

The sole relative marker

Xinjunrong Huang and Cheng-Yu Edwin Tsai

Zhuhai College of Science and Technology | University of Macau

The exclusive expression *weiyi* ‘sole/only’ in Mandarin can appear preverbally in a relative clause (e.g., *wo weiyi xihuan de shu* ‘the sole book I like’) but not in other types of clauses (e.g., **Wo weiyi xihuan shu*, intended: ‘I only like books’). This paper first justifies the claim that *weiyi* may not only function as an adjectival modifier but also appear preverbally inside a relative clause, and then demonstrates how *weiyi* is related to definiteness and takes scope out of a relative clause. It is proposed that preverbal *weiyi* is part of a DP which undergoes overt A'-movement in the process of relativization. The syntactic structure and semantic composition of a matching analysis are offered to show how a uniform account can be given across adjectival and relative *weiyi*. A major implication of this paper is that Mandarin does not possess a relative pronoun but allows a DP-internal focus expression to mark syntactic movement in relativization. A comparison between relative constructions involving *weiyi* and English *all*-clefts is also discussed.

Keywords: relative construction, exclusive focus, definiteness, syntactic movement, Mandarin

1. Introduction

The expression *weiyi* in Mandarin consists of the exclusive focus *wei* ‘only’ and the numeral *yi* ‘one’, and is typically translated to ‘only’ or ‘sole’ in English.¹ *Weiyi* can function as a pronominal modifier, preferably with the nominal modification marker *de*, as in (1) (Jin 2021):²

1. *Wei* is a residue from Archaic Chinese and perhaps only occurs (without *yi*) in the written form in Modern Mandarin, where it is used in a sentence-initial position conveying concession ‘it is just that...’

2. Throughout the paper, we gloss *weiyi* as ‘sole’ rather than ‘only’ for the reason that Mandarin has another exclusive focus particle, *zhi*, which appears exclusively in a preverbal position, unlike *weiyi* which may function as an adjectival modifier.

- (1) 唯一 的 機會／學生／書／規定
weiyi de jihui/xuesheng/shu/guiding
 sole DE chance/student/book/rule
 ‘the sole chance/student/book/rule’

More pertinent to this paper is that *weiyi* can also appear preverbally, but only in relative clauses and not, for example, in main clauses. Thus, (2a) and (3a) are grammatical, in contrast to (2b) and (3b). The latter examples are intended as the non-relative counterparts of the former.

- (2) a. [阿新 唯一 看過 的 電影] 是 *Arrival*。
[Axin weiyi kan-guo de dianying] shi Arrival.
 Axin sole watch-ASP DE movie be Arrival
 ‘The sole movie which Axin watched before is *Arrival*.’
 b. *阿新 唯一 看過 *Arrival*。
 **Axin weiyi kan-guo Arrival.*
 Axin sole watch-ASP Arrival
 Intended: ‘Axin only watched *Arrival* before.’
- (3) a. [唯一 讀過 句法學的 學生] 是 阿新。
[Weiyi du-guo jufaxue de xuesheng] shi Axin.
 sole study-ASP syntax DE student be Axin
 ‘The sole student who studied syntax before is Axin.’
 b. *唯一 (有) 阿新 讀過 句法學。
 **Weiyi (you) Axin du-guo jufaxue.*
 sole have Axin study-ASP syntax
 Intended: ‘Only Axin studied syntax before.’

Notice that there is nothing wrong with the structures of (2b) and (3b), which become acceptable once *weiyi* is replaced by the adverbial focus marker *zhi* ‘only’ (along with *you* ‘have’ if the focused constituent is a subject), as shown in (4).

- (4) a. 阿新 只 看過 *Arrival*。
Axin zhi kan-guo Arrival.
 Axin only watch-ASP Arrival
 ‘Axin only watched *Arrival* before.’
 b. 只 有 阿新 讀過 句法學。
Zhi you Axin du-guo jufaxue.
 only have Axin study-ASP syntax
 ‘Only Axin studied syntax before.’

This paper argues that *weiyi* is a relative marker in the sense that it can be analyzed as part of a relative DP undergoing overt movement in forming a relative clause. §2 presents seven arguments in support of the claim that preverbal *weiyi* is

indeed inside a relative clause. § 3 provides further arguments against two possible alternatives where preverbal *weiyi* is an adjectival adjunct instead. In § 4, we discuss two semantic properties of relative *weiyi*, definiteness and scope, which lead to a formal account of its syntax and semantics in § 5, where a matching analysis of relativization involving *weiyi* is advocated and Coppock & Beaver's (2015) semantics of adjectival *only* plays a pivotal role in a unifying approach for adjectival and relative *weiyi*. § 6 introduces Tellings' (2020) account of English *all*-clefts and discusses how the relative construction containing *weiyi* compares to *all*-clefts. Finally, § 7 concludes this paper.

2. In support of *weiyi* as a relative marker

We have seen in (2) and (3) that *weiyi* can appear in a relative clause-internal position, but not in a preverbal position in a non-relative clause. The two examples in (5) further demonstrate the occurrence of *weiyi* in adjunct relativization.

- (5) a. [阿新唯一唱歌 的原因] 是她愛唱歌。
 [Axin weiyi chang-ge de yuanyin] shi ta ai chang-ge.
 Axin sole sing-song DE reason be she love sing-song
 'The sole reason why Axin sings is that she loves to sing.'
- b. [阿新唯一拿 高分 的方法] 是努力學習。
 [Axin weiyi na gao-fen de fangfa] shi nuli xuexi.
 Axin sole obtain high-score DE method be diligent study
 'The sole way by which Axin obtains a high score is to study diligently.'

