12b), given the hierarchical relationship between the sets described. The same applies to the case with *haishi* in (13) below:

- (13) a. Zhangsan zhidao Lisi he-le cha haishi kafei.  
 Zhangsan know Lisi drink-ASP tea or coffee  
 ‘Zhangsan knows whether Lisi drank tea or coffee.’  
 → b. Zhangsan zhidao Lisi he-le yinliao.  
 Zhangsan know Lisi drink-ASP beverage  
 ‘Zhangsan knows Lisi drank beverages.’

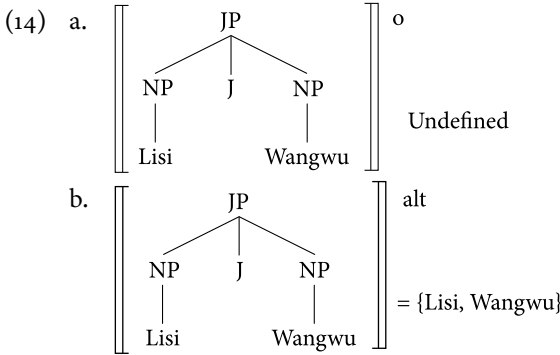
These data present a serious challenge to analyzing either *wh*-phrases or *haishi* as NPIs. It is assumed that NPIs are not licensed in upward-entailing contexts (von Stechow 1999, Chierchia 2013). The hallmark characteristic of NPIs is their restriction to non-veridical or DE environments, yet both elements *wh*-phrases and *haishi* occur freely in veridical and upward entailing contexts. Moreover, the interrogative uses of both *wh*-phrases and *haishi*, i.e., their most basic and frequent function, cannot be reconciled with an NPI analysis, as interrogatives do not create the semantic environments typically required for NPI licensing.

This broader distribution suggests we need a more comprehensive account that can explain both the downward-entailing and upward-entailing uses of these elements, as well as their interrogative functions. Such an analysis would also need to address the apparent interchangeability between *haishi* and *huoshi*, which remains unexplained under the NPI approach. Rather than focusing solely on their behavior in DE contexts, a more promising direction might be to examine the underlying semantic properties that allow these elements to function across such diverse environments.

## 2.2 Erlewine (2025): Two layers of alternative semantics

Erlewine (2025) argues that the disjunction markers in Mandarin Chinese share basic syntax and semantics with junction heads (J), which serve as the common

core of both *haishi* and *huoshi*. Adopting the Alternative Semantics framework (Hamblin 1973, Rooth 1985, 1992) and following Beck (2006) and Kotek (2019), he proposes that the Junction Phrase (JP) has an alternative set denotation that is the union of its disjuncts' alternative set denotations, while its ordinary semantic value remains undefined, as shown below.



(Erlewine 2025)

Next, he treats disjuncts as sets of alternatives interpreted by distinct operators: a question operator (Q) for *haishi* and an existential operator ( $\exists$ ) for *huoshi*. These operators determine the disjunction types: interrogative for *haishi* and declarative for *huoshi*.

Notice that Erlewine draws an analogy between *haishi* and typical *wh*-phrases, as both lack an ordinary semantic value. To satisfy the Interpretability constraint, applying the question operator (Q) to either element produces an interpretable *wh*-question. *Huoshi*, however, differs in that it carries an uninterpretable feature  $[\text{u}\exists]$ , which must be checked through Agree with either  $\exists_{\text{reset}}$  or  $\exists_{\text{pass}}$ .<sup>2</sup> Because *huoshi* already has a defined ordinary value, Erlewine argues that the Q operator cannot apply to it. As a result, when *huoshi* combines with  $\exists_{\text{reset}}$ ,

2. According to Erlewine (2025), the existential closure operators  $\exists_{\text{reset}}$  and  $\exists_{\text{pass}}$  serve distinct roles in the interpretation of disjunctions.  $\exists_{\text{reset}}$ , which does not apply freely, collapses the alternatives into a single ordinary semantic value and replaces the alternative set with a singleton containing this value. This ensures that the ordinary semantic value is compatible with the alternative set, satisfying interpretability requirements. In contrast,  $\exists_{\text{pass}}$  applies freely and defines an ordinary semantic value while passing up its sister's alternative set unchanged. This allows the alternatives to remain available for further computation, such as interaction with higher-level operators like modals. This distinction plays a crucial role in explaining why *haishi* can later appear in non-interrogative contexts for Type B speakers, as it preserves the alternatives for broader semantic flexibility. For more detail regarding existential closure mechanisms for indefinites and disjunctions, please refer to Kratzer & Shimoyama (2002).

it necessarily yields a logical Boolean disjunction rather than an alternative question. Erlewine's proposal basically derives the one-to-one correlation of *huoshi* being a logical disjunction and *haishi* resulting in an alternative question interpretation.

Finally, Erlewine discusses the non-interrogative uses of *haishi* and categorizes these uses into two types according to different speaker groups, labeled Type A and Type B. Type A speakers restrict *haishi* to occur only in unconditional constructions, in which *haishi* is still essentially treated as an interrogative expression due to the nature of such constructions. In contrast, Type B speakers allow *haishi* to be used in non-interrogative contexts, treating it similarly to existential *wh*-phrases. For these speakers, *haishi* is not syntactically constrained to co-occur with the question operator (Q), which enables *haishi* to appear in declarative or modal contexts, such as under epistemic modals *keyi* 'can.' This broader usage reflects greater semantic flexibility. For Type B speakers, the  $\exists_{\text{pass}}$  operator plays a critical role by allowing *haishi* to retain its alternatives for further interpretation, particularly in contexts where the alternatives contribute to existential or modal meanings.

According to Erlewine, *haishi* and *huoshi* share identical mechanisms for introducing alternatives, differing only in the operator that interprets them: Q for *haishi* and an existential operator ( $\exists$ ) for *huoshi*. This analysis assumes that the set of alternatives generated by both disjunctors should be equivalent in non-interrogative contexts. However, (15) shows that this equivalence fails:

- (15) a. Zhangsan zhidao Lisi he-le cha haishi kafei, (#danshi ta bu zhidao  
Zhangsan know Lisi drink-ASP tea or coffee but he not know  
shi na-ge).  
is which-CL  
'Zhangsan knows whether Lisi drank tea or coffee (#but he doesn't know  
which one).'
- b. Zhangsan zhidao Lisi he-le cha huoshi kafei, (danshi ta bu zhidao  
Zhangsan know Lisi drink-ASP tea or coffee but he not know  
shi na-ge).  
is which-CL  
'Zhangsan knows that Lisi drank tea or coffee (but he doesn't know which  
one).'

In (15a), the occurrence of *haishi* is infelicitous with the continuation 'but he doesn't know which one.' This suggests that *haishi* introduces alternatives in a way that precludes ambiguity resolution at the ordinary semantic level. By contrast, (15b) with *huoshi* is felicitous, indicating that it allows the alternatives to remain unresolved, aligning with its existential interpretation. This difference

undermines the claim that both disjunction markers project identical alternative sets. Instead, it implies that *haishi* generates alternatives with a more restricted interpretation.

Moreover, Erlewine's analysis assumes that *haishi* lacks an ordinary semantic value, similar to *wh*-phrases, with its alternatives interpreted exclusively by the Q operator. However, (15a) suggests otherwise. The felicity of *Zhangsan zhidao Lisi he-le cha haishi kafei* 'Zhangsan knows whether Lisi drank tea or coffee' demonstrates that *haishi* can contribute an interpretable proposition at the ordinary semantic level, akin to a boolean disjunction. This contradicts Erlewine's assumption that *haishi* always relies on higher-level operators like Q for interpretation. The incompatibility of *haishi* with the continuation 'but he doesn't know which one' further supports this claim. If *haishi* truly lacked an ordinary value, the sentence would necessitate Q-driven interpretation, which is incompatible with the declarative context. The observed infelicity suggests that *haishi* does contribute an ordinary value, but it is semantically different from the one which *huoshi* projects.

The issues raised by (15) point out a limitation of Erlewine's analysis: it oversimplifies the distinction between *haishi* and *huoshi* by attributing their differences solely to the choice of interpreting operator. Instead, these disjunction markers may have underlying differences in how they project and interpret alternatives. A more fine-grained analysis is needed to capture these differences. For instance, *haishi* may encode a preference for exclusive readings even in declarative contexts, while *huoshi* generates purely logical disjunctions.

