The role of phases and specificity in definite islands

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Abstract

Cross-linguistically, wh-dependencies cannot cross the boundary of a definite nominal object. This restriction, which we call a definite island effect, has been variously linked to syntactic, semantic, and information structure factors, raising questions about redundancy and whether it is possible to reduce one factor to another. We consider two accounts – DP phasehood and the Specificity Condition – which make different predictions about definite islands in wh-movement and wh-in situ languages, especially around whether the choice of main verb can neutralize the definite island effect. We test these predictions with parallel experiments for English (wh-movement) and Chinese (wh-in situ). Confirming existing reports in the literature, we observe that both languages show a definite island effect. Additionally, we also find that in English, but not Chinese, there is a neutralization effect related to the choice of main verb. However, the neutralization effect is only partial, contrary to previous claims made about English. We argue a combination of the PIC and the Specificity Condition is needed to account for the empirical findings in both languages, even though it might be conceptually more parsimonious to have only one constraint. Furthermore, the cross-linguistic variation in our results presents a challenge for an information structure approach to the definite island effect.

Keywords: definiteness; Specificity Condition; Phase Impenetrability Condition; wh-movement; wh-in situ; island effect

1 Introduction

Theories of locality have recognized that wh-dependencies are sensitive to a variety of constraints. One such constraint that is attested across languages involves definiteness. For instance, in English, French, German, a definite object blocks subextraction (1) (Chomsky 1973; Fiengo & Higginbotham 1981; Bowers 1987; Diesing 1992; Davies & Dubinsky 2003; Simonenko 2016; N. Huang 2022; Shen & Lim 2022, among many others). Similar facts have been reported in wh-in situ languages as well, even though there is no subextraction involved and wh-in situ is typically less sensitive to island constraints: Mandarin Chinese, for instance, allows an in situ wh-phrase to appear inside a complex NP subject, if it is not marked with a demonstrative (2) or headed by a proper name (C.-T. J. Huang 1982).

(1) The definite island effect
   a. What did you listen to a song about?
   b. *Who did you listen to that song about?

(2) a. [Ai kan shenme de xiaohai] mei chuxi?
love see what DE child no future
'Children who love to watch *what* have no future?'[1]

b. *[Ai kan shenme de na-ge xiaohai] mei chuxi?
love see what DE that-CL child no future
Intended: 'That child who loves to watch *what* has no future?' (Adapted from C.-T. J. Huang 1982 exx. 140-141)

Several accounts have been proposed to explain this effect, which we will call the definite island effect.[2] One account claims that definite and indefinite nominals are structurally different; e.g. definite nominals are locality domains (e.g. bounding nodes or phases) but indefinite nominals are not. Wh-dependencies involving definite nominals are therefore subject to some principle like the Phase Impenetrability Condition (PIC; Chomsky 2000, 2001). A second account attributes this effect to an independent Specificity Condition, which blocks wh-dependencies (among others) from crossing the boundary of a nominal with a specific interpretation (Fiengo & Higginbotham 1981; C.-T. J. Huang 1982, cf. Simonenko 2016). Finally, a third account appeals to information structure constraints: definite nominals render a wh-phrase inside it to be not dominant, thus making it incompatible with subextraction (Erteschik-Shir 1981, see also Abeillé et al. 2020).

Logically, these accounts might all be valid, in which case the definite island effect is a composite of various constraints. However, parsimony considerations – whether by Occam's Razor or in the spirit of the Minimalist Program (Chomsky 1995) – require us to seriously consider the possibility that only one of these accounts is actually needed to explain the definite island effect. This has in fact been suggested in the literature, whether implicitly or explicitly. N. Huang (2022), for instance, analyzes a number of exceptions to the definite island effect (first discussed by Davies & Dubinsky 2003) in English by treating definite nominals as DP phases. In contrast, Matushansky (2005) explicitly argues that the definite island effect cannot be taken as evidence for the phasehood of DPs, since the effect can already be accounted for by the Specificity Condition.

This paper takes a cross-linguistic and experimental approach toward addressing this question about parsimony. We focus only the locality domain account (in particular, an account assuming the phasehood of DPs and the PIC) and the Specificity Condition, where there are relatively clear predictions of the definite island effect in both subextraction and wh-in situ (we return to the information structure account in the General Discussion). We observe that both accounts actually make divergent predictions about subextraction and wh-in situ, specifically, regarding whether the choice of main verb can neutralize the definite island effect. Davies & Dubinsky (2003) observe that in English at least, when the main verb denotes an action of creation, there seems to be no contrast between (3a) and (3b) (cf. similar remarks about verb choice in Erteschik-Shir 1981).

(3) The verb of creation effect (VOC) effect
a. Who did you compose a song about?
b. Who did you compose that song about?

We evaluate these predictions about the VOC effect with two parallel acceptability judgment ex-

[1] Abbreviations: CL: classifier; DE: particle marking pre-nominal modifiers; PFV: perfective.

[2] To be sure, this effect is not necessarily found with all definite NPs. Exceptions have been reported for NPs marked by "weak" definite articles with a unique reading, bound possessors, and demonstrative articles (Erteschik-Shir 1981; Fiengo 1987; Davies & Dubinsky 2003; Simonenko 2016; N. Huang 2022; Lim 2022, etc.); in fact, this article will take a closer look at the case of demonstratives. But we regard these exceptions as proving the rule.

periments on demonstrative-marked definite nominals, one looking at subextraction in English and the other at wh-in situ in Mandarin Chinese. To preview our results, we find a definite island effect in both languages. However, the neutralization effect of VOCs in English is only partial, contra Davies & Dubinsky 2003 and N. Huang 2022. Based on these results, we argue that a theory of the definite island effect with cross-linguistic coverage requires reference to DP phasehood and the PIC (specifically building on Davies & Dubinsky 2003) as well as the Specificity Condition. In other words, both are necessary in a general theory of locality, even though a more parsimonious analysis is logically possible. We further argue that our findings of cross-linguistic variation challenge an information structure account of the definite island and VOC effects.

This paper is organized as follows. Section 2 reviews the two accounts of interest – the DP phasehood account (in particular, adapting ideas by Davies & Dubinsky 2003) and the Specificity Condition (Fiengo & Higginbotham 1981; C.-T. J. Huang 1982) – and discusses their predictions. Section 3 presents the two experiments and results, while Section 4 discusses implications of the experimental results for theories about locality and wh-dependencies. Section 5 concludes.

2 Two analyses of the definite island effect

2.1 DP phasehood + Incorporation

There is a long tradition of analyzing nominals – especially definite nominals – as locality domains that block wh-extraction; this has been variously implemented by positing that NPs/DPs are bounding or cyclic nodes, blocking categories, or phases (Chomsky 1973, 1977, 1986a; Bach & Horn 1976; Bowers 1987; Davies & Dubinsky 2003; N. Huang 2022). For concreteness, we will implement this intuition with a phase-based analysis, assuming that definite nominals are DP phases. We also adopt the following version of the Phase Impenetrability Condition (PIC) (4).