If *weiyi* is a relative marker, it is expected that the clause in which it occurs behaves in the same way as an ordinary relative clause does in Mandarin, particularly with respect to (A'-)movement properties. In what follows, we present an array of arguments including the asymmetry of relative clauses vs. N-complements, the co-occurrence with a resumptive pronoun, *suo* and the eventive classifier *ci* 'time', the sensitivity to island constraints, licensing of parasitic gaps, and connectivity effects.

The first argument has to do with the fact that *weiyi* can occur in relative clauses but not in N-complement structures (see Huang 2016 and references therein).

- (6) a. * [阿新唯一唱歌 的聲音] 很好聽。
 *[Axin weiyi chang-ge de shengyin] hen hao-ting.
 Axin sole sing-song DE sound very good-hear
 Intended: 'The sole sound of Axin's singing is pleasing.'

- b. **[阿新 唯一 貪汙 的 後果]* 很 可怕。
 **[Axin weiyi tanwu de houguo] hen kepa.*
 Axin sole corrupt DE consequence very terrifying
 Intended: 'The sole consequence of Axin's corruption is terrifying.'
- c. **[橡皮 唯一 燃燒 的 味道]* 很 臭。
 **[Xiangpi weiyi ranshao de weidao] hen chou.*
 rubber sole burn DE smell very smelly
 Intended: 'The sole smell of rubber burning is smelly.'
- d. **[阿新 唯一 會不會 來 的 問題]* 很 麻煩。
 **[Axin weiyi hui-bu-hui lai de wenti] hen mafan.*
 Axin sole will-not-will come DE problem very troublesome
 Intended: 'The sole problem of whether Axin will come or not is troublesome.'
- (7) a. *[阿新 唯一 發出 的 聲音]* 很 低沉。
[Axin weiyi fachu de shengyin] hen dichen.
 Axin sole produce DE sound very low
 'The sole sound that Axin produced was low.'
- b. *[這件 事 唯一 導致 的 後果]* 很 可怕。
[Zhe-jian shi weiyi dao zhi de houguo] hen kepa.
 this-CLF matter sole cause DE consequence very terrifying
 'The sole consequence resulting from this matter is terrifying.'
- c. *[阿新 唯一 燃燒過 的 東西]* 很 臭。
[Axin weiyi ranshao-guo de dongxi] hen chou.
 Axin sole burn-ASP DE thing very smelly
 'The sole thing that Axin burned before is smelly.'
- d. *[阿新 唯一 提起 的 問題]* 很 麻煩。
[Axin weiyi tiqi de wenti] hen mafan.
 Axin sole raise DE problem very troublesome
 'The sole problem that Axin raised is troublesome.'

These data indicate that *weiyi* can be inserted only in relative structures but not in complement clauses of nouns.

The second argument is that the clause in which *weiyi* appears cannot tolerate a resumptive pronoun, as (8) shows. Since a resumptive pronoun is not possible, the gap inside the relative clause and the head NP must be related through syntactic movement.

- (8) 我 唯一 見過 (*她_i) 的 學生 是 阿新_i。
*Wo weiyi jian-guo (*ta_i) de xuesheng shi Axin_i.*
 I sole meet-ASP she DE student be Axin
 'The sole student whom I have met (*her_i) is Axin_i.'

Third, the particle *suo*, which has been convincingly argued to be indicative of object relativization (Chiu 1995; Ting 2003, 2010, *et seq.*), can cooccur with *weiyi*.

- (9) a. 阿新唯一所愛的人
Axin weiyi suo ai de ren
 Axin sole *suo* love DE person
 'the sole person who Axin loves'
- b. 阿新唯一所知的事情
Axin weiyi suo zhi de shiqing
 Axin sole *suo* know DE matter
 'the sole matter which Axin knows'

Fourth, the occurrence of the eventive classifier *ci* 'time' following *weiyi* is also suggestive of the relative clause-internal status of *weiyi*. Nouns such as *shu* 'book' and *xiangji* 'camera' cannot follow a numeral and *ci*, as evidenced by (10), presumably because *ci* subcategorizes for an eventive nominals and *shu* and *xiangji* are not such nominals.

- (10) *(唯一) 一次 的 書/相機
 *(*weiyi*) *yi-ci de shu/xiangji*
 sole one-time DE book/camera

However, the relative constructions in (11) are fully grammatical, even though the head NPs are the same as those in (10). This pattern can only be explained if the sequence *weiyi yi-ci* appears inside the relative clause, modifying a VP.

- (11) a. 阿新唯一一次 推薦 我 買的 書
Axin weiyi yi-ci tuijian wo mai de shu
 Axin sole one-time recommend I buy DE book
 'the book that Axin only once recommended me to buy'
- b. 阿新唯一一次 沒付錢 就 買到 的 相機
Axin weiyi yi-ci mei fu-qian jiu mai-dao de xiangji
 Axin sole one-time not pay-money then buy-get DE camera
 'the camera that Axin only once bought without paying'

Yet another argument comes from island effects. While overt movement in Mandarin generally obeys locality constraints (Huang 1982), occasionally the latter can be violated, e.g., in the subject position in (12a) and the complex NP in (12b) (Chiu 1995: 86).