### 2.3 Summary of the problems

Previous analyses of the disjunction markers *haishi* and *huoshi* in Mandarin Chinese face several significant challenges. A fundamental issue concerns the non-interrogative usage of *haishi*. Lin's NPI analysis, while offering a potential explanation for *haishi*'s behavior in some DE contexts, encounters significant empirical challenges. The occurrence of *haishi* in upward-entailing and veridical contexts, its core use in interrogatives, and the lack of a clear licensing mechanism in non-veridical environments all raise questions about the adequacy of the NPI approach.

On the other hand, Erlewine's analysis compares *haishi* to a *wh*-phrase, which lacks a defined ordinary value. I argue that, however, this comparison is problematic. *Wh*-phrases introduce a set of possible answers with an undefined ordinary value, but *haishi* in alternative questions establishes a specific, finite set of choices. Therefore, treating *haishi* like a *wh*-phrase without an ordinary value ignores this distinction and the well-defined nature of the alternatives presented by *haishi*.

(15a) above demonstrates that *haishi* can contribute to a meaningful proposition, as in “Zhangsan knows whether Lisi drank tea or coffee,” which is perfectly understandable.

Another critical challenge emerges when considering the treatment of both disjunction markers as having identical alternatives in some interchangeable contexts. According to Biezma & Rawlins (2012) and Chierchia (2013), the English disjunction marker *or* can be interpreted in a variety of ways, suggesting that *haishi* and *huoshi* may have distinct semantic interpretations rather than merely serving as a simple disjunction.

Furthermore, the failure of interchangeability between *haishi* and *huoshi* in certain contexts presents another significant problem. While they are interchangeable in DE environments like negation, (un)conditionals, and modal sentences, they behave differently in alternative questions and declarative sentences. (1) and (2) demonstrate this lack of interchangeability: *haishi* is grammatical in alternative questions but ungrammatical in declarative sentences, while the reverse is true for *huoshi*. If, as proposed by Erlewine (2025), the alternative sets created by both *haishi* and *huoshi* are identical, their contrasting behavior in these fundamental contexts becomes difficult to explain. The contrastive meanings in (15) further demonstrate this issue, showing that *haishi* and *huoshi* do not create equivalent alternative sets. The continuation “but he doesn’t know which one” is incompatible with *haishi*, indicating a more restricted interpretation than *huoshi* allows.

These problems highlight the need for a more refined analysis of *haishi* and *huoshi*, which accounts for their distinct semantic content and explains their patterns of interchangeability and non-interchangeability across various contexts.

### 3. Proposal: Exclusive and inclusive

Focusing on the inherent properties of the disjunction markers, I propose that *haishi* is an exclusive disjunction, and *huoshi* is an inclusive one. Their semantic contents can be illustrated as follows:

- (16) a. A *haishi* B:  $(A \vee B) \& \neg (A \wedge B)$       exclusive or  
 b. A *huoshi* B:  $(A \vee B)$                               inclusive or

The logical interpretation of *haishi*-phrase is that either A or B, but not both. And, the logical interpretation of *huoshi*-phrase is that either A, B or both A and B. To visualize the sets of the disjunctions, we can also have the following illustrations:

- (17) a. Exclusive Disjunction ( $A \oplus B$ ): {A, B}  
 b. Inclusive Disjunction ( $A \vee B$ ): {A, B, A and B}

The sets of alternatives introduced by these disjunction markers are also different. The exclusive *haishi* generates the set {A, B}, disallowing overlap between A and B. Conversely, the inclusive *huoshi* produces the set {A, B, A and B}, allowing overlap.

I assume that the distinction between *haishi* and *huoshi* is attributed to their semantic contents, and such distinction results in their different distributions. The exclusive *haishi* is more restricted than the inclusive *huoshi*, with *huoshi* serving as the default disjunction in Mandarin Chinese. Next, I will explore the exclusivity of alternative questions and show how the exclusive *haishi* is compatible with the property of alternative questions. Following this, an explanation of why the inclusive *huoshi* is commonly used in general declarative sentences and yes-no questions will be presented. And then, I will explain how and why the exclusive *haishi* and inclusive *huoshi* can sometimes be used interchangeably in certain contexts. The account I provide here addresses two key requests mentioned above: first, to stipulate a more refined analysis of *haishi* and *huoshi* that captures their distinct semantic properties; second, to account for their patterns of interchangeability and non-interchangeability across various linguistic environments.<sup>3</sup>

3. An anonymous reviewer notes that *huoshi* and *haishi* can cooccur in the same sentence, as shown in (i), and it is unclear how the distinction between the exclusivity and the inclusivity can account for this. For example, in (i), the speaker is required to choose one of the three alternatives as an answer, and it is unclear whether the speaker can choose the first two alternatives and reject the third one.

- (i) Jintian de zaocan shi sucui de mianbao, huoshi meiwei de baifan, haishi  
 today GEN breakfast be brittle MOD bread or delicious MOD rice or  
 xiruan de mianxian?  
 soft MOD noodle  
 'Is today's breakfast brittle bread, delicious rice, or soft noodles?'

Under my analysis, *haishi* here is used to close the collection of options, and that is why it comes at the end of the disjunctive sentence. In Mandarin Chinese, if the speaker expects the listener to choose one exclusive option from numerous possibilities that are provided in an interrogative sentence, the last disjunct is usually marked with *haishi*. Otherwise, the sentence would be pragmatically infelicitous if *huoshi* were used in this context, since it may be interpreted as enumerating options rather than asking for an exclusive decision. Moreover, regarding the inquiry concerning whether the speaker in (i) can select two of the three possibilities, the structure implies a forced-choice interpretation, which means that only one option is anticipated to be chosen. If a multiple-choice interpretation were intended, a different construction, such as using *huoshi* consistently throughout, to me and my consulted informants, would likely be more natural.

### 3.1 Exclusive *haishi*

#### 3.1.1 Alternative questions

Mandarin Chinese distinguishes between polar questions and alternative questions via the use of different disjunction markers and sentence-final particles:

- (18) a. Ni yao he kafei huoshi/haishi cha ma? (polar question)  
 you want drink coffee or tea Q  
 ‘Do you want to drink coffee or tea?’
- b. Ni yao he kafei haishi cha ne? (alternative question)  
 you want drink coffee or tea Q  
 ‘Do you want to drink coffee or tea?’

(18a) illustrates that a polar question uses either *huoshi* or *haishi* and the sentence-final particle *ma*, while (18b) demonstrates that an alternative question uses only *haishi* with the sentence-final particle *ne*. This systematic difference raises an important question about why certain combinations of disjunction markers and particles are required for different question types.<sup>4</sup> In the following sections, I will provide an analysis that explains how the exclusive nature of *haishi* aligns with alternative question formation and why *huoshi* is compatible with polar questions but not alternative questions.

In contrast, Biezma & Rawlins (2012) argue that the alternative question in English is inherently related to the properties of exhaustivity and exclusivity. Unlike Mandarin Chinese, English does not exhibit a difference in surface structure between alternative questions and polar questions. Instead, these two question types are distinguished solely by sentence-final intonation (Bartels 1999).

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4. An anonymous reviewer asks why *huoshi* can cooccur with the sentence final particle *ne*, as in (i), and the larger the disjuncts are, the more acceptable the sentences are.

- (i) Zhe jian shi you ni lai fuze, huoshi ni xiang zhao bieren  
 this CL thing by you come responsible or you want find other.person  
 bangmang ne?  
 help Q  
 ‘Do you take care of this or you ask other persons to help you?’

In line with Fang’s (2025) analysis, *huoshi* in (i) is better understood as a discourse marker than as a disjunction marker. To be more specific, different from the ordinary disjunctive phrase, *huoshi* in (i) appears in the initial position of a sentence and introduces an alternative in discourse rather than forming a logical disjunction. That’s why the bigger the disjuncts are, the more acceptable the sentences are. This function of *huoshi* is similar to the discourse function of English *or*, as discussed in Schiffrin (1987), in which *or* can be used to introduce options to the addressee without necessarily encoding the disjunctive meaning with exclusivity or inclusivity.