(4) Phase Impenetrability Condition (Chomsky 2000)
In phase α with head H, the domain of H is not accessible to operations outside of α; only H and its edge are accessible to such operations.

In an unacceptable sentence like **What did you listen to that song about?* the wh-phrase should move from the definite DP to Spec,CP, as schematically represented in (5). According to the PIC, any movement at the CP level (or vP level, assuming vP is a phase) cannot target elements inside D's domain, which includes the wh-phrase; it can only target elements up to D and its edge. To satisfy the PIC, then, the wh-phrase must first move to Spec,DP before moving onward to a higher position.

(5) $[_{CP} \ldots [_{DP}$ *that song about what*$]]$

However, it is common to assume that Spec,DP is not available as a landing site. The absence of a landing site might be due to lexical idiosyncrasies in features: D lacks features that trigger wh-movement to its specifier (McCloskey 2002; N. Huang 2022). Alternatively, one could assume that Spec,DP is already occupied by some other constituent. For instance, a recent proposal by Jenks & Konate (2022) suggests that Spec,DP contains a covert IdxP with information about the referent of the DP. Regardless of the analysis adopted, the outcome is the same: the wh-phrase is denied of a landing site on the edge of the DP, causing subextraction to violate the PIC.

To explain the VOC effect, this analysis can be adapted in a few ways. Most notably, in discussing their observation that VOCs can neutralize various definite islands (including demonstrative-

marked DPs), Davies & Dubinsky (2003:28–29) put forward an LF noun incorporation account. They propose that the head noun of the object can incorporate onto the verb if the following three conditions are met: (i) the head noun is a result nominal; (ii) the result nominal is the complement of a causative verb semantically linked to the denoted result (e.g., write-book, paint-portrait, etc.); and (iii) the subject of the verb controls the agentive subject of the result nominal; citing Chomsky (1986b), they further argue that demonstrative-marked DPs contain an agentive PRO which represents the creator of the result nominal and is controlled by the verb's subject (ibid.:25–27). In their account, the incorporation of the head noun onto the main verb neutralizes the locality domain (in their terms, blocking category) status of the definite DP. As a result, the DP is transparent to subextraction after incorporation is applied, as shown in (6). This noun incorporation operation, however, is not available for non-VOCs, thus the definite DP object remains a blocking category, as shown in (7).

(6) N-incorporation with VOC: Mary composed [$_{\text{DP}\neq\text{ Blocking Category}}$ that PRO song about Sarah.]

(7) No N-incorporation with non-VOC: Mary listened to [$_{\text{DP=Blocking Category}}$ that PRO song about Sarah.

Strictly speaking, though, a noun directly incorporating onto the verb would violate the PIC, as the noun lies within D's domain. One solution that is compatible with the PIC while remaining largely faithful to Davies & Dubinsky's proposal is that it is the *determiner* of the definite DP that can undergo (covert) head movement to a VOC. This analysis can be seen a variant of Bošković's (2015) phase collapse account, proposed independently to explain why Galician lacks a definite island effect when the definite determiner cliticizes onto the verb (Uriagereka 1988). Bošković argues that in Galician, D overtly moves to V, which further moves to v, a phase head. While DP itself might lack a landing site for wh-movement, this sequence of head movement operations collapses the DP phase with the vP phase and makes available an alternative landing site in Spec,vP, thus ensuring that wh-extraction satisfies the PIC. What we suggest here is that a similar head movement operation might be available in English, except that it applies covertly under the conditions that Davies & Dubinsky (2003) proposed.[3]

(8) a. *e [de quén]$_i$ viche [$_{\text{DP=Phase}}$ o [$_{\text{NP}}$ retrato t_i]]?
and of who saw(you) the portrait

b. e [de quén]$_j$ viche-loi$_i$ [$_{\text{DP}\neq\text{ Phase}}$ [$_{\text{D'}}$ t_i [$_{\text{NP}}$ retrato t_j]]]?
and of whom saw(you)-the portrait
'so, who have you seen the portrait of?' (Uriagereka 1988)

This approach – combining the PIC with a N/D-incorporation operation – captures the English definite island and VOC facts well. In a wh-in situ language like Mandarin Chinese, though, this approach would predict the absence of the definite island effect and consequently the absence of the VOC effect, on the assumption that wh-in situ involves unselective binding (Li 1992; Aoun &

[3]The reason for N/D-incorporation to be restricted to VOCs may be ultimately attributable to lexical semantics, i.e. the fact that the VOC and its DP object are construed as a single act of creation (Lim 2022, cf. the single event constraint on wh-extraction in Truswell 2007). We also note that alternatives to a N/D-incorporation account are possible. For example, N. Huang (2022) discusses an analysis of DP islands and their neutralization that relies in part on the verb's subject transmitting its features onto the PRO inside the DP; one could assume that VOCs allow feature transmission and non-VOCs do not.

Li 1993; Tsai 1994, among many others). In this analysis of wh-in situ, commonly adopted in the East Asian linguistics literature, wh-phrases (or more accurately, wh-arguments) are bound in situ by a covert question operator in CP or some similar position in the left periphery of the clause, as schematically represented in (9).

(9) $[_{CP}\ \underset{\curvearrowright}{OP_{[+Q]i}} \ldots\ what_i \ldots\ ]$ wh-in situ

Since in situ wh-phrases do not undergo any movement, they are not subject to subjacency or what can be seen as its Minimalist counterpart, the PIC.[4] The PIC approach described in this section, then, does not predict a definite island effect for in situ wh-questions, contrary to observations by C.-T. J. Huang (1982). In other words, (10a) and (10b) should be equally acceptable.

(10) a. Zhangsan ting-le yi-shou guanyu shenme de ge?
Zhangsan hear-PFV one-CL about what DE song non-VOC+indefinite
lit. 'Zhangsan heard to a song about what?'

b. Zhangsan ting-le na-shou guanyu shenme de ge?
Zhangsan hear-PFV that-CL about what DE song non-VOC+definite
lit. 'Zhangsan listened to that song about what?'

And as the VOC effect is the neutralization of the definite island effect, such an approach does not predict the VOC effect in a wh-in situ language either. (11a) and (11b) should also be equally acceptable.

(11) a. Zhangsan ting-le na-shou guanyu shenme de ge?
Zhangsan hear-PFV that-CL about what DE song non-VOC+definite
lit. 'Zhangsan heard that song about what?'

b. Zhangsan xie-le na-shou guanyu shenme de ge?
Zhangsan write-PFV that-CL about what DE song VOC+definite
lit. 'Zhangsan wrote that song about what?'

For transparency, we note that in addition to unselective binding, an alternative analysis of wh-in situ questions is that the wh-phrase undergoes covert movement in LF (C.-T. J. Huang 1982; Lu et al. 2020). If covert movement is indeed subject to the PIC, as Lu et al. (2020) suggest (contra standard generalizations), this analysis could predict the existence of the definite island and VOC effects in Mandarin. We will discuss this approach in Section 4.3.[5]

[4] As observed by C.-T. J. Huang (1982) and many others, in situ wh-adjuncts (notably those with "why" semantics), unlike wh-arguments, seem sensitive to subjacency/PIC. Following Aoun & Li 1993; Tsai 1994, we assume that binding is not available for wh-adjuncts; instead, covert movement to the CP domain is involved. For our purposes, we will focus on wh-arguments for both English and Mandarin Chinese.