- (12) a. [[李四看 e_i] 最合適 的] 書 _{i}
 [[*Lisi kan e_i*] *zui heshi*] *de shu_i*
 Lisi read most appropriate DE book
 'the book that it is most appropriate for Lisi to read'

- b. $[[e_i \text{ 租 } e_j \text{ 的}] \text{ 人}_i \text{ 很多 的}] \text{ 那棟 房子}_j$
 $[[e_i \text{ zu } e_j \text{ de}] \text{ ren}_i \text{ henduo de}] \text{ na-dong fangzi}_j$
 rent DE person many DE that-CLF house
 ‘the house that the people who rented it are many’

The reason that island effects are obviated in these cases is that the empty category inside the island is not a trace but a base-generated null *pro*, which is associated with an external NP via the Generalized Control Rule (Huang 1984). Crucially, these sentences become unacceptable in the presence of *weiyi*, as shown in (13). The data indicate that *weiyi* signals syntactic movement (and disallows the strategy of base-generating a null *pro* inside a relative), hence the island effects.

- (13) a. $*[[\text{李四 唯一 看 } e_i] \text{ 最 合適 的}] \text{ 書}_i$
 $*[[\text{Lisi weiyi kan } e_i] \text{ zui heshi}] \text{ de shu}_i$
 Lisi sole read most appropriate DE book
 Intended: ‘the sole book that it’s most appropriate for Lisi to read’
 b. $*[[e_i \text{ 唯一 租 } e_j \text{ 的}] \text{ 人}_i \text{ 很多 的}] \text{ 那棟 房子}_j$
 $*[[e_i \text{ weiyi zu } e_j \text{ de}] \text{ ren}_i \text{ henduo de}] \text{ na-dong fangzi}_j$
 sole rent DE person many DE that-CLF house
 Intended: ‘the sole house that the people who rented it are many’

Licensed parasitic gaps lend further support to our claim. Ting (2010: 472), based on Lin (2005) and Ting & Huang (2008), argues that relative clauses containing *suo* involve overt A'-movement because they can license parasitic gaps. (14) below suggests that the same holds for the clause containing *weiyi*, where the parasitic gap (*pg*) inside the adjunct clause is licit.

- (14) $[\text{阿新} [\text{在 見過 } pg_i \text{ 之後}] \text{ 唯一 沒 錄取 } e_i \text{ 的}] \text{ 考生}_i$
 $[\text{Axin} [\text{zai jian-guo } pg_i \text{ zhihou}] \text{ weiyi mei luqu } e_i \text{ de}] \text{ kaosheng}_i$
 Axin at meet-ASP after sole not admit DE candidate
 ‘the sole candidate that Axin didn’t admit after meeting’

The last argument is based on connectivity effects observed for idiom chunk interpretation and bound pronouns (see Aoun & Li 2003). On the assumption that idioms are fixed expressions the meanings of which are not compositional, the grammaticality of (15a) and (15b) strongly favors a movement analysis. Likewise, that the anaphor *ziji* in (16) can be bound by ‘everyone’ points to the same conclusion that reconstruction takes place for the head NP.

- (15) a. $[\text{阿新 唯一 吃 } e_i \text{ 的}] \text{ 醋}_i$
 $[\text{Axin weiyi chi } e_i \text{ de}] \text{ cu}_i$
 Axin sole eat DE vinegar
 ‘Axin’s sole jealousy’ (lit. ‘the only vinegar that Axin eats’)

- b. [阿新 唯一 吹 e_i 的] 牛_i
 [Axi*n* wei*y*i chui e_i de] niu_i
 Axin sole blow DE cow
 ‘Axin’s sole bluff’ (lit. ‘the only cow that Axin blew’)

- (16) [每個 人_i 唯一 畫 的] 自己_i 的 畫像
 [mei-ge ren_i wei*y*i hua de] ziji_i de huaxiang
 every-CLF person sole paint DE self DE painting
 ‘everyone’s sole painting of herself that she painted’

To summarize, the claim that *weiyi* is a marker of relativization can be supported by the impossibility of its presence in N-complements, the ban on resumptive pronouns, the compatibility with *suo*, the sensitivity to island constraints, licensing of parasitic gaps, and connectivity effects. Before we move on to the next section which offers arguments that rule out potential alternative analyses, it should be clarified that our proposal is fully compatible with *weiyi* being able to function as an adjunct outside a relative clause as well. Thus, our proposal allows the DP in (17a) to be structurally ambiguous between (17b) and (17c).

- (17) a. 唯一 e_i 會 來 的 人_i
 wei*y*i e_i hui lai de ren_i
 sole will come DE person
 ‘the sole person who will come’
 b. [_{DP} [_{RC} weiyi e_i hui lai de] ren_i]
 c. [_{DP} weiyi [_{RC} e_i hui lai de] ren_i]

What is crucial to us is that (17b) must be an available structure for the majority of the data discussed in this work involving preverbal *weiyi*. When *weiyi* is syntactically outside of a relative clause as in (17c), we assume with Jin (2021) that it is an adjectival adjunct. (See §5 for further discussion).