- (19) a. Do you want coffee or tea  $L^*H-H\%$ ? (polar question)  
 b. Do you want coffee or tea  $H^*L-L\%$ ? (alternative question)

As shown in (19), the rising intonation in polar questions indicates that the entire proposition is being questioned, while the falling intonation in alternative questions signals that a choice must be made between the given options. Therefore, alternative questions per se present a closed and exhaustive set of alternatives from which the addressee must choose. This exhaustivity is a core semantic property of alternative questions, and it stems from the following sources. First, the disjunction *or* creates a set of distinct alternatives, and then the final falling intonation signals the presence of a closure operator at the level of logical form. Following Zimmermann (2000), Biezma & Rawlins (2012) assume that this closure operator ensures the listed alternatives are the only relevant options. Furthermore, they introduce two constraints to formalize the properties of exhaustivity and exclusivity in alternative questions:<sup>5</sup>

- (20) a. Exhaustivity  $\forall w \in cs_c : \exists p \in \text{SalientAlts}(c) : p(w) = 1$   
 b. Mutual exclusivity  $\forall w \in cs_c : \forall p, q \in \text{SalientAlts}(c) : p=q \vee \neg (p(w) \wedge q(w))$   
 Biezma & Rawlins (2012: 388)

(20a) ensures that the alternatives in the question cover all the relevant possibilities in the conversation. In other words, the addressee should be able to find an answer among the listed options. For example, if the alternative question is *do you want coffee or tea?*, it assumes that these are the only two drink options available. (20b) ensures that the alternatives are mutually exclusive, meaning they do not overlap. Each option represents a distinct choice. For instance, if you choose *coffee*, that choice automatically excludes *tea* as a possibility. You cannot choose both at the same time or something outside the given options without challenging the question's assumptions.

Since an alternative question presents two or more distinct options and requires the addressee to select one explicitly within alternatives, once a choice is made, all other alternatives are exhaustively excluded. Therefore, Biezma & Rawlins argue that the most compliant and felicitous answers to the alternative question must come from the given disjuncts, and other responses like *neither* or *both* are regarded as a denial of the presupposition. When less compliant responses are used, additional marking is often required to signal the discourse shift they introduce. Discourse markers like *well* and *actually* serve this purpose by acknowl-

5. The formal definitions for both types of disjunctions in Mandarin Chinese have been provided in (16): *huoshi* represents standard inclusive disjunction ( $A \vee B$ ), whereas *haishi* incorporates the additional exclusivity condition ( $\neg [A \wedge B]$ ).

edging the deviation from the expected response pattern and highlighting the speaker's potential uncertainty or need to correct the question's presuppositions.

- (21) A: Would you like fish or chicken  $H^*L-L\%$ ?  
 B: Well/actually, do you have a vegetarian option  $L^*H-H\%$ ?  
 B': Well/actually, could I have both?  
 B'': #Well/actually, fish. Biezma & Rawlins (2012: 376)

As demonstrated in (21), the use of *well* or *actually* in responses B and B' is felicitous because the responses challenge the question's presuppositions: B seeks an option outside the given alternatives, and B' rejects the exclusivity requirement by requesting both options. However, as shown in B'', these discourse markers are infelicitous (#) when the response selects one of the given alternatives. This is because such responses align with the question's presuppositions and therefore do not require discourse adjustment. This pattern extends to other languages as well. For instance, the Mandarin discourse marker *qishi* 'actually' shows similar constraints. Since non-natural or unexpected answers can be conveyed through other means, such as a pause or facial expressions (e.g., frowning), the discourse marker *qishi* can be used optionally in such contexts. However, in truly natural and expected responses that select one of the given alternatives, *qishi* cannot be felicitously added, as demonstrated in (22):

- (22) A: Ni dian-le niurou haishi zhurou?  
 you order-ASP beef or pork  
 'Did you order beef or pork?'  
 B: (#Qishi) Wo dian niurou.  
 actually I order beef  
 '(#Actually), I ordered beef.'

The fact that *qishi* can (but does not have to) appear in *both* or *neither* responses actually suggests that these answers are somewhat unexpected, further supporting the view that alternative questions present an exhaustive list of options for the addressee to choose from, and responses that fall outside this set typically pattern with presupposition denial rather than functioning as felicitous and direct answers.

Having established how alternative questions in English rely on intonation patterns and carry inherent exhaustivity and exclusivity requirements, we can now turn to examine how Mandarin Chinese achieves similar semantic effects through different linguistic mechanisms. Specifically, the exclusive nature of the disjunction marker *haishi* plays a crucial role in forming alternative questions in Mandarin Chinese because it encodes both exhaustivity and mutual exclusivity requirements through lexical means rather than prosodic features. By analyzing

the semantic contribution of *haishi*, we can better understand how Mandarin Chinese alternative questions systematically differ from their polar question counterparts.

### 3.1.2 Exclusive *haishi* and exhaustivity

We now know that alternative questions present a fundamental semantic requirement: they offer two or more distinct options and require the addressee to make an explicit choice among these alternatives, such that selecting one necessarily excludes all others. This property also conforms to the definition of strong exhaustivity proposed by Groenendijk & Stokhof (1982, 1984), which requires that the answer to a question includes information about both positive and negative instances. This inherent strong exhaustivity of alternative questions aligns perfectly with the semantic interpretation of the Mandarin Chinese exclusive disjunction marker *haishi*. Indeed, I assume that the exclusivity of *haishi* is fundamentally tied to exhaustive environments. This connection also explains why *huoshi* cannot appear in alternative questions, since its inclusive semantic content contradicts the exclusivity requirement of alternative questions. To reinforce the argument that exclusive *haishi* is compatible with strong exhaustivity, I predict that exclusive *haishi* is not compatible with sentences bearing non-exhaustivity, as shown in the following example:

- (23) a. \*Lisi xihuan he cha, guozhi haishi kafei deng yinliao.  
 Lisi like drink tea juice or coffee etc. beverage  
 b. Lisi xihuan he cha, guozhi huoshi kafei deng yinliao.  
 Lisi like drink tea juice or coffee etc. beverage  
 ‘Lisi likes to drink beverages such as tea, juice, or coffee.’

In (23a), adding *deng* ‘etc.’ to the *haishi*-phrase makes the alternative set non-exhaustive, and the sentence becomes unacceptable, contrasting with the acceptability when using the inclusive *huoshi* in the same context. When *haishi* connects two alternatives A and B, selecting either option automatically excludes the other:

- (24) A *haishi* B picking A entails  $\neg$ B & picking B entails  $\neg$ A

The mutual exclusivity encoded by *haishi* maps directly onto the semantic requirements of alternative questions. When a speaker asks A *haishi* B?, they are presenting exactly two distinct possibilities where the selection of one logically entails the rejection of the other. This semantic alignment explains why *haishi* serves as the canonical disjunction marker in Mandarin Chinese alternative questions.

The exclusive nature of *haishi* extends beyond alternative questions since it can also appear in other syntactic environments which share similar exhaustiv-

ity requirements. One such environment is embedded clauses governed by the veridical verb *zhidao* ‘know’, as illustrated and repeated below:

- (25) Zhangsan *zhidao* Lisi *he-le* cha *haishi* kafei.  
 Zhangsan know Lisi drink-ASP tea or coffee  
 ‘Zhangsan knows whether Lisi drank tea or coffee.’

This distribution aligns with semantic analyses of epistemic predicates proposed by Heim (1994) and Sharvit (2002), who argue that the verb *know* functions as a veridical strongly exhaustive predicate. Thus, the compatibility of *haishi* with the *zhidao*-embedded clause is attributed to their shared exhaustivity properties. Namely, in (25), *zhidao* requires that Zhangsan’s knowledge state involves a complete answer to the question of whether Lisi drank tea or coffee, rather than partial knowledge that Lisi drank something. This requirement of exhaustivity aligns with the semantic properties of *haishi*, which also enforces an exclusive choice between the two alternatives.<sup>6</sup> Note that this alignment is also observed in (15) in

6. One reviewer wondered whether *haishi* in the following question denotes exclusivity:

- (i) a. Ni *zhidao* Zhangsan *yao mai pingguo haishi juzi*?  
 you know Zhangsan want buy apple or orange  
 ‘Do you know if Zhangsan wants to buy apples or oranges?’  
 b. Wo *zhidao ta yao mai pingguo, danshi wo bu zhidao ta yao-bu-yao mai*  
 I know he want buy apple but I not know he want-not-want buy  
*juzi*.  
 orange  
 ‘I know he wants to buy apples, but I don’t know whether he wants to buy oranges.’

The question in (i) should be a yes/no (polar) question because it is only compatible with the sentence-final particle *ma* but not *ne*. Given this, when answering (i), we may have the following scenarios if the answer is affirmative:

- (ii) a. Shi, wo *zhidao ta yao mai pingguo, danshi wo bu zhidao ta yao-bu-yao mai*  
 yes I know he want buy apple but I not know he want-not-want buy  
*juzi*.  
 orange  
 ‘Yes, I know he wants to buy apples, but I don’t know whether he wants to buy oranges.’  
 (The possibility of purchasing oranges is excluded and not considered.)  
 b. Shi, wo *zhidao ta yao mai juzi, danshi wo bu zhidao ta yao-bu-yao mai*  
 yes I know he want buy orange but I not know he want-not-want buy  
*pingguo*.  
 apple  
 ‘Yes, I know he wants to buy oranges, but I don’t know whether he wants to buy apples.’  
 (The possibility of purchasing apples is excluded and not considered.)