[5] For completeness, we point out that there is an alternative structural account involving the Freezing Condition (Wexler & Culicover 1980; Corver 2017, etc.). In this analysis, a definite DP always undergoes QR to a higher position, which results in the DP becoming frozen. If QR applies before wh-movement, then subextraction would be blocked (Mahajan 1992; Sichel 2018, also Diesing 1992). As far as we can see, this account produces very similar predictions as the DP phasehood account discussed in this section: a definite DP should be incompatible with subextraction but pose no issue for wh-in situ, since the Freezing Condition affects movement but not binding. However, existing accounts are not entirely clear about what effect VOCs have, if any. Diesing (1992), in a discussion of QR, suggests that VOCs might permit only "existential closure" readings on indefinite DP objects, with the consequence that these DPs must remain in situ (and can be extracted from). It is unclear whether this restriction extends to definite DP objects more generally and how that affects freezing. We do not want to speculate on this issue and so will leave this

2.2 A semantics approach: the Specificity Condition

Fiengo & Higginbotham (1981) provide a semantics-based approach to the definite island effect: the Specificity Condition. This condition essentially states that a variable inside a specific DP cannot be bound by an operator outside the DP, as schematized in (12).[6]

(12) OP_i ... [$_{\text{SpecificDP}}$ variable$_i$]

The Specificity Condition can be seen as applying to both English and Mandarin wh-questions, which are characterized by binding relations. In English overt wh-movement questions, the wh-element moves to Spec,CP, leaving behind a bound variable (its trace), as represented in (13). In Mandarin wh-in situ questions, as mentioned in the previous section, a covert question operator at Spec,CP binds the in situ wh-element (14). It follows straightforwardly, then, that subextraction from a definite DP in English and an in situ wh-phrase inside a definite DP in Mandarin both violate the Specificity Condition.

(13) What ... [$_{\text{SpecificDP}}$ t_{what}] wh-movement

(14) $OP_{[+Q]i}$ ... [$_{\text{SpecificDP}}$ what$_i$] wh-in situ

It should be noted that this reasoning is not novel: in fact, our reasoning here follows closely that of C.-T. J. Huang (1982), who reports a definite island effect in Mandarin Chinese wh-in situ questions, as shown in (15). Arguing that Mandarin wh-arguments move covertly but do not violate subjacency (which we can equate with the PIC), Huang appeals to the Specificity Condition in order to explain the definite island effect.

(15) *Ta xiang-zhidao shei mai de nei-ben shu zui hao
he want-know who buy DE that-CL book best good
'He wants to know the book that who bought is the best.' (C.-T. J. Huang 1982 ex. 148)

Providing further independent support for the Specificity Condition, Li (1992) reports that wh-indefinite readings are blocked if the wh-phrase occurs inside a definite DP, as shown in (16). This follows if the indefinite reading is the result of a covert indefinite operator binding an in situ wh-phrase; the definite DP, being specific, blocks the binding relation.

(16) a. Wo yiwei ta na-le [$_{\text{non-specificDP}}$ shenme ren de xiangpian].
I think he take-PFV what man DE picture
'I thought he took away someone's picture.'

b. *Wo yiwei ta na-le [$_{\text{SpecificDP}}$ na-zhang shenme ren de xiangpian].
I think he take-PFV that-CL what man DE picture
Intended: 'I thought he took away that picture of someone.' (Li 1992 ex. 54, our translations)

approach aside for the rest of the paper.

[6]Fiengo & Higginbotham's original proposal is much stronger, ruling out the binding of reflexives inside specific DPs as well. This version is too strong. It is straightforward to come up with acceptable counterexamples of reflexives inside definite NPs in English: e.g. *I_i deleted [$_{DP}$ that photo of myself$_i$].*

On the other hand, as far as we can tell, all existing variants of the Specificity Condition are silent regarding the VOC effect. As formulated, it is the specificity of the DP that drives the condition; the type of verb that takes the DP as its object should not have any impact on the specificity of the DPs. For this reason, the Specificity Condition does not predict the definite island effect to weaken or disappear in the presence of a VOC in either English or Mandarin.[7]

2.3 Predictions

The previous section reviewed two approaches proposed for the definite island effect: a DP phasehood approach, supplemented with a N/D-incorporation analysis, and the Specificity Condition. While they converge in predicting a definite island effect for an overt wh-movement language like English, we also noted that the approaches diverge in several ways. Table 1 summarizes the predictions. The DP phasehood and N/D incorporation approach predicts the definite island effect (for non-VOCs) and the VOC effect in English but not in Mandarin, while the Specificity Condition predicts the definite island effect in both English and Mandarin, but not the VOC effect.

	DP phasehood+Incorporation	Specificity Condition
Definite island effect in English	non-VOCs only	Both non-VOCs and VOCs
VOC effect in English	Yes	No
Definite island effect in Mandarin	No	Both non-VOCs and VOCs
VOC effect in Mandarin	No	No

Table 1: Predictions

We further pointed out that these predictions are not fully consistent with existing generalizations in the literature. For instance, the DP phasehood approach predicts that Mandarin should lack the definite island effect, contrary to claims by C.-T. J. Huang (1982), while the Specificity Condition predicts that English should lack the VOC effect, contrary to claims by Davies & Dubinsky (2003) and N. Huang (2022).

However, it is worth taking a second look at these empirical generalizations. C.-T. J. Huang's (1982) observations about Mandarin wh-in situ being insensitive to complex NP islands have been recently questioned by Lu et al. (2020) (but see Tian et al. 2022). One could in turn wonder about the status of his observations about definite islands. Second, one might also have concerns over the actual strength of the VOC effect in English. An English native speaker linguist [anonymized for review] has suggested to us (p.c.) that subextraction from demonstrative-marked DPs is not fully acceptable even when a VOC is present. Similarly, in an experimental study, N. Huang (2022) reports that subextraction from demonstrative-marked DPs like (17a) was judged as relatively less acceptable than minimally-different indefinite baselines, such as (17b) (although both types of sentences received high ratings in absolute terms).

[7]We acknowledge that Simonenko (2016) proposed a different semantic analysis for the definite island effect: since definite DPs are referential, questioning part of the DP would yield a semantically trivial question, thus inducing unacceptability. The triviality approach is different from the Specificity Condition in an important way: the triviality approach essentially only covers wh-questions, while the Specificity Condition covers a wider range of phenomena, including wh-questions, relativization, focus and topic movement, as well as unselective binding. Given the fact that the definite island effect is observed for relativization in English (Shen & Lim 2022) and wh-indefinites in Mandarin (Li 1992), the triviality approach is not as descriptively adequate as the other approaches that we are discussing here. Thus we leave it aside in the rest of the paper.