3. Arguments against potential alternatives

In this section, we put forth a number of arguments against possible alternative accounts. In particular, there are two such alternatives.³ The first is schematized in (18a), where *weiyi* is a prenominal modifier followed by a full Num(ber)-Cl(assifier)-N(oun) structure involving PF-deletion of Num-Cl. In the second alternative (18b), what follows *weiyi* is just a relative clause and the head NP. Both analyses

3. These two alternative analyses roughly correspond to Jin’s (2021) “high” and “low” adjunction analyses of *weiyi*, respectively.

have the subject topicalized and associated with the relative clause by the binding of a null *pro* or trace in the latter, and more importantly *weiyi* is a modifying adjunct of an NP (cf. Jin 2021) and is therefore separate from the relative clause, unlike our proposal according to which *weiyi* is part of the relative.

(18) Two alternative analyses:

- a. $\text{subj}_i \dots \text{weiyi} [\text{NumP} \nexists [\text{Cl} [\text{RC} \dots e_i \dots] \text{NP}]]$
- b. $\text{subj}_i \dots \text{weiyi} [\text{NP} [\text{RC} \dots e_i \dots] \text{NP}]$

Both (18a) and (18b) are motivated by the observation that the Num-Cl sequence can sometimes be inserted before a relative clause, and the subject can be interpreted as a topic external to the relative clause. It would seem that *weiyi* may take not a verbal predicate but a nominal constituent as its complement, either an (implicit) Numeral Phrase, as in (20a), or a complex NP containing a relative clause, as in (20b).

- (19) 阿新_i (啊), 唯一 (一部) [_i 看過 的 電影] 是 *Arrival*。
Axin_i (a), weiyi (yi-bu) [_i kan-guo de dianying] shi Arrival.
 Axin TOP sole one-CLF watch-ASP DE movie be Arrival
 ‘As for Axin, the sole movie which (she) watched before is *Arrival*.’

- (20) a. *Axin_i... [_{DP} weiyi [_{NumP} (yi-bu) [_{RC} *e_i kan-guo e_j de* dianying_j]] ...*
 b. *Axin_i... [_{DP} weiyi [_{NP} [_{RC} *e_i kan-guo e_j de* dianying_j]] ...*

Should either of the alternative analyses be correct, our proposal would be weakened because if *weiyi* were always external to a relative clause after all, there would be no compelling reason to treat it as a relative marker. Below we explain how (18a) and (18b) can each be excluded, thereby substantiating the claim made in §2.

First, while the sequence in (18a) is compatible with the subject being a topic if the entire complex DP under discussion sits in subject position, as shown above in (19), the same analysis cannot hold if the same DP appears in object position, because the subject of an object relative does not move out of the relative to a higher DP-internal site. This is why (21b) is degraded.⁴

- (21) a. 我 認識 [(那) 四位 [_{RC} 阿新會 喜歡 的] 學生]。
Wo renshi [(na) si-wei [_{RC} Axin hui xihuan de] xuesheng].
 I know that four-CLF Axin will like DE student
 ‘I know (those) four students that Axin will like.’

4. The status of (21b) can be explained in terms of Huang's (1984) Generalized Control Rule: The closest potential controller of the empty category *e* in the relative clause is the Num-Cl sequence *si-wei*, not *Axin*, and thus *e* cannot be coindexed with the latter.

- b. *我 認識 [阿新_i [(那) 四位 [_{RC} e_i 會 喜歡 的] 學生]]。
 *Wo renshi [Axin_i [(na) si-wei [_{RC} e_i hui xihuan de] xuesheng]].
 I know Axin that four-CLF will like DE student
 Intended: 'I know (those) four students that Axin will like.'

The same pattern obtains for quantificational expressions such as *xuduo* 'many', *ji-wei* 'several-CLF' and *mei-wei* 'every-CLF', all of which are perfectly fine in a position preceding a relative clause but become illicit if the subject of the relative clause moves to their left. This observation establishes that when *weiyi* appears between a subject and a sequence starting with a numeral, as in (18a), the latter cannot be a noun phrase from which the subject has raised, and thus (18a) is unlikely correct.

There are also several pieces of evidence that (18b) is untenable. First, if *weiyi* is base-generated as an adjectival adjunct adjoining to NP or some higher nominal category, we would expect it to be able to cooccur with either a relative clause or an N-complement. This prediction is not borne out, as has already been shown through the contrast between (6) and (7). More data points are provided below: The sentences in (22) show that *weiyi* can precede or follow the subject of a relative, but it cannot comfortably stay in either position in the N-complement structures in (23).

- (22) a. 阿新唯一能 發出 的 聲音
 Axin weiyi neng fachu de shengyin
 Axin sole can produce DE sound
 'the sole sound which Axin can produce'
 b. 唯一 阿新能 發出 的 聲音
 weiyi Axin neng fachu de shengyin
 sole Axin can produce DE sound
 'the sole sound which Axin can produce'
- (23) a. *阿新唯一 彈琴 的 聲音
 *Axin weiyi tan-qin de shengyin
 Axin sole play-piano DE sound
 Intended: 'the sole sound of Axin playing piano'
 b. ??唯一 阿新 彈琴 的 聲音
 ??weiyi Axin tan-qin de shengyin
 sole Axin play-piano DE sound
 Intended: 'the sole sound of Axin playing piano'

The second piece of evidence against (18b) comes from coordination. In (24a), *weiyi* is coordinated with the superlative morpheme *zui* 'most'. Since *zui* is a degree modifier of the negated verb *bu xiang* 'not want', it is clearly an element inside the relative clause, and so must be *weiyi*. Similarly, in (24b) *weiyi* can be

coordinated with *gaodu* ‘highly’, a degree modifier of the verb *rentong* ‘sympathize’.⁵ This coordination pattern would be puzzling if *weiyi* is born outside the relative clause.