Section 2.2 above, in which the occurrence of *haishi* is shown to be infelicitous when followed by the continuation “but he doesn’t know which one.” This infelicity further supports the exclusive nature of *haishi* in contexts requiring exhaustivity and complete knowledge of alternatives.

Further evidence for the connection between *haishi* and exhaustivity comes from its behavior in cleft constructions. Following influential work by É. Kiss (1998), Büring & Kriz (2013), and Xie (2013), cleft constructions inherently encode exhaustivity in their semantic representation. As predicted by our analysis, *haishi* appears felicitously in both interrogative and embedded cleft constructions, as shown below:

- (26) Zhangsan xihuan de shi cha haishi kafei ne?  
 Zhangsan like NMLZ be tea or coffee Q  
 ‘Is it tea or coffee that Zhangsan likes?’
- (27) Zhangsan zhidao Lisi he de shi cha haishi kafei.  
 Zhangsan know Lisi drink NMLZ be tea or coffee  
 ‘Zhangsan knows whether it is tea or coffee that Lisi drank.’

In (26), the cleft construction *xihuan de shi* ‘what (he) likes is’ highlights a specific focus on the alternatives presented by *haishi*, i.e., tea vs. coffee. The occurrence of *haishi* here aligns with the exhaustivity encoded by the cleft, requiring the addressee to identify the unique, exclusive alternative that *Zhangsan* likes. This

- 
- c. #Shi, wo zhidao ta liang yang dou yao mai.  
 yes I know he two items both want buy  
 ‘Yes, I know he wants to buy both items.’  
 (This response is infelicitous due to the exclusive nature of *haishi*, which presupposes a choice between alternatives rather than the selection of both.)
- d. Qishi, ta liang yang dou yao mai.  
 Actually he two item both want buy  
 ‘Actually, he wants to buy both items.’  
 (If one insists on indicating that both fruit are being purchased, the use of *qishi* ‘actually’ is necessary to override the presupposition that only one option can be selected.)

The responses above provide strong evidence that *haishi* in (i) indeed denotes exclusivity. The infelicity of (iic) and the necessity of *qishi* ‘actually’ in (iid) clearly indicate that the interpretation of (i) enforces a choice between apples and oranges. In addition, the responses in (iia) and (iib) further support this point because both obey the expectation that only one alternative is selected, and the expression of lacking knowledge about the unchosen option in fact effectively reinforces the exclusion of the other alternative. On the other hand, when the answer is negative, the analysis follows the same pattern as that of negative sentences containing disjunction markers.

exclusive reading is crucial, as the sentence asks for a specific choice between the two options, which is precisely the semantic function of *haishi*. In (27), the embedded cleft construction *he de shi* ‘what (he) drank is’ operates under the veridical knowledge predicate *zhidao* ‘know’. Similarly, *he de shi* ‘what (he) drank is’ also highlights a specific focus on the alternatives presented by *haishi*. The combination of *haishi* and the cleft construction thus reinforces the requirement for an exhaustive interpretation.

The systematic appearance of *haishi* in these exhaustivity-inducing environments, such as alternative questions, veridical knowledge predicates, and cleft constructions, suggests that its exclusive semantics is not merely coincidental but rather reflects a fundamental semantic requirement for exhaustive interpretation. This distribution pattern provides strong evidence that the core semantic interpretation of *haishi* aligns with the requirement of exhaustivity, which explains both its role in alternative questions and its compatibility with other exhaustive constructions in Mandarin Chinese.

In the following section, I show that, unlike *haishi*, *huoshi* exhibits markedly different distributional patterns and semantic properties that make it particularly compatible with non-exhaustive contexts, including polar questions and DE environments.

### 3.2 Inclusive *huoshi*

We now know that *haishi* forces a choice between alternatives and excludes the possibility of both being true. In contrast, *huoshi* serves as an inclusive disjunction marker that preserves the possibility of both disjuncts being true. As a result, while *haishi* appears in environments requiring exhaustivity, *huoshi* occurs in contexts where inclusive readings are either required or permitted.

Previous analyses have claimed that *huoshi* is restricted to declarative sentences. However, a closer examination reveals that this disjunction marker actually has a broader distribution which aligns with its inclusive semantic interpretation. Most notably, *huoshi* can appear in polar questions, as shown in (28) below:

- (28) Ni yao he cha huoshi kafei ma?  
 you want drink tea or coffee Q  
 ‘Do you want to drink tea or coffee?’

The compatibility of *huoshi* with polar questions can be attributed to a fundamental semantic difference between polar and alternative questions. Biezma & Rawlins (2012) argue that alternative questions employ a closure operator, typically signaled by final falling intonation, to convey that the alternatives presented

through disjunction represent the complete set of possibilities within the given context. By contrast, polar questions lack alternative-introducing elements, and the interpretation may only denote a singleton alternative set. In other words, polar questions do not necessarily present multiple alternatives in their syntactic or prosodic structure. Instead, their interpretation revolves around affirming or negating a single proposition, indicating that only one alternative (the proposition itself) is under consideration.

To be more specific, in (28), the polar question *Ni yao he cha huoshi kafei ma?* ‘Do you want to drink tea or coffee?’ does not require exhaustivity of alternatives. The sentence-final particle *ma* creates a polar question, seeking yes/no confirmation of the entire proposition “you want to drink tea or coffee,” rather than forcing a choice between tea and coffee as exclusive alternatives. The semantic contribution of *huoshi* here is to present examples of beverages that would satisfy an affirmative answer, rather than to enforce an exhaustive choice as *haishi* does in alternative questions. Therefore, the polar question allows for the possibility of wanting or rejecting both beverages, consistent with *huoshi*’s meaning of inclusive disjunction.

Interestingly, some native Mandarin Chinese speakers also accept the exclusive *haishi* to appear in polar questions, as illustrated in (29):<sup>7</sup>

- (29) Ni yao he cha haishi kafei ma?  
 you want drink tea or coffee Q  
 ‘Do you want to drink tea or coffee?’

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7. One reviewer raises an intriguing question: Higginbotham (1993) argues that polar questions and *wh*-questions are both anti-additive operators, which are stronger than DE operators in the strength of negation. Since the English NPI *any* is licensed in these contexts, it is unclear why *haishi*-phrases and *huoshi*-phrases are not interchangeable in *ne*-questions (*wh*-questions). Here is my reply to the question. First, *ne*-questions in Mandarin Chinese bring about the same effect of alternative questions, which requires both exhaustivity and exclusivity. As argued in the paper, the exclusive *haishi*-phrase is compatible with such a requirement, but the inclusive *huoshi*-phrase is not. This is one potential reason why they are not interchangeable in the alternative question. Second, both the *wh*-phrase and the *haishi*-phrase introduce alternative sets and may exclusively ask for the single true answer within the set. When occurring in the same interrogative sentence, the *wh*-phrase and the *haishi*-phrase may have competition of scope interaction since they represent different types of *wh*-questions, i.e., creating different alternative sets. Consequently, this competition may create a superiority effect. However, the *huoshi*-phrase does not compete with the *wh*-phrase, and it can remain within the scope of the *wh*-question (with the *huoshi*-phrase having an existential interpretation). Therefore, this might be another factor why they are not interchangeable in the *wh*-question. More study is needed on this issue, which I leave for my future work.

Starting from the observation that some native Mandarin Chinese speakers accept both *huoshi* and *haishi* in polar questions like (28) and (29), we can argue that this interchangeability is attributed to the non-veridical properties of polar questions per se (Giannakidou 2002). According to Giannakidou, nonveridicality is a broader concept than DE. The crucial similarity is that both nonveridical and DE functions allow for the inference of a subset from a larger set.<sup>8</sup> Therefore, polar questions, marked by the particle *ma*, can create a context similar to other DE environments in several ways.

First, like negation, polar questions involve consideration of both positive and negative possibilities. When asking *Do you want tea or coffee?*, the question inherently involves the possibility of wanting neither, which parallels how negation over disjunction entails negation of both disjuncts. Such semantic property makes polar questions behave like DE contexts, rendering the distinction between inclusive *huoshi* and exclusive *haishi* readings less relevant.

Moreover, the yes/no nature of polar questions creates a context in which the disjunction scopes under the question operator, similar to how the disjunction scopes under negation or conditionals. In (27), the question operator takes scope over the entire proposition containing the disjunction, treating the disjunction inclusively or exclusively without affecting the truth conditions of the answer. I assume that this may turn out to neutralize the distinction between inclusive *huoshi* and exclusive *haishi*.