(17) a. A few people asked which old hotel Alex wrote that article about.
b. A few people asked which old hotel Alex wrote an article about.
(from N. Huang 2022 ex. 39)

For these reasons, we took an experimental approach toward evaluating these predictions about the definite island and VOC effects. Although there has been experimental work confirming the existence of the definite island effect in English (Tollan & Heller 2015; Neal & Dillon 2021; Shen & Lim 2022), no such work has been done on the definite island effect in wh-in situ languages in general or in Mandarin in particular. Moreover, while the VOC effect has been reported in various papers in English, it has rarely been experimentally verified (but see Lim 2022).[8] Our experiments set out not only to verify this effect, adopting the factorial definition of islands standard in the experimental syntax literature (Sprouse et al. 2016; Kush et al. 2018; Lu et al. 2020; Tian et al. 2022; Shen & Lim 2022; Lim 2022, etc.), but also to compare this effect in both overt wh-movement and wh-in situ languages, taking English and Mandarin as representatives of these two types of languages.

3 Experiments

3.1 Materials

Our two experiments were intended to be parallel to each other, so we will report them together and not separately. Both experiments had a 2x2x2 factorial design, manipulating three independent factors: first, the definiteness of the DP object – indefinite vs. definite, marked with a demonstrative morpheme (English *that* or Mandarin *na* "that"); second, verb class – whether the main verb is a VOC or not; and third, whether the length of wh-dependency is "short" or "long" – in the case of English, the wh-dependency is overt, so "short" and "long" corresponds to whether there is subextraction from the DP object. In the case of Mandarin, the wh-dependency is covert, so "short" and "long" corresponds to whether the in-situ wh-phrase is outside or inside the DP object.

This factorial design produces eight conditions. An English example is shown in (18).

(18) a. non-VOC *hear (joke)*
(i) She wants to know who heard a joke about the president. (ind | short)
(ii) She wants to know what Matt heard a joke about. (ind | long)
(iii) She wants to know who heard that joke about the president. (def | short)
(iv) She wants to know what Matt heard that joke about. (def | long)
b. VOC *tell (joke)*
(i) She wants to know who told a joke about the president. (ind | short)
(ii) She wants to know what Matt told a joke about. (ind | long)
(iii) She wants to know who told that joke about the president. (def | short)

[8] Lim (2022) reports experiments comparing subextraction out of English possessive DPs with VOCs and non-VOCs as shown in (i). Her results show that VOCs improve subextraction when compared with non-VOCs. However, there is no direct comparison between subextraction from an indefinite DP and a definite DP, as all her conditions featured possessive DPs (presumably definite). To evaluate claims about the VOC effect more thoroughly, our experiments compare subextraction out of indefinite and definite DPs with VOCs and non-VOCs.

(i) a. What did Sally snap her picture of ? (VOC, ex 71b)
b. What did Sally share her picture of ? (non-VOC, ex71d)

(iv) She wants to know what Matt told that joke about. (def | long)

This 2x2x2 design allowed us to calculate two difference-in-difference (DD) scores, which are used to measure the size of a grammatical violation (if there is one) in recent experimental syntax work (for English, e.g. Sprouse et al. 2016; Shen & Lim 2022; Lim 2022; for Mandarin, e.g. Lu et al. 2020; Tian et al. 2022; N. Huang to appear). The first DD score, defined as ((18a-iii) − (18a-iv)) − ((18a-i) − (18a-ii)), measures the acceptability impact due to subextraction from definite DPs in the presence of a non-VOC, relative to an indefinite DP baseline. The second DD score, defined as ((18b-iii) − (18b-iv)) − ((18b-i) − (18b-ii)), measures the same impact in the presence of a VOC. We then take the difference between these two scores as a measure of the amelioration effect of a VOC.

We use the English distal demonstrative *that* and Mandarin distal demonstrative *na* (along with a classifier) to mark definiteness, and English *a(n)* and Mandarin *yi* 'one' to mark indefiniteness. We mark definiteness using demonstratives for several reasons. Davies & Dubinsky's account explicitly predicts that subextraction from demonstrative DP objects is grammatical. An alternative option would have been the definite article, like English *the*, but as the literature on definiteness has shown, subextraction facts for the definite article *the* are much more complex, dependent on whether *the* has a uniqueness or anaphoric use (Fiengo 1987; Simonenko 2016; Shen & Lim 2022 and references therein). There are also practical reasons against using *the*: it would be much harder to create suitable Mandarin experimental materials, since Mandarin lacks overt definiteness markers with *the* semantics.

In order to create the English target items, we first created 24 distinct sentence frames, combining 20 creation and non-creation verbs (10 each) with 23 nouns as the head noun of the verb's object. Our nouns are all content nouns (e.g. *joke*, *book*, *song*, etc.), which have been extensively discussed in the literature. We then created eight versions of each sentence, producing 192 sentences. These sentences were then sorted into eight different lists using a Latin Square design. In each list, each of the 24 frames appeared only once, and there were three instances of each condition.

To each list, we added 52 filler sentences (including 4 items intended as attention checks). 35 fillers were intended to be unacceptable and 17 acceptable. Assuming that three of the 24 target sentences are unacceptable (namely, subextraction from definite DPs with non-VOCs), this distribution of fillers would ensure that participants encounter and equal number of acceptable and unacceptable sentences. Consequently, participants would be less likely to adjust their responses so that they can distribute their responses equally across the rating scale.

It should be noted that three of our English verbs (*hear*, *read*, *write*), can appear without objects and with *about*-PPs. This fact raises the possibility that sentences with these verbs and objects are syntactically ambiguous – an *about*-PP could be attached either to the DP (19a) or the VP (19b), with potential complications for subextraction (Bach & Horn 1976, but see Erteschik-Shir 1981; Davies & Dubinsky 2003 for counterarguments). We ran a post-hoc analysis excluding data for the sentences containing these verbs; see Section 3.5 for details.

(19) a. She [$_{VP}$ wrote [$_{DP}$ the book [$_{PP}$ about dinosaurs]]].
b. She [$_{VP}$ wrote [$_{DP}$ the book] [$_{PP}$ about dinosaurs]].

We repeated the same process to create the Mandarin materials, by creating 24 distinct sentence frames with 24 verbs and 24 nouns, with the same eight conditions (20). To maximize comparability, the Mandarin verbs and nouns were chosen so that the frames are semantically as similar as possible to their English counterparts. Our Mandarin materials also featured 52 filler sentences.

Although the mix of acceptable and unaccceptable fillers was the same (35 unacceptable; 17 acceptable), we note that filler sentences were not translated or structurally identical to their English counterparts.