- (24) a. 我 [[[唯一] 且 [最]] 不 想 去] 的 地方
wo [[[*weiyi*] *qie* [*zui*]] *bu xiang qu de*] *defang*
 I sole and most not want go DE place
 ‘the sole and least wanted place for me to go’
 b. 我 [[[唯一] 且 [高度]] 認同] 的 想法
wo [[[*weiyi*] *qie* [*gaodu*]] *rentong de*] *xiangfa*
 I sole and highly sympathize DE idea
 ‘the sole idea which I highly sympathize with’

The third is the following contrast between (25a–b) and (26). The sentences in (25) show that a post-subject *weiyi* cannot take the adnominal particle *de* when relativization involves clausal embedding; instead, adjectival *weiyi de* must occur outside the entire relative construction, as in (26). Such contrast would be unexpected if the instances of *weiyi* in (25a–b) were also inherently adjectival.

- (25) a. 阿新唯一 (*的) 相信 李四會 喜歡 的 電影
*Axin weiyi (*de) xiangxin Lisi hui xihuan de dianying*
 Axin sole (*DE) believe Lisi will like DE movie
 ‘the sole movie which Axin believes Lisi will like’
 b. 阿新唯一 (*的) 認為 沒有 說謊 的 嫌疑犯
*Axin weiyi (*de) renwei mei-you shuohuang de xianyifan*
 Axin sole (*DE) think not-have lie DE suspect
 ‘the sole suspect which Axin thinks did not lie’
 (26) 唯一的 阿新相信 李四會 喜歡 的 電影
weiyi de Axin xiangxin Lisi hui xihuan de dianying
 sole DE Axin believe Lisi will like DE movie
 ‘the sole movie which Axin believes Lisi will like’

Lastly, the scope of *weiyi* in a nonrestrictive relative construction provides another strong argument against (18b). Lin & Tsai (2015) discuss nonrestrictive relatives such as (27) (among others), in which the head NP is a proper name.

5. More specifically, backward conjunction reduction has applied to the examples in (24), i.e., *weiyi* in (24a) actually precedes the deleted VP ‘not want to go *e*’ and that in (24b) ‘sympathize with *e*’. Treating *weiyi* in these examples as an adjunct modifier on a par with *zui* ‘most’ or *gaodu* ‘highly’ cannot explain why it does not have the same distribution outside relative clauses. We thank a reviewer for pointing out this issue.

- (27) 擁有 黑人 血統 的 Obama
yongyou hei-ren xietong de Obama
 possess black-person blood DE Obama
 'Obama, who has black blood'

The upshot here is that, as shown in (28), *weiyi* can appear in this relative construction. Since on the nonrestrictive construal there is only one Obama in the domain of the head NP, this case indicates that *weiyi* must scope *inside* the relative clause (cf. also the English translation of (28)).

- (28) 唯一 擁有 黑人 血統 的 Obama
weiyi yongyou hei-ren xietong de Obama
 sole possess black-person blood DE Obama
 'Obama, the sole one who has black blood'
 (Not: '#the sole Obama who has black blood')

Once the adnominal particle *de* is inserted next to *weiyi*, thus forcing the adjectival use of *weiyi*, the result is infelicitous; see (29). This is just as expected, because here *weiyi* directly modifies the head NP *Obama*, which is only possible if there are multiple individuals all named *Obama*.

- (29) #唯一的 [擁有 黑人 血統 的 Obama]
 #*weiyi de [yongyou hei-ren xietong de Obama]*
 sole DE possess black-person blood DE Obama
 #'the sole Obama who has black blood'

In short, (18b) is also unlikely on the right track, based on the counterarguments from the asymmetry of relative clauses vs. N-complements, coordination, the ban of adjectival *weiyi de* in a complex relative clause, and the occurrence of *weiyi* with a nonrestrictive relative. Given all the arguments against both (18a) and (18b) in this section, we feel it is safe to conclude that these two alternative analyses can be excluded and our view that a relative-marker analysis of *weiyi* is unavoidable can be upheld.

4. The interpretation of *weiyi*: Definiteness and scope

In this section, we shall discuss two semantic aspects of *weiyi*, definiteness (§4.1) and scope (§4.2). It will be shown that *weiyi* exhibits definiteness and can scope out of a relative clause despite its position inside the relative.

4.1 Definiteness

The surface form of *weiyi* suggests it semantically encodes exclusivity in the same way as *only* does. Thus, (2a) is true if and only if the set of movies Axin watched before includes *Arrival* and nothing else. But the meaning of *weiyi* is more than exclusivity. To wit, (30a) corresponds to (30b) but not (30c), i.e., the bracketed phrase including adjectival *weiyi* in (30a) is definite and refers to the unique teacher in this school, on a par with *the sole/only teacher* in (30b).

- (30) a. 我 看見了 這所 學校 [唯一 的 老師]。
Wo kanjian-le zhe-suo xuexiao [weiyi de laoshi].
 I see-ASP this-CLF school sole DE teacher
 b. I saw the sole/only teacher in this school.
 ⇒ There is only one teacher in this school.
 c. I saw only one teacher in this school.
 ⇒ There is only one teacher in this school.