As a result, this explains why both *huoshi* and *haishi* can appear in polar questions despite their different semantic properties. The non-veridical nature of polar questions creates a context in which the inclusive/exclusive distinction becomes less relevant, allowing both disjunction markers to function acceptably. This phenomenon parallels the behavior of disjunction markers in other DE contexts, such as negative sentences and (un)conditionals, which we will explore in the next section.

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8. An anonymous reviewer notes that some non-veridical operators, such as *haoxiang* 'likely', are not DE operators because they do not allow for the inference of a subset from a larger set. Indeed, *haoxiang* 'likely' is a non-veridical operator, and it does not behave like DE operators, which typically allow for the subset inference. However, as shown in (33) below, the modal *can* is also a non-veridical operator. Despite this, it allows both disjunction markers to be interchangeable, and the sentence can also yield the subset inference. I attribute this pattern to the property of disjunction, which introduces alternative sets for the non-veridical operator to apply to both options.

### 3.3 Why interchangeable?

The interchangeability of *huoshi* and *haishi* in polar questions reflects a broader pattern in their distribution. Like polar questions, other DE contexts also allow both disjunction markers. Let us return to interchangeable examples, repeated below, and examine in detail how both *huoshi* and *haishi* function in these DE environments. Chierchia (2013) proposes that disjunction in DE contexts is always interpreted inclusively.<sup>9</sup> However, I argue that while both disjunction markers are acceptable in these environments, their fundamental semantic distinctions can still be preserved through different logical pathways. Even though *haishi* inherently denotes exclusive readings, the DE contexts ensure that propositions true for a set (A or B) must also be true for subsets of that set (A alone and B alone), as observed by Ladusaw (1979, 1992) and Zwarts (1998). This logical property is key to understanding how both disjunction markers operate in such contexts, as both individual and combined disjuncts remain valid interpretations, though achieved through different semantic mechanisms for inclusive *huoshi* versus exclusive *haishi*. Now let us examine the following DE examples respectively.

- (30) Wo mei you kanjian Zhangsan haishi/huoshi Lisi.  
 I not have see Zhangsan or Lisi  
 'I did not see Zhangsan or Lisi.'
- (31) Ruguo Zhangsan haishi/huoshi Lisi da dianhua lai, jiu shuo wo bu zai.  
 if Zhangsan or Lisi call phone come then say I not in  
 'If Zhangsan or Lisi calls, tell them I am not here.'

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9. According to Chierchia (2013), in DE contexts like negation, the inclusive reading of disjunction is favored over the exclusive reading because negating inclusive *or* is more informative than negating exclusive *or*. For example, if we negate the inclusive disjunction in the sentence *We will hire Mary or Sue*, we get the sentence, *We won't hire Mary or Sue*, which means that we will hire neither Mary nor Sue. This is a strong statement that eliminates three possibilities:

- (i) a. Hiring only Mary  
 b. Hiring only Sue  
 c. Hiring both Mary and Sue

On the other hand, if we negate the exclusive disjunction in the sentence, *We will hire Mary or Sue, but not both*, we get the sentence, *We won't hire Mary or Sue, but not both*. This statement is compatible with two possibilities:

1. Hiring neither Mary nor Sue
2. Hiring both Mary and Sue

Because the negation of the inclusive *or* is compatible with fewer possibilities, it is considered a stronger and more informative statement. As a result, the inclusive reading is preferred in DE contexts, as it provides more specific and restrictive information about the situation.

- (32) Wulun/buguan Zhangsan haishi/huoshi Lisi da dianhua lai, wo dou bu  
 no.matter Zhangsan or Lisi call phone come I all not  
 xiang jie.  
 want answer  
 ‘No matter whether Zhangsan or Lisi calls, I don’t want to answer.’

In (30) *I did not see Zhangsan or Lisi*, the negative context demonstrates how disjunction behaves in DE environments.<sup>10</sup> Whether *huoshi* or *haishi* is used, the sentence entails the negation of both individual propositions: I did not see Zhangsan, and I did not see Lisi. The DE nature of negation forces the same conjunctive entailment. When *huoshi* is used, the negation applies to the entire inclusive disjunction, meaning neither Zhangsan nor Lisi was seen. The result directly reflects the inclusive nature of *huoshi*, which accounts for all possibilities (seeing Zhangsan, seeing Lisi, or seeing both). When *haishi* is used, the interpretation also results in “neither A nor B” although the logical pathway differs. Inside the semantic set for the *haishi* disjunction phrase, there should be only A and B, represented as {A, B}. I assume that the exclusive meaning  $\neg (A \wedge B)$  of the *haishi*-phrase is better regarded as a presupposition rather than a member inside the set. According to Ladusaw (1979, 1992) and Zwarts (1998), negative sentences are a type of DE environment where, if propositions are true for a set (A or B), they must also be true for subsets of that set (A alone and B alone). Consequently, when *haishi* is used under negation, the negation applies independently to each disjunct, yielding “not A” and “not B.” Combining these two independent negated disjuncts results in the final interpretation: neither A nor B. Treating the exclusive meaning ( $\neg (A \wedge B)$ ) as a presupposition carried by *haishi* offers a viable solution for why the positive conjunction interpretation does not arise in negative

10. Alternatively, thanks to the reviewer’s suggestion, we may try to apply the mechanism of Innocent Exclusion in Fox (2007) and Bar-Lev & Fox (2020) to the case in which the exclusive *haishi* is under negation here:

Prejacent:  $\neg (A \oplus B) = (\neg A \wedge \neg B) \vee (A \wedge B)$ . (neither or both)

Relevant Alternatives:  $(\neg A \wedge \neg B)$ ,  $(A \wedge B)$ ,  $(A \wedge \neg B)$ ,  $(\neg A \wedge B)$

Innocent Exclusion: Exclude the alternatives that are inconsistent with prejacent.

If we assume that the exclusive meaning  $\neg (A \wedge B)$  of the *haishi* disjunction phrase is a presupposition, we may innocently exclude the alternatives  $(A \wedge B)$ ,  $(A \wedge \neg B)$ ,  $(\neg A \wedge B)$  because they are assigned false by contradicting to the prejacent (it excludes the *only one* case) or the presupposition (it excludes the *both* case). Consequently, we have only one alternative left, which is  $(\neg A \wedge \neg B)$ . Although the result might be compatible with what we predict, the application of the Innocent Exclusion in terms of Fox still involves too many complicated processes in logical calculation, which is beyond the scope of this paper, and I would like to leave it for future study.

sentences. This shows how DE environments reshape disjunctive semantics, producing unambiguously conjunctive negative statements.

In (31)'s "If Zhangsan or Lisi calls, tell them I am not here," while both *huoshi* and *haishi* in the antecedent lead to the same consequence, they actually encode different logical structures. With inclusive *huoshi*, the disjunction covers all scenarios: Zhangsan calls, Lisi calls, or both call simultaneously, and maps directly to the consequence.<sup>11</sup> With exclusive *haishi*, only one caller is considered at a time; however, the conditional ensures the same consequence applies to each caller independently. Even though *haishi* excludes simultaneous calling, if both Zhangsan and Lisi happen to call separately, each will receive the same response through the conjunction of two independent situations. Thus, while the DE context of the *if*-clause leads to equivalent practical results, it does not neutralize the fundamental semantic distinction between inclusive and exclusive disjunction markers.

In (32)'s "No matter whether Zhangsan or Lisi calls, I do not want to answer," while the unconditional marker *wulun/buguan* 'no matter' creates a DE context, the semantic distinction between *huoshi* and *haishi* remains relevant.<sup>12</sup> With inclusive *huoshi*, the speaker directly expresses unwillingness to answer for all scenarios: Zhangsan calls, Lisi calls, or both call simultaneously. With exclusive *haishi*, the unwillingness applies independently to each caller, and the unconditional ensures this holds for all separate calling events. The distributive marker *dou* reinforces this universal application because *dou* ensures the consequence applies across all relevant scenarios (subsets), but works through different logical pathways depending on which disjunction marker is used. With *huoshi*, *dou* dis-

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11. If the simultaneous call reading in (31) is hard to obtain, we may consider using other verbs. For example, the verb *lai* 'come' might more naturally allow for a simultaneous reading. In the case of the *haishi*-phrase in a negative sentence, a simultaneous reading may arise if the sentence is interpreted as a conjunction of two independent events. To be more specific, (30) can be understood as "I did not see Zhangsan, and I did not see Lisi." If this interpretation involves conjoining two separate negated propositions, it could facilitate the simultaneous reading. Therefore, instead of canceling their underlying semantic distinction, the weakening of the exclusivity and inclusivity between *haishi* and *huoshi* in certain environments may be explained by pragmatics or other contextual factors.