(20) a. non-VOC *ting (xiaohua)* 'listen to/hear (joke)'

(i) Dajia xiangzhidao shei ting-le yi-ge guanyu zongtong de xiaohua.
everyone wonder who hear-PFV one-CL about president DE joke
'Everyone wonders who heard a joke about the president.' (ind | short)

(ii) Dajia xiangzhidao Chen-laoshi ting-le yi-ge guanyu shei de xiaohua.
everyone wonder Chen-teacher hear-PFV one-CL about who DE joke
'Everyone wonders who Teacher Chen heard a joke about.' (ind | long)

(iii) Dajia xiangzhidao shei ting-le na-ge guanyu zongtong de xiaohua.
everyone wonder who hear-PFV that-CL about president DE joke
'Everyone wonders who heard that joke about the president.' (def | short)

(iv) Dajia xiangzhidao Chen-laoshi ting-le na-ge guanyu shei de xiaohua.
everyone wonder Chen-teacher hear-PFV that-CL about who DE joke
'Everyone wonders who Teacher Chen heard that joke about.' (def | long)

b. VOC *jiang (xiaohua)* 'say (joke)'

(i) Dajia xiangzhidao shei jiang-le yi-ge guanyu zongtong de xiaohua.
everyone wonder who say-PFV one-CL about president DE joke
'Everyone wonders who told a joke about the president.' (ind | short)

(ii) Dajia xiangzhidao Chen-laoshi jiang-le yi-ge guanyu shei de xiaohua.
everyone wonder Chen-teacher say-PFV one-CL about who DE joke
'Everyone wonders who Teacher Chen told a joke about.' (ind | long)

(iii) Dajia xiangzhidao shei jiang-le na-ge guanyu zongtong de xiaohua.
everyone wonder who say-PFV that-CL about president DE joke
'Everyone wonders who told that joke about the president.' (def | short)

(iv) Dajia xiangzhidao Chen-laoshi jiang-le na-ge guanyu shei de xiaohua.
everyone wonder Chen-teacher say-PFV that-CL about who DE joke
'Everyone wonders who Teacher Chen told that joke about.' (def | long)

3.2 Participants

For English, 56 partipicants were recruited over Prolific, a crowdsourcing website. All participants were self-reported native speakers of English. Each participant received GBP 2.25 upon completing the experiment.

For Mandarin Chinese, 56 participants were recruited over Prolific and from the [university anonymized for review] community. Prolific participants were also self-reported native speakers. Each Prolific participant received GBP 2.25 upon completing the experiment, and each [university] participant received [~GBP 3 in local currency].

3.3 Procedure

The experiment was hosted on PCIbex (Zehr & Schwarz 2018), which participants accessed over their internet browsers. Participants were instructed to use a slider to indicate the acceptability of a

given sentence, based on their own intuitions. Participants also saw three practice sentences before starting the experiment proper.

3.4 Data analysis

We standardized participant ratings using the z-score transformation in order to control for variation in how each participant used the slider scale. We also excluded 4 participants from the English experiment and 3 participants from the Mandarin experiment; these participants failed at least one of the four attention checks (e.g. giving a high rating when a low rating was expected).

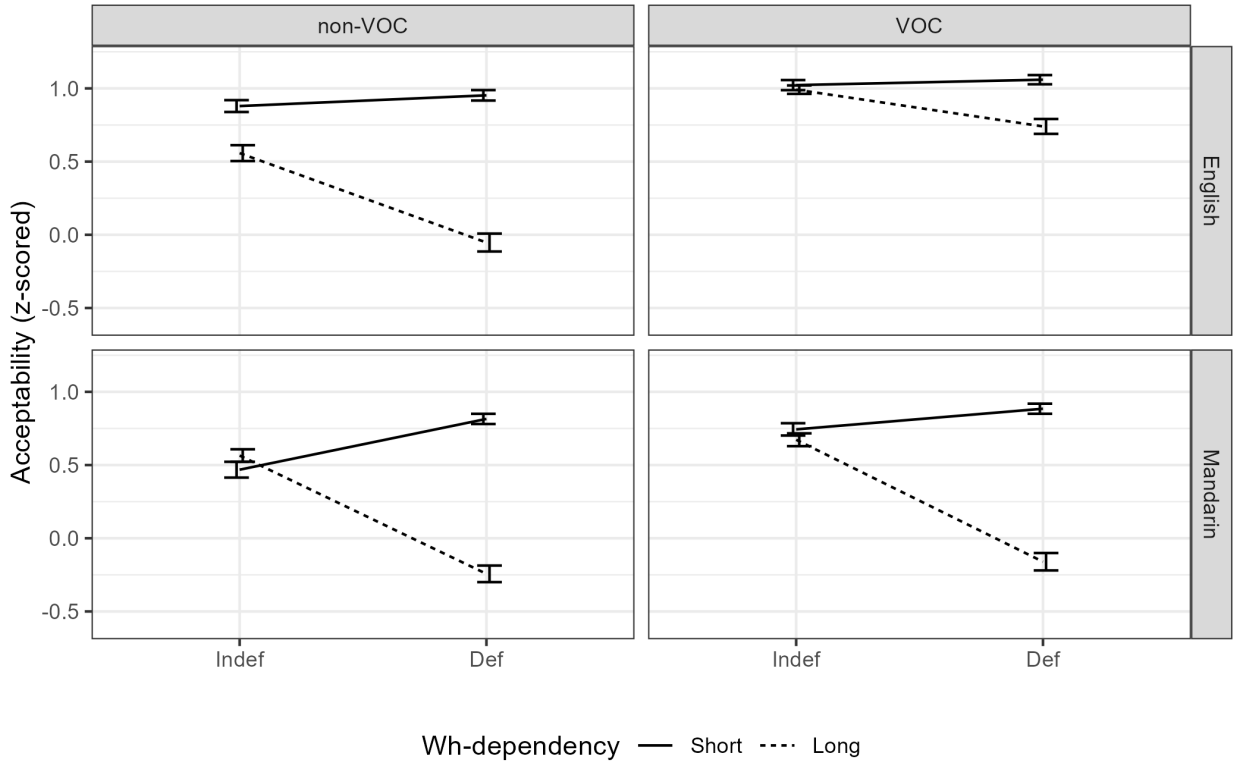
Ratings for the eight conditions were used to calculate the two difference-in-difference (DD) scores that measure the impact of verb class on subextraction from definite DPs.

For target items, we model z-scored acceptability ratings using linear mixed effects models with the R packages lme4 (Bates et al. 2015) and lmerTest (Kuznetsova et al. 2017). Unless otherwise stated, the model's predictors were the three factors – definiteness, dependency length, and verb class; we also included by-participant and by-item random intercepts and by-participant and by-item random slopes for dependency length. More complex models were attempted but did not converge or indicated overparametrization.

3.5 Results

Mean acceptability ratings are displayed in Figure 1.

Figure 1: Acceptability of subextraction for English and Mandarin



We first discuss the English results. With non-VOC main verbs, subextraction reduced acceptability for both indefinite and definite DPs, although the degree of reduction was greater for definite DPs, as reflected in the DD score of 0.68. With VOC main verbs, the reduction in acceptability was milder, as reflected in the smaller DD score of 0.29.