Relative *weiyi* performs similarly: The previous Example (2a) does not mean that only one movie which Axin watched before is named *Arrival*, which is weaker than its actual meaning paraphrasable using the definite *the*, i.e., ‘the sole movie which Axin watched before is *Arrival*.’ The definite article has indeed been used in the English translations for all instances of *weiyi* inside a relative clause thus far.

Definiteness, therefore, appears to constitute part of the meaning of *weiyi* (on the adjectival as well as relative use) in addition to exclusivity, even though its morphological structure consists of nothing but an exclusive focus and the numeral *yi* ‘one’. Jin (2021: 195–196) remarks that adjectival *weiyi* marks definiteness when it precedes a NumP, as in (31a), or when it precedes a (bare) NP in appropriate contexts, as in (31b). Jin further mentions two tests for the definite interpretation of adjectival *weiyi* using verbs of creation and distributive contexts, respectively.

- (31) a. 唯一 的 一位 女皇帝
weiyi de yi-wei nü-huangdi
 sole DE one-CLF female-emperor
 ‘the sole female emperor’ (Jin 2021: (12b))
 b. 唯一 的 責任
weiyi de zeren
 sole DE responsibility
 ‘the sole responsibility’ (Jin 2021: (15b))

We would like to add that existential constructions headed by the existential predicate *you* ‘have’ provide yet another test for *weiyi*’s definiteness. Huang (1987) shows that the Definiteness Effect obtains in Mandarin when a definite expression

follows *you* (and its interrogative A-not-A form) and the subject position of *you* is not filled. The contrast between (32a) on one hand and (32b) and (32c) on the other hand indicates that the nominal phrase *weiyi de xuesheng* is definite. Moreover, the ungrammaticality of (32d) shows that the same nominal phrase cannot be specific (with or without Num-Cl), because it cannot take a secondary predicate (Huang 1987).

- (32) a. 有 [學生] 在我的 辦公室。
You [xuesheng] zai wo-de bangongshi.
 have student at I-DE office
 'There is/are (a) student(s) in my office.'
- b. *有 [唯一的 學生] 在我的 辦公室。
 **You [weiyi de xuesheng] zai wo-de bangongshi.*
 have sole DE student at I-DE office
 *'There is the sole student in my office.'
- c. *有沒有 [唯一的 學生] 在你的 辦公室？
 **You-mei-you [weiyi de xuesheng] zai ni-de bangongshi?*
 have-not-have sole DE student at you-DE office
 *'Is there the sole student in your office?'
- d. *我 見過 [(一位) 唯一的 學生] 很 聰明。
 **Wo jian-guo [(yi-wei) weiyi de xuesheng] hen congming.*
 I meet-ASP one-CLF sole DE student very smart
 Intended: 'I met the sole (one) student who is smart.'

The upshot here is that *weiyi*-relatives exhibit the same pattern. (33a) is grammatical, but the other three examples in (33) that contain *weiyi* are just as unacceptable as (32b) to (32d).

- (33) a. 有 [阿新教過 的 學生] 在你的 學校。
You [Axin jiao-guo de xuesheng] zai ni-de xuexiao.
 have Axin teach-ASP DE student at you-DE school
 'There is/are (a) student(s) who Axin taught before in your school.'
- b. *有 [阿新唯一 教過 的 學生] 在你的 學校。
 **You [Axin weiyi jiao-guo de xuesheng] zai ni-de xuexiao.*
 have Axin sole teach-ASP DE student at you-DE school
 *'There is the sole student who Axin taught before in your school.'
- c. *有沒有 [阿新唯一 教過 的 學生] 在你的 學校？
 **You-mei-you [Axin weiyi jiao-guo de xuesheng] zai ni-de xuexiao?*
 have-not-have Axin sole teach-ASP DE student at you-DE school
 *'Is there the sole student who Axin taught before in your school?'

- d. *我 見過 [(一位) 阿新 唯一 教過 的 學生] 很
 *Wo jian-guo [(yi-wei) Axin weiyi jiao-guo de xuesheng] hen
 I meet-ASP one-CLF Axin sole teach-ASP DE student very
 聰明。
congming.
 smart
 Intended: 'I met the sole (one) student who Axin taught before who is smart.'

What these data points show is that *weiyi* expresses definiteness both in a DP and in a relative clause. Bare nouns in Mandarin may receive a definite reading (Cheng & Sybesma 1999) but do not have to, and, crucially, their existential property remains when modified by an ordinary relative clause, as (33a) indicates. The pattern in (33) is thus striking because the bracketed nominal constituents do not contain more elements than a relative clause and a bare head NP, and yet these constituents behave as if they are definites resisting the object position of *you*. The null hypothesis seems to be that *weiyi* co-occurs with a silent definite D that underlies the observed Definiteness Effect.

The hypothesis that *weiyi* may be accompanied by a definite D can also be supported by the fact that it can be used either referentially or predicatively, once again paralleling *the*. (34) below is an example where the adjectival *weiyi* occurs under negation, and is ambiguous between the two readings specified in (35a) and (35b), respectively.

- (34) 阿新 不 是 [這家 公司 唯一 的 員工]。
 Axin bu shi [zhe-jia gongsi weiyi de yuangong].
 Axin not be this-CLF company sole DE employee
 'Axin is not the sole employee of this company.'
- (35) a. Referential reading: This company has only one employee X, and Axin is not X.
 b. Predicative reading: This company has multiple employees, including Axin.