12. Although it seems that the unconditional markers *wulun* and *buguan* 'no matter' tend to subcategorize *wh*-elements as their complements, the *wh*-elements may not denote a question interpretation since unconditional constructions in essence do not seek answerhood. Instead, the *wh*-elements in unconditional constructions function solely to provide alternative sets, similar to the disjunction *huoshi*. In addition, since the inclusive *huoshi* can also appear in unconditional constructions (see [32]), the unconditional markers *wulun* and *buguan* 'no matter' do not necessarily subcategorize *wh*-elements as their complements.

tributes over the full set of possibilities, including simultaneous calls, while with *haishi*, it distributes over separate calling events.

In these cases, while the DE property ensures that what is true of “A or B” entails what is true of A alone and B alone, this entailment pattern works differently with inclusive *huoshi* versus exclusive *haishi*. With *huoshi*, the DE directly applies to both individual cases and their combination. With *haishi*, the same entailment effect is achieved through the combination of separate individual cases, while maintaining its exclusive nature. Thus, rather than forcing an inclusive interpretation, DE contexts here preserve the semantic distinction between disjunction markers while ensuring the same feasible consequences for individual cases.

Next, let us examine the case involving modal *can* in (4), repeated here as (33), which falls under Giannakidou’s broader framework of non-veridical contexts.

- (33) Ni keyi gen Zhangsan haishi/huoshi Lisi daqiu.  
 you can with Zhangsan or Lisi play.ball  
 ‘You can play ball with either Zhangsan or Lisi.’

In (33)’s “You can play ball with Zhangsan or Lisi,” the modal *keyi* ‘can’ introduces a possibility context, meaning that the speaker is granting permission or suggesting the possibility of playing with either Zhangsan or Lisi. Within this non-veridical environment, we observe similar patterns to DE contexts: the possibility of doing either action (playing with Zhangsan or with Lisi) entails that each action is individually permitted. Therefore, even though *haishi* typically carries an exclusive reading in many contexts, in this sentence both *haishi* and *huoshi* allow for the possibility of playing with either person, or potentially both, though with *haishi*, this conjunctive effect is achieved through the combination of separate individual cases rather than through direct inclusive interpretation. This demonstrates how non-veridical contexts, like DE environments, maintain the semantic distinctions between the disjunction markers while ensuring similar entailments for individual cases.

Through examining the behavior of *huoshi* and *haishi* across different DE and non-veridical contexts, we can see that while both disjunction markers yield similar interpretative results, they maintain their fundamental semantic distinctions. I assume that rather than forcing a uniformly inclusive interpretation as suggested by Chierchia (2013), these environments preserve the inherent inclusive nature of *huoshi* and exclusive nature of *haishi* while ensuring equivalent entailments through different logical pathways. With *huoshi*, the DE or non-veridical operator directly applies to the full set of possibilities, including both individual and combined scenarios. In contrast, with *haishi*, the same practical outcomes are achieved through the combination of separate individual cases, maintaining its

exclusive semantics while still allowing for all relevant interpretations to emerge through independent pathways. The analysis successfully demonstrates how the Mandarin Chinese disjunction system cleverly maintains semantic contrasts even in environments where surface interpretations may appear identical.

#### 4. Conclusion

This study demonstrates that *haishi* and *huoshi* exhibit fundamental differences in their semantic contents: *haishi* is assumed to be an exclusive disjunction, and *huoshi* is an inclusive one. These distinctions are critical in explaining their respective distributions across alternative questions, polar questions, and declarative sentences. The analysis here also challenges previous accounts which consider the disjunction markers as complementary or syntactically interchangeable without significant semantic distinctions. Lin's (2008) NPI-based approach and Erlewine's (2025) alternative semantics framework, while looking insightful, fall short of addressing the essential differences in meaning and distribution between *haishi* and *huoshi*. Given the distinction between exclusive and inclusive disjunctions, this paper's proposal provides a more comprehensive framework for understanding the distribution patterns of different disjunction markers. In particular, the exclusive nature of *haishi* fits well in the contexts which call for exhaustivity, such as alternative questions, cleft constructions, and clauses governed by veridical predicates like *zhidao* 'know.' In contrast, *huoshi* appears in contexts allowing inclusivity or uncertainty, including polar questions and declarative statements. The analysis further highlights the remarkable flexibility of both disjunction markers in non-veridical and downward-entailing (DE) environments, in which their interchangeability can be attributed to the semantic properties of such contexts. This tentative account may contribute to broader discussions on the interaction between the disjunction, the exhaustivity, and the DE context in natural languages. Future research could expand this investigation to explore cross-linguistic parallels, especially whether similar semantic distinctions between exclusivity and inclusivity in the disjunction system exist in other languages.

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## List of abbreviations

ASP	aspect marker	MOD	modifier marker
CL	classifier	NMLZ	nominalizer
DE	downward entailment	Q	question marker
GEN	genitive		

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## **Address for correspondence**

Yuyun Iris Wang  
Graduate School of Education  
Ming Chuan University  
Taoyuan, TAIWAN  
wyyiris@mail.mcu.edu.tw

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JCR Year 2024

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JCR ABBREVIATION  
CONCENTRIC-STUD LING

ISO ABBREVIATION  
Concentric-Stud. Linguist.

## Journal information

EDITION  
Emerging Sources  
Citation Index (ESCI)

CATEGORY  
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LINGUISTICS

LANGUAGES REGION 1ST ELECTRONIC JCR YEAR  
English TAIWAN 2020

## Publisher information

PUBLISHER ADDRESS PUBLICATION FREQUENCY  
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NORMAL UNIV, EAST RD,  
COLL INT SECTION 1,  
STUDIES & TAIPEI 106,  
SOCIAL TAIWAN  
SCIENCES

# Journal's performance

## Journal Impact Factor

The Journal Impact Factor (JIF) is a journal-level metric calculated from data indexed in the Web of Science Core Collection. It should be used with careful attention to the many factors that influence citation rates, such as the volume of publication and citations characteristics of the subject area and type of journal. The Journal Impact Factor can complement expert opinion and informed peer review. In the case of academic evaluation for tenure, it is inappropriate to use a journal-level metric as a proxy measure for individual researchers, institutions, or articles. [Learn more](#)

2024 JOURNAL IMPACT FACTOR  
**0.4**

[View calculation](#)

JOURNAL IMPACT FACTOR WITHOUT SELF CITATIONS  
**0.4**

[View calculation](#)

## Journal Impact Factor contributing items [Export](#)

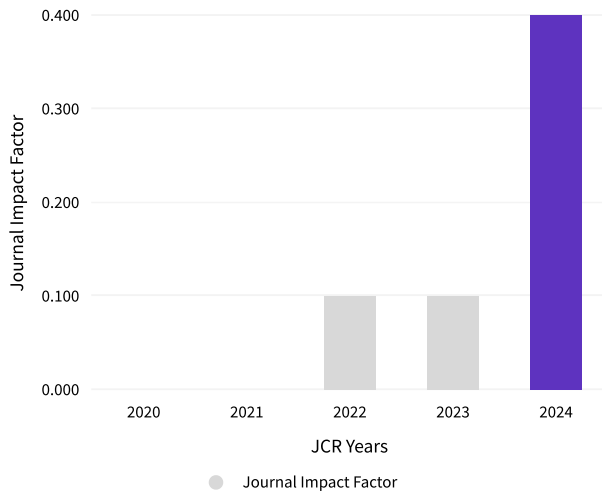
Citable items (19) Citing Sources (7)

TITLE	CITATION COUNT
Degree adverbs in spoken Mandarin A behavioral profile corpus-based...	3

## Journal Impact Factor Trend 2024

[Export](#)





[View all years](#)

Incorporating structural topic modeling into short text analysis	2	▼
Expressing the existence of an event with 'you (to have)	1	▼
Universality? Cross-linguistic influence? Evidence from Chinese an...	1	▼
A corpus-pragmatics approach to evaluation in professor reviews	0	▼
A morphosyntactic and morphosemantic analysis of the Mal...	0	▼
A restructuring analysis of the non-inferential evidential verb han in...	0	▼
An experimental investigation of P/Case-drop in Korean gapping	0	▼
Autistic traits, working memory, and L2 prosodic boundary detection	0	▼
democracy in Taiwanese presidential inaugural addresses Metaphors, sour...	0	▼