The difference between the two DD scores indicates that VOCs do improve subextraction from definite DPs in English. Our linear mixed effects analysis found a positive three-way interaction between VOCs, definiteness, and long wh-dependency ($\beta = 0.38$, $s.e. = 0.12$, $t = 3.32$, $p < .01$). We take this to be evidence of a VOC effect as reported in the literature.

That said, the fact remains that in the VOC case, subextraction from definite DPs still yielded a positive DD score (0.29). A second linear mixed effects model of the VOC acceptability data was constructed with definiteness and wh-dependency length as predictors, as well as by-participant and by-item random intercepts and by-participant random slopes for length. This second model found a significant negative two-way interaction between definiteness and long wh-dependencies within the VOC data set ($\beta = -0.29$, $s.e. = 0.07$, $t = -4.26$, $p < .01$). This result indicates that for demonstrative DPs, VOCs only reduce the definite island effect but do not completely neutralize it, contra Davies & Dubinsky 2003 and N. Huang 2022.

We next consider the Mandarin results. With non-VOC main verbs, in-situ wh-phrases are worse in definite DPs, as reflected in the DD score of 1.15. With VOC main verbs, the DD score is 0.97. A linear mixed effects analysis of these results confirmed that the DD scores are different from 0: there was a negative interaction between definiteness and long wh-dependencies (in-situ wh-phrase inside a definite DP, $\beta = -1.16$, $s.e. = 0.08$, $t = -13.67$, $p < .01$). However, there was no three-way interaction between VOCs, definiteness, and long wh-dependencies ($\beta = 0.19$, $s.e. = 0.12$, $t = 1.60$, $p = .11$), indicating that the two DD scores are not significantly different from each other. Overall, these results show that Mandarin has a definiteness effect but unlike English, lacks a VOC effect.

Finally, we ran a follow-up analysis to address a potential issue in our English materials. Recall that we used three verbs – *hear*, *read*, and *write* – that can appear with an *about*-PP and without an object; as a result, target sentences with these verbs are in principle syntactically ambiguous. Out of an abundance of caution, we re-ran the analysis on the responses to sentences that did not contain these verbs. Results were qualitatively the same as those for the larger data set. The DD score for non-VOCs is 0.64, larger than the DD score of 0.30 for VOCs. Statistical analysis again confirmed that these two DD scores are significantly different, indicating a VOC effect: a linear mixed effects model of acceptability with by-participant and by-item random intercepts and by-item random slopes, detected a significant positive three-way interaction between VOCs, definiteness, and long wh-dependencies (a VOC effect, $\beta = 0.33$, $s.e. = 0.14$, $t = 2.43$, $p = .02$). We also confirmed that the DD score of .30 is statistically different from 0, i.e. there is a definite island effect even with VOCs: a model fitted on the VOC acceptability data found a significant negative two-way interaction effect between definiteness and long wh-dependencies (a definite island effect, $\beta = -0.31$, $s.e. = 0.08$, $t = -3.89$, $p < .01$).

4 General discussion

Our experiments found a definite island effect for both VOCs and non-VOCs in English. Additionally, the effect is smaller in sentences with VOCs, in other words; the presence of VOCs made subextraction out of the demonstrative-marked definite DPs better, although it does not completely neutralize the definite island effect. For Mandarin Chinese, the definite island effect is comparable

in size for both VOCs and non-VOCs, suggesting that there is no VOC effect in Chinese.

These results bear on a number of theoretical issues. To preview the discussion, we propose that these results can be explained if both DP phasehood/the PIC and the Specificity Condition are part of a general theory of locality. We further suggest that cross-linguistic differences in the VOC effect are inconsistent with information structure approach to locality. Finally, we argue that these results provide support for a theory where in situ wh-arguments are insensitive to locality constraints like the PIC, contra Lu et al. (2020); we also discuss the relevance of the Specificity Condition in recent experiments on the island sensitivity of Mandarin wh-in situ.

4.1 Proposal: DP phasehood + Specificity Condition

Table 2 compares our experiment results against the predictions from the DP phasehood approach and the Specificity Condition. As one can see, neither approach alone accounts for the full range of results. The DP phasehood approach does not predict the presence of the definite island effect in Mandarin Chinese, as the PIC only restricts movement, and not binding. Furthermore, the DP phasehood approach cannot account for the presence of a definite island effect in English even when the main verb is a VOC. In this approach, the head noun or D should have incorporated onto the VOC, neutralizing the PIC completely. On the other hand, the smaller definite island effect under VOCs in English is puzzling for the Specificity Condition approach: the choice of verb should have no effect on the specificity of the object DPs. In other words, our experiments show that although it might be theoretically appealing to unify DP phasehood and Specificity, or to eliminate one of them altogether, having only one constraint is not empirically adequate (contra **?**; N. Huang 2022) when cross-linguistic patterns are considered.

	DP phasehood +Incorporation	Specificity Condition	Results
Definite island effect in English	non-VOCs only	non-VOCs and VOCs	non-VOCs and VOCs (smaller with VOCs)
VOC effect in English	Yes	No	Partial
Definite island effect in Mandarin	No	non-VOCs and VOCs	non-VOCs and VOCs
VOC effect in Mandarin	No	No	No

Table 2: Predictions and experiment results

We propose that both the DP phasehood approach and the Specificity Condition are needed to account for the pattern we observed. Wh-questions in English are constrained by the PIC as they involve wh-movement, and they are also constrained by the Specificity Condition since the moved wh-phrase binds its trace. On the other hand, wh-in situ questions in Mandarin are only restricted by the Specificity Condition since the wh-element is bound in situ by a question operator. The PIC is not applicable, since no movement is involved. In this regard, we concur with standard analyses of Mandarin wh-in situ, such as C.-T. J. Huang 1982; Li 1992; Aoun & Li 1993; Tsai 1994.

For English subextraction from definite DPs, both the PIC and the Specificity Condition are violated when the main verb is a non-VOC: movement of the wh-element violates the PIC, while the binding of the wh-trace inside the specific DP violates the Specificity Condition (21a). The violation of both constraints results in a stronger perception of unacceptability. In contrast, when the main verb is a VOC, N/D-incorporation applies, effectively neutralizing the phasehood of the definite DP, thus ensuring that subextraction does not violate the PIC. On the other hand, incorporation has no impact on the Specificity Condition, since the wh-element still binds its wh-trace

inside the definite DP. As a result, we still observe some degradation in acceptability, albeit to a smaller extent than with non-VOCs (21b).

(21) a. What did Tom read [$_{\text{DP=phase}}$ that book about t_{what}]? (movement: *, binding: *)
b. What did Tom write [$_{\text{DP}\neq\text{ phase}}$ that book about t_{what}]? (movement: OK, binding; *)

For Mandarin, we propose that the definite island effects observed with VOCs and non-VOCs reflect a violation of the Specificity Condition, in which a question operator binds an in situ wh-phrase inside a specific DP. Since movement is not involved in these wh-questions, there is no PIC violation. Given this proposal, D or N incorporation onto VOCs, even if it exists in Mandarin, would not have made a difference, as incorporation only affects phasehood and movement but not on the Specificity Condition or binding (22). This explains why no VOC effect is observed in Mandarin, i.e. why the size of the definite island effect remains the same across verb types.