According to the referential reading (35a), the bracketed DP refers to a particular individual who is the only employee of this company. According to the predicative reading (35b), the DP denotes the property of being the company's only employee, and the sentence asserts that Axin does not have such property. Just like the predicative *the* in English, which exhibits a weak uniqueness but no existential presupposition (Coppock & Beaver 2015), the adjectival *weiyi* also does not presuppose there exists an individual that satisfies the description of the bracketed DP, because on the predicative reading the referent of DP does not exist.

Moreover, if *weiyi* is dropped, as in (36a), the bracketed DP is no longer ambiguous and only the predicative reading surfaces. The unambiguity can be justified by the fact that (36a) can felicitously follow the sentence ‘This company has many employees, but...’ Since a unique employer of this company does not exist in this scenario, the felicitous continuation suggests that the DP *zhe-jia gongsi de yuangong* is not a definite. Likewise, the unmodified bare NP in (36b) is only predicative and cannot be interpreted as the referential, definite ‘the employee’.

- (36) a. 阿新不是 [這家公司 的 員工]。
Axin bu shi [zhe-jia gongsi de yuangong].
 Axin not be this-CLF company DE employee
 ‘Axin is not an employee of this company.’
 b. 阿新不是員工。
Axin bu shi yuangong.
 Axin not be employee
 ‘Axin is not an employee.’

Importantly, *weiyi* demonstrates the same ambiguity in relative clauses as the adjectival *weiyi*. On the referential reading of (37), which is given in (38a), the bracketed DP refers to the only movie that Axin watched before; on the predicative reading paraphrased by (38b), the DP denotes the property of being the only movie Axin watched before.

- (37) *Arrival* 不是 [阿新唯一看過 的 電影]。
Arrival bu shi [Axin weiyi kan-guo de dianying].
Arrival not be Axin sole watch-ASP DE movie
 ‘*Arrival* is not the sole movie that Axin watched before.’
 (38) a. Referential reading: Axin only watched some movie before, and *Arrival* is not that movie.
 b. Predicative reading: Axin watched multiple movies before, including *Arrival*.

In short, the observations based on (31) through (38) lead us to conclude that *weiyi*-relatives are related to a definite D, as schematized in (39).

- (39) [_{DP} D ... [_{RC} ... *weiyi* ...] N]

4.2 Scope

We now turn to the third semantic property of relative *weiyi*, which has to do with its scope. The Example (28) in the previous section already shows that, on the nonrestrictive construal, *weiyi* can take scope *inside* the relative clause without

interaction with the head NP. However, as the English translations have revealed, in all other cases it takes scope *outside* the relative and over the head NP, e.g., (40a) means among all movies the only one which Axin watched before is *Arrival*. It does not mean a contextually salient movie is *Arrival* and Axin only watched it before. For the latter scope reading ('(the) movie' > 'only'), the definiteness on the head NP is independent of *weiyi*, and this reading predicts that (40a) would still be acceptable on the definite construal if the relative clause is dropped. This is nonetheless not borne out, as evidenced by (40b).

- (40) a. [阿新 唯一 看過 的 電影] 是 *Arrival*。
 [Axin weiyi kan-guo de dianying] shi *Arrival*.
 Axin sole watch-ASP DE movie be *Arrival*
 'The sole movie which Axin watched before is *Arrival*.'
 (Scope: 'sole' > 'movie')
 Not: 'The movie, the sole one which Axin watched before, is *Arrival*.'
 (Scope: '(the) movie' > 'sole')
- b. (這部 電影 叫 什麼?) *電影 是 *Arrival*。
 (Zhe-bu dianying jiao shenme?) *Dianying shi *Arrival*
 this-CLF movie call what movie be *Arrival*
 Intended: '(What is this movie called?) The movie is *Arrival*.'

Likewise, (41a) only allows the interpretation according to which the subject picks out the sole student who studied syntax before out of a set of students. In other words, *weiyi* in (41a) scopes over the head NP; the subject does not refer to a particular student and supplement it with the information specified by the relative clause. (41b), however, does not allow *xuesheng* 'student' to be definite, indicating that the relative in (41a) cannot be nonrestrictive.

- (41) a. [唯一 讀過 句法學的 學生] 是 阿新。
 [Weiyi du-guo jufaxue de xuesheng] shi Axin.
 sole study-ASP syntax DE student be Axin
 'The sole student who studied syntax before is Axin.'
 (Scope: 'sole' > 'student')
 Not: 'The student, the sole one who studied syntax before, is Axin.'
 (Scope: '(the) student' > 'sole')
- b. (這位 學生 是誰?) *學生 是 阿新。
 (Zhe-wei xuesheng shi shei?) *Xuesheng shi Axin.
 this-CLF student be who student be Axin
 Intended: '(Who is this student?) The student is Axin.'

The puzzle here is that while *weiyi* occurs internally to a restrictive relative clause, as we have argued all along, semantically it may take scope outside the relative

(except when the relative is nonrestrictive, as in cases like (28)). We address this scope puzzle as well as the definiteness of *weiyi* in § 5.2 below.

5. Formal analysis

What we have established so far can be summarized in (42) below.

- (42) a. The preverbal *weiyi* can occur inside a relative clause syntactically, and the relative clause containing *weiyi* display (*A'*-)movement properties. (§2–§3.)
 b. *Weiyi* is related to exclusivity and definiteness (cf. Jin 2021). (§4.)
 c. The preverbal *weiyi* can take scope outside a relative clause. (§4.)
 d. The preverbal *weiyi* does not appear in non-relative clauses. (§1.)