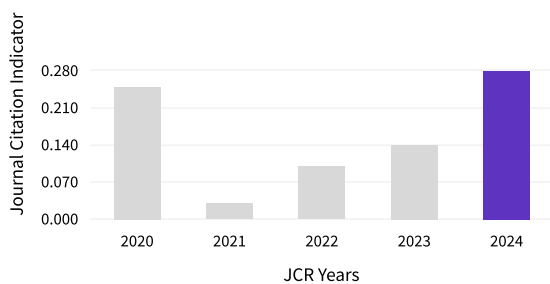
[View All in Web of Science](#)

## Journal Citation Indicator (JCI)

Export

0.28

The Journal Citation Indicator (JCI) is the average Category Normalized Citation Impact (CNCI) of citable items (articles & reviews) published by a journal over a recent three year period. The average JCI in a category is 1. Journals with a JCI of 1.5 have 50% more citation impact than the average in that category. It may be used alongside other metrics to help you evaluate journals. [Learn more](#)



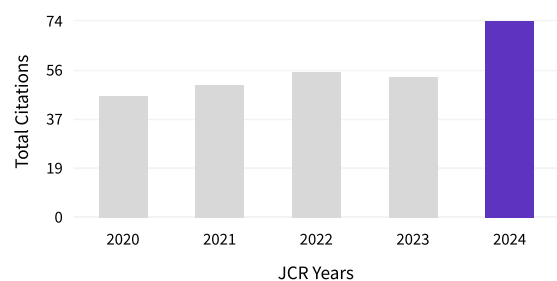
[View all years](#)

## Total Citations

Export

74

The total number of times that a journal has been cited by all journals included in the database in the JCR year. Citations to journals listed in JCR are compiled annually from the JCR years combined database, regardless of which JCR edition lists the journal.

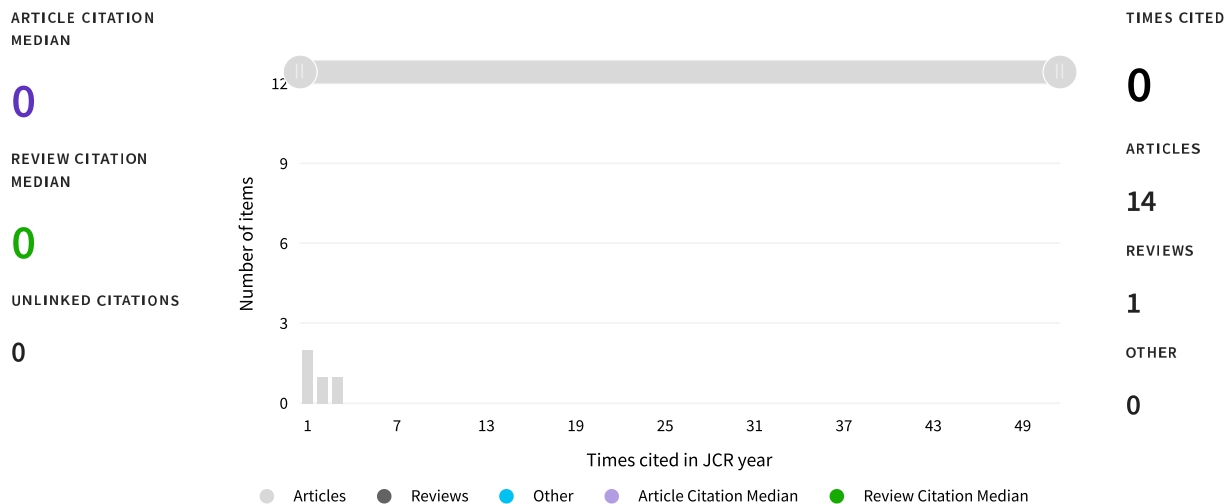


[View all years](#)

# Citation distribution

[Export](#)

The Citation Distribution shows the frequency with which items published in the year or two years prior were cited in the JCR data year (i.e., the component of the calculation of the JIF). The graph has similar functionality as the JIF Trend graph, including hover-over data descriptions for each data point, and an interactive legend where each data element's legend can be used as a toggle. You can view Articles, Reviews, or Non-Citable (other) items to the JIF numerator. [Learn more](#)



# Open Access (OA)

[Export](#)

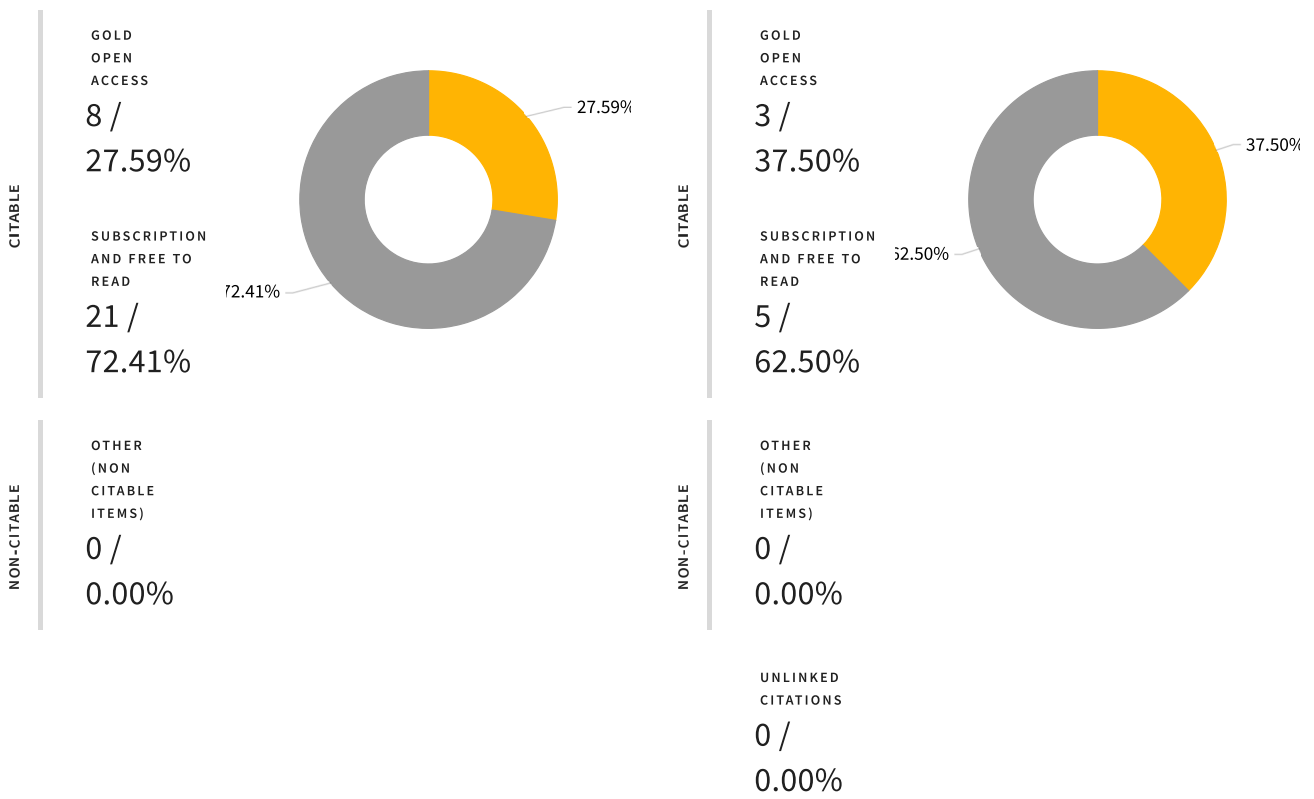
The data included in this tile summarizes the items published in the journal in the JCR data year and in the previous two years. This three-year set of published items is used to provide descriptive analysis of the content and community of the journal. [Learn more](#)

## Items

TOTAL CITABLE	% OF CITABLE OA
29	27.59%

## Citations\*

TOTAL CITABLE	% OF CITABLE OA
8	37.50%



\*Citations in 2024 to items published in [2022 - 2024]

## Rank by Journal Impact Factor

Journals within a category are sorted in descending order by Journal Impact Factor (JIF) resulting in the Category Ranking below. A separate rank is shown for each category in which the journal is listed in JCR. Beginning in 2023, ranks are calculated by category. [Learn more](#)

**No rank data available**

## Rank by Journal Citation Indicator (JCI)

Journals within a category are sorted in descending order by Journal Citation Indicator (JCI) resulting in the Category Ranking below. A separate rank is shown for each category in which the journal is listed in JCR. Data for the most recent year is presented at the top of the list, with other years shown in reverse chronological order. [Learn more](#)

JCR YEAR	JCI RANK	JCI QUARTILE	JCI PERCENTILE	
2024	257/405	Q3	36.67	
2023	303/392	Q4	22.83	
2022	315/386	Q4	18.52	
2021	356/372	Q4	4.44	
2020	243/360	Q3	32.64	
2019	231/361	Q3	36.15	
2018	261/358	Q3	27.23	

# Citation network

## Cited Half-life

N/A

The Cited Half-Life is the median age of the items in this journal that were cited in the JCR year. Half of a journal's cited items were published more recently than the cited half-life.