(22) Gloss for corresponding sentences in Mandarin
a. $OP_{[+Q]i}$ Tom read-ASP [$_{DP}$ that about what$_i$ DE book]? (movement: n/a, binding: *)
b. $OP_{[+Q]i}$ Tom write-ASP [$_{DP}$ that about what$_i$ DE book]? (movement: n/a, binding; *)

Table 3 summarizes the constraints that are involved in each condition under discussion so far.

Condition	Example	PIC	Specificity Condition
non-VOC in English	… what Tom read that book about __	Violated	Violated
VOC in English	… what Tom wrote that book about __	Satisfied	Violated
non-VOC in Mandarin	… Tom read that about what DE book	n/a	Violated
VOC in Mandarin	… Tom wrote that about what DE book	n/a	Violated

Table 3: Summary of violations

We note that our proposal for English assumes constraint-stacking – the more violations there are in a sentence, the less acceptable the sentence – an idea that has been explored often in theories of locality since Chomsky 1973. Our contribution here is to present a concrete theory of constraint-stacking, by spelling out the constraints involved and supporting it with experimental evidence from both overt wh-movement and wh-in situ languages.

Finally, we note that our results raise an interesting quantitative question for our proposal. Namely, in our analysis, subextraction with VOCs in English and wh-in situ in Mandarin DPs (VOCs and non-VOCs alike) both violate only one constraint – Specificity. Yet the violation incurs a larger penalty in Mandarin than in English (~1 vs. .29 z-units respectively).

This effect size difference, strictly speaking, does not contradict any part of our proposal. Our proposal is intended to account for the presence or absence of certain effects, but not the magnitude of these effects across languages. In fact, as far as we know, no syntactic theory makes clear predictions about whether the effect size of a given constraint should vary cross-linguistically. Nevertheless, ultimately, this effect size difference must reflect some difference between the wh-dependencies of the two languages, since the English and Mandarin items were deliberately constructed to be parallel in lexical semantics and pragmatics. For instance, perhaps acceptability is sensitive to the category of the binder: a wh-phrase in English, a question operator in Mandarin.

4.2 On the information structure approach to locality

In the introduction, we briefly mentioned a third account of the definite island effect, namely, an information structure approach. An influential early proposal is what Erteschik-Shir (1981:161) calls the Dominance Condition (DC), which states that "[a]n NP can only be extracted ... out of phrases in which the NP may itself be regarded as dominant" (also Erteschik-Shir & Lappin 1979; for more recent iterations of the general approach, see Goldberg 2006; Erteschik-Shir 2017; Abeillé et al. 2020). Briefly, a constituent is dominant if the speaker intends to direct hearers' attention to it (Erteschik-Shir 1981:160). Erteschik-Shir argues, on the basis of various diagnostics, that the wh-phrase complement of a definite object under non-VOCs is not dominant; Erteschik-Shir & Lappin (1979) suggest that this is because definite objects are generally dominant. As a result, the wh-phrase cannot undergo subextraction, thus capturing the definite island effect, as shown in (23).

(23) a. you listen to [$_{\text{notDominant}}$ a song about who$_{\text{dominant}}$] (DC satisfied)
b. *you listen to [$_{\text{dominant}}$ that song about who$_{\text{notDominant}}$] (DC violated)

We did not discuss this account in the above sections, because we are not sure of the predictions of this approach for either English or Mandarin. As far as we can tell, unlike Davies & Dubinsky 2003, Erteschik-Shir and other advocates of this approach do not explicitly discuss the VOC effect with demonstrative-marked definites (which we tested in our experiments).

In addition, a more basic problem for us is that existing proposals of this approach are mostly silent about wh-in situ (except for brief remarks in Goldberg 2006). That said, we believe that our results pose problems for this approach, whether it covers wh-in situ or not.

First, for the sake of argument, suppose that the information structure approach only applies to overt movement and not to wh-in situ. In that case, the DC does not predict the definite island effect observed in Mandarin, and something like the Specificity Condition would have to be assumed. However, this would be arguably contrary to the spirit of such an approach. Information structure approaches are often framed as providing a single mechanism to account for a wide range of locality phenomena (e.g., Erteschik-Shir & Lappin 1979; Goldberg 2006; Ambridge & Goldberg 2008), thus obviating the need for other constraints like subjacency (or PIC) or the Specificity Condition.

Alternatively, suppose that this approach covers both overt wh-movement and wh-in situ, following Goldberg (2006:153-154). This is not an implausible position to take. A general idea behind this approach is that constraints on wh-dependencies are ultimately due to pragmatics and discourse function, and it is reasonable to assume that wh-questions have the same pragmatic properties and discourse functions cross-linguistically, even though their syntax might vary substantially. However, if this were the case, then we should predict uniformity in English and Mandarin: to the extent that English has a VOC effect, so should Mandarin. The absence of a VOC effect in our Mandarin results, then, is puzzling for this approach, and again suggests that invoking some other principle is necessary.

In sum, we did not set out to evaluate the information structure-based approach because we were uncertain about its predictions for English and Mandarin. Given our experimental findings, though, we believe that our results present an empirical challenge for a theory of locality that is founded on information structure principles. This empirical challenge could be resolved if the theory is supplemented with additional constraints, much like how our proposal combined DP phasehood/PIC and the Specificity Condition. However, as we noted above, doing so might run counter to the spirit of existing information structure approaches.

4.3 On an LF movement analysis for wh-in situ

Finally, we address an alternative to our proposal in which wh-in situ involves covert movement that is sensitive to locality constraints like the PIC, just like overt wh-movement. Although this analysis departs from standard characterizations of wh-in situ, it is one that has been put forward for consideration by Lu et al. (2020). Lu et al. report an experiment demonstrating that complex NP island effects can be elicited with both in situ wh-arguments and wh-adjuncts in Mandarin. On this basis, they argue that both wh-arguments and wh-adjuncts are sensitive to a locality constraint like subjacency or the PIC, contra C.-T. J. Huang 1982 and many others.

At first glance, this analysis of wh-in situ seems compatible with our experiment results. We could treat the definite island effect in both languages as a PIC violation, and so we would no longer have to appeal to the Specificity Condition to account for the Mandarin facts. The difference in the VOC effect for English and Mandarin might be accounted for if one assumes parametric variation in N/D-incorporation, such that it is available in English but not in Mandarin.

However, there are several reasons not to pursue this approach. First, we still need the Specificity Condition to explain the small definite island effect observed in English VOC sentences as well as the Mandarin wh-indefinite data in (16). In this regard, this alternative analysis does not offer a clear theoretical or empirical advantage over our proposal in Section 4.1.

Second, like Tian et al. (2022), we believe that Lu et al.'s experimental results are confounded, which weakens the case for this alternative analysis. Specifically, Lu et al. provide acceptability judgment evidence showing that sentences like (24), with in situ wh-arguments inside relative clause islands, are relatively unacceptable, not unlike equivalent sentences with in situ wh-adjuncts, which are usually taken to be ungrammatical.

(24) Yuehan xiangzhidao Bier jian-le chi shenme de nyuhai.
John wonder Bill meet-PFV eat what DE girl
'John wonders what Bill met the girl that ate.' (from Lu et al. 2020 Table 1)

Tian et al. (2022) argue that Lu et al.'s materials are pragmatically odd: relative clauses tend to denote a prominent feature of the modified noun but "eating a certain thing is not the prominent feature of a girl" (ibid.:4). Tian et al. argue that it is this pragmatic oddness that drives the relative unacceptability of (24). In their own experiment, Tian et al. use stimuli that are said to be pragmatically more natural, like (25), where the type of prey is a prominent way of identifying hunters. Their results show that these sentences are more acceptable than equivalent sentences with in situ wh-adjuncts.

(25) Zhouyong xiangzhidao zhengfu hui chengfa busha shenme de lieren.
Zhouyong wonder government will punish hunt what DE hunters
'Zhouyong wonders what is the thing x such that the government will punish the hunter who kills x.' (Tian et al. 2022 ex. 27)

We agree with Tian et al. (2022) that Lu et al.'s materials are confounded, but disagree on the nature of the confound. We argue that what differentiates (24) from (25) is the specificity/definiteness of the complex DP, rather than pragmatic naturalness. In Lu et al. (2020)'s materials, the DP containing the relative clause *chi shenme de nyuhai* is interpreted as specific, which is also indicated in Lu et al.'s own translation: '*the* girl who ate what' (our emphasis). The unacceptability of sentences like (24) thus comes from violating the Specificity Condition. In other words, we think that what Lu et al. detected was a definite island effect.

On the other hand, based on the example stimuli in Tian et al. (2022) like (25), we believe

that Tian et al.'s materials contain complex DPs that are ambiguous between specific and non-specific and are likely to be interpreted as non-specific. The sentence in (25), for example, can also be plausibly translated as "Zhouyong wonders what is the thing x such that the government will punish hunters who kill x", i.e. where the government's policy is against a general class of hunters (reflected in the generic "hunters" in our translation). If this non-specific interpretation is also the one that their participants assigned to these stimulus sentences, there would be no violation of the Specificity Condition. This would explain the relative acceptability of (25).

In sum, we believe that the differences between Lu et al.'s and Tian et al.'s findings can be plausibly attributed to the Specificity Condition. If this interpretation of these results are correct, these results would provide further experimental support for existing claims that in situ wh-arguments are not sensitive to island constraints but are sensitive to the Specificity Condition, in line with our findings here.

5 Concluding remarks

This paper used experimental methods on English and Mandarin Chinese to explore theories of constraints on wh-dependencies involving definite nominals. Focusing on demonstrative-marked definite nominals, we observed a definite island effect in both wh-movement questions in English and wh-in-situ questions in Mandarin. We also detected a VOC effect only in English, although the effect was less strong than what Davies & Dubinsky (2003) and N. Huang (2022) suggested. We propose that a combination of two constraints – the PIC and the Specificity Condition – can account for the patterns observed, where the PIC restricts wh-movement and the Specificity Condition restricts binding in both wh-movement and wh-in-situ questions. The VOC effect results from head incorporation neutralizing the phasehood of DP, which ultimately affects movement, but not binding. In addition, our results present challenges to an information structure approach to locality and a LF movement analysis for wh-in situ questions. Finally, our proposal also has implications for the syntax of nominal phrases. If our proposal is on the right track, the definite island effect in English can be due to a PIC violation, which in turn provides support for the view that DPs are phases (contra Matushansky 2005).

Methodologically, our study provides further evidence of how experimental work can inform and enrich our theories. Our proposal that a theory of locality needs both the PIC/DP phasehood and the Specificity Condition rests on our finding that the choice of main verb affects the size of the definite island effect in English but not in Mandarin. This empirical finding was made possible by the factorial design of our experiments, which allowed us to detect fine-grained differences in acceptability more reliably.

While our findings have led us to a clearer picture of how definiteness and wh-dependencies interact in overt wh-movement and wh-in situ languages, we wish to point out that our conclusion is by no means the full picture. For both scope and practical reasons (see section 3.1), we have only focused on demonstrative-marked DPs in our study. But as noted in the introduction, there are other subclasses of definite DPs, and it has been reported that some of them exceptionally do not show a definite island effect in English and other languages (Erteschik-Shir 1981; Fiengo & Haruna 1987; Davies & Dubinsky 2003; Simonenko 2016; N. Huang 2022; Lim 2022, etc.). Future work could look to experimentally validate these reports, using the same factorial design we used for demonstratives, and to explore the extent to which our two-constraint framework accounts for the facts for these other subclasses of DPs.

Our findings also have consequences for island constraints more generally. Although widely

acknowledged as a factor affecting subextraction from content noun nominals, definiteness and specificity are not always well-controlled for in work exploring other classic island constraints. In Section 4.3, we discussed two recent studies involving Mandarin Chinese complex NPs (Lu et al. 2020; Tian et al. 2022), where it can be tricky to control for specific or definite readings, since Mandarin lacks definite articles equivalent to English *the*. But similar comments apply to studies on English as well. In particular, work that target complex NP and subject islands often use examples where the nominal phrases of interest are definite. (26a) provides an example from an experiment investigating complex NP islands (among other islands), while (26b-c) gives examples from experiments probing for the subject island effect. Even supposing that these sentences do contain violations of complex NP and subject islands, our results raise the possibility that the observed effect might at least be partially driven by the definite island effect, in which case we would have overestimated the actual effect associated with complex NP and subject islands, with potential consequences for theories of these islands. In light of our results, future work on these constraints should systematically control for specificity and/or definiteness, so as to obtain a more accurate empirical picture.

(26) a. What did you hear [the statement that Jeff baked __]? (Sprouse et al. 2016 ex. 14d)
b. Who do you think [the gift from __] prompted the rumor about the Senator? (Sprouse et al. 2016 ex. 15d)
c. The dealer sold a sportscar, of which [the color __] delighted the baseball player because of its surprising luminance. (Abeillé et al. 2020 ex. 16a)

Finally, returning to the present study, we would like to address the issue of parsimony – or perhaps more precisely, the apparent lack thereof – in our proposal that the definite island effect reflects (at least) two distinct constraints: the PIC and the Specificity Condition. While this proposal is perhaps not as parsimonious compared to what it could have been, these two constraints arguably reflect two different aspects of definiteness: the PIC arises because of how definiteness is structurally encoded in the form of DPs, while the Specificity Condition is clearly related to the semantics of definiteness. This view is also very much compatible with long-standing generative views on locality, which have recognized that acceptability judgments are a composite of structural and non-structural factors (Chomsky 1965; Schütze 1996; Sprouse 2007, and many others). Seen from this perspective, the two constraints are independent of each other. If so, even though simplicity is a virtue more generally speaking, there is little reason to expect that we can unify the constraints or eliminate one of them.

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