TOTAL NUMBER OF CITES

74

NON SELF-CITATIONS

73

SELF-CITATIONS

1

Cited Half-life Data

## Citing Half-life

18.1 years

The Citing Half-Life is the median age of items in other publications cited by this journal in the JCR year.

TOTAL NUMBER OF CITES

383

NON SELF-CITATIONS

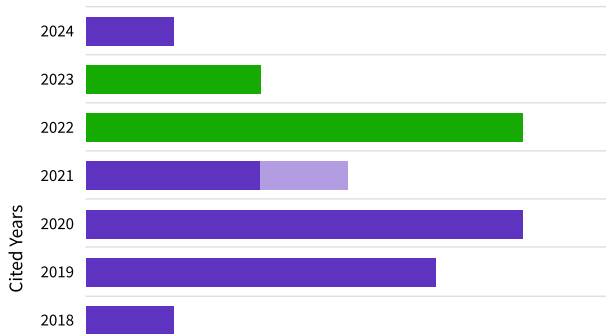
383

SELF-CITATIONS

N/A

Citing Half-life Data

[Export](#)



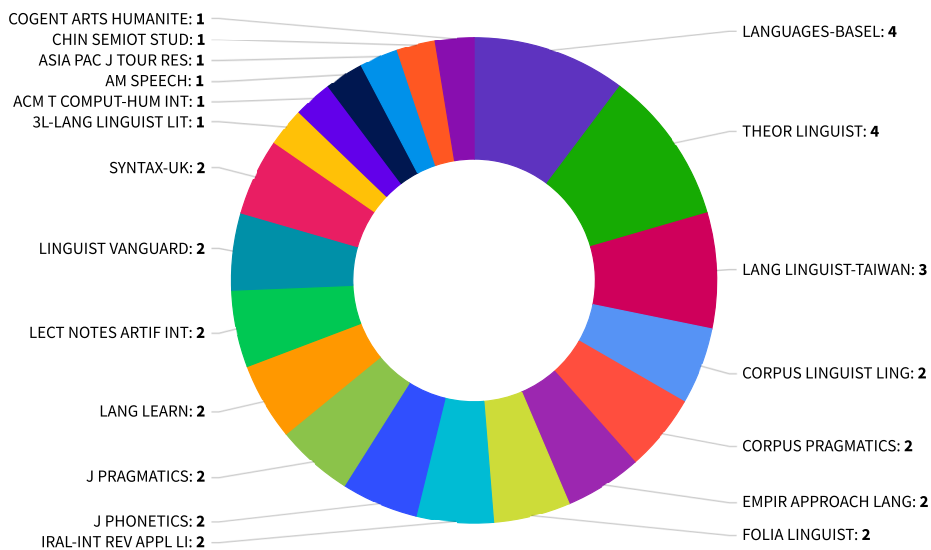
CITED YEAR	# OF CITES FROM 2024	CUMULATIVE %	# OF CITING SOURCES
<b>All years</b>	<b>74 citations</b>	<b>100.00%</b>	<b>55 sources</b> >
2024	1 citations	1.35%	1 sources >
2023	2 citations	4.05%	2 sources >
2022	5 citations	10.81%	5 sources >
2021	3 citations	14.86%	3 sources >
2020	5 citations	21.62%	4 sources >
2019	4 citations	27.03%	4 sources >

## Journal Citation Relationships

Cited Data

Citing Data

Top 20 journals citing CONCENTRIC-STUD LING by number of citations



## Content metrics

Source data

Average JIF Percentile

Export

This tile shows the breakdown of document types published by the journal. Citable Items are Articles and Reviews. For the purposes of calculating JIF, a JCR year considers the publications of that journal in the two prior years. [Learn more](#)

## 10 total citable items

	ARTICLES	REVIEWS	COMBINED(C)	OTHER DOCUMENT TYPES(O)	PERCENTAGE
NUMBER IN JCR YEAR 2024 (A)	10	0	10	0	100%
NUMBER OF REFERENCES (B)	383	0	383	0	100%
RATIO (B/A)	38.3	N/A	38.3	N/A	

The Average Journal Impact Factor Percentile takes the sum of the JIF Percentile rank for each category under consideration, then calculates the average of those values.

[Learn more](#)

ALL CATEGORIES

AVERAGE

N/A

## Contributions by organizations

[Export](#)

Organizations that have contributed the most papers to the journal in the most recent three-year period. [Learn more](#)

RANK	ORGANIZATION	COUNT
1	NATIONAL TAIWAN NORMAL UNIVERSITY	6
2	NATIONAL CHENGCHI UNIVERSITY	4
-	NATIONAL TAIWAN UNIVERSITY	4
4	TUNGHAI UNIVERSITY	3
5	NATIONAL CHUNG CHENG UNIVERSITY	2

## Contributions by country/region

[Export](#)

Countries or Regions that have contributed the most papers to the journal in the most recent three-year period.

[Learn more](#)

RANK	COUNTRY / REGION	COUNT
1	TAIWAN	24
2	AUSTRALIA	1
-	CHINA MAINLAND	1
-	FRANCE	1
-	INDIA	1
-	IRAN	1
-	SOUTH KOREA	1
-	USA	1

# Additional metrics

Eigenfactor Score



Normalized Eigenfactor



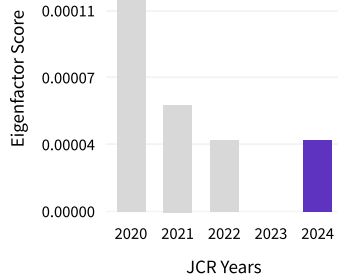
Article influence score



## 0.00004

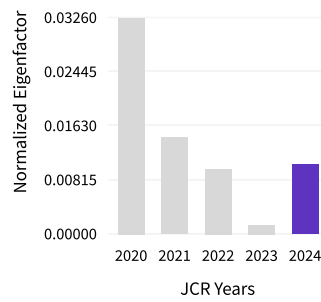
The Eigenfactor Score is a reflection of the density of the network of citations around the journal using 5 years of cited content as cited by the Current Year. It considers both the number of citations and the source of those citations, so that highly cited sources will influence the network more than less cited sources. The Eigenfactor calculation does not include journal self-

citations. [Learn more](#)



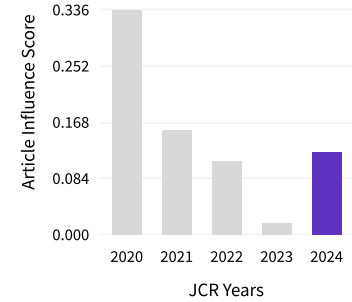
## 0.01054

The Normalized Eigenfactor Score is the Eigenfactor score normalized, by rescaling the total number of journals in the JCR each year, so that the average journal has a score of 1. Journals can then be compared and influence measured by their score relative to 1. [Learn more](#)



## 0.124

The Article Influence Score normalizes the Eigenfactor Score according to the cumulative size of the cited journal across the prior five years. The mean Article Influence Score for each article is 1.00. A score greater than 1.00 indicates that each article in the journal has above-average influence. [Learn more](#)



## 5 Year Impact Factor

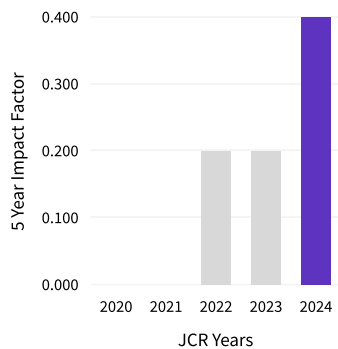


### 0.4

[View Calculation](#)

The 5-year Impact Factor is the average number of times articles from the journal published in the past five years have been cited in the JCR year. It is calculated by dividing the number of citations in the JCR year by the total number of articles published in the five previous years.

[Learn more](#)



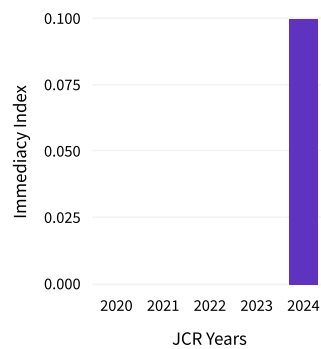
## Immediacy Index



### 0.1

[View Calculation](#)

The Immediacy Index is the count of citations in the current year to the journal that reference content in this same year. Journals that have a consistently high Immediacy Index attract citations rapidly. [Learn more](#)



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