The leading idea in our analysis which aims to capture these observations is that *weiyi* uniformly takes a predicative (type $\langle e, t \rangle$) expression as its argument. The difference between adjectival *weiyi* and relative *weiyi* is that the former has one NP-argument whereas the latter has two, an NP and a relative clause (also of type $\langle e, t \rangle$). We begin with an analysis of adjectival *weiyi* and then show how this analysis can be extended to relative *weiyi*. Note that we will ignore the presence of the adnominal particle *de* that cooccurs with both types of *weiyi*, since its exact status is still a matter of controversy and nothing in what will be said below hinges on any particular view on *de*.

5.1 Adjectival *weiyi*

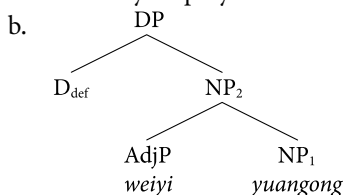
For adjectival *weiyi*, we adopt Coppock & Beaver's (2015) entry of adjectival *only* in (43): It takes a type $\langle e, t \rangle$ predicate P and an individual argument x , and asserts that all alternatives which are not identical to x do not have the P property, while presupposing that x has P . The partial operator ∂ (see Beaver 1992) is used to formalize presupposition: $\partial(\varphi)$ is true if φ is true but lacks a truth-value if φ is not true.

- (43) $[[\text{only}]] = \lambda P. \lambda x. [\partial(P(x)) \ \& \ \forall y [y \neq x \rightarrow \neg P(y)]]$
 (Coppock & Beaver 2015: 398)

The semantics of example (44a), which has the DP-structure in (44b), is derived as in (44c), where *weiyi* is assumed to be an adjective heading AdjP and the entire nominal expression is headed by the covert definite D (D_{def}). The entry of D_{def} as shown in (45d) is also taken from Coppock & Beaver (2015: 395), according to

which a definite DP of the form *the P* is inherently predicative and carries the presupposition that the cardinality of *P* is not greater than 1.

- (44) a. 唯一的員工
weiyi de yuangong
 sole DE employee
 ‘the only employee’



- (45) a. $[[NP_1]] = \lambda x. [\text{employee}(x)]$
 b. $[[AdjP]] = \lambda P. \lambda x. [\partial(P(x)) \ \& \ \forall y[y \neq x \rightarrow \neg P(y)]]$
 c. $[[NP_2]] = \lambda x. [\partial(\text{employee}(x)) \ \& \ \forall y[y \neq x \rightarrow \neg \text{employee}(y)]]$
 d. $[[D_{\text{def}}]] = \lambda P. \lambda x. [\partial(|P| \leq 1) \ \& \ P(x)]$
 e. $[[DP]] = \lambda x. [\partial(|\text{WEIYI}(\text{EMPL})| \leq 1) \ \& \ \text{WEIYI}(\text{EMPL})(x)]$

The last line in (45e), where ‘WEIYI(EMPL)’ stands for the predicate formula in (45c), presents the denotation of the DP containing adjectival *weiyi*. It applies to an individual and yields the proposition that no one other than that individual is an employee, if the number of such individuals is one or zero. Note that (45e) does not presuppose a unique individual satisfying the description of (44a), and therefore correctly captures the predicative use of adjectival *weiyi* (recall (34)).

On the other hand, as was shown earlier, (44a) also has a referential use on a par with a referring definite. We once again follow Coppock & Beaver and assume the referential use of *weiyi* is derived through the independent meaning shift operation IOTA in (46), where the ι -operator presupposes the existence of a unique individual and turns a predicate into a type *e* expression.

- (46) $\text{IOTA} \equiv \lambda P. \iota x[P(x)]$ (Coppock & Beaver 2015: 408)

With (46) in place, the meaning of the predicative DP in (34) on its referential reading can be represented as in (47), which refers to the contextually unique employee.

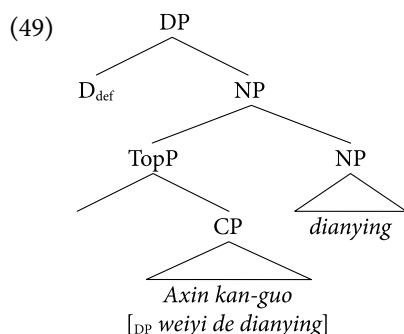
- (47) $\text{IOTA}(\lambda x. [\partial(|\text{WEIYI}(\text{EMPL})| \leq 1) \ \& \ \text{WEIYI}(\text{EMPL})(x)])$
 $= \iota x[\partial(|\text{WEIYI}(\text{EMPL})| \leq 1) \ \& \ \text{WEIYI}(\text{EMPL})(x)]$

5.2 Relative *weiyi*

With respect to relative *weiyi*, we propose that it is similar to adjectival *weiyi* except two differences: (i) It cooccurs with an intrinsically predicative (i.e., not referring or presuppositional) D head, as indicated in (48b), and (ii) it takes one more argument than adjectival *weiyi* does. These two differences together result in the distinct syntactic distributions of adjectival and relative *weiyi*.

- (48) a. 阿新唯一看過 的 電影
Axin weiyi kan-guo de dianying
 Axin sole watch-ASP DE movie
 'the sole movie which Axin watched before'
- b. [_{DP} D_{pred} [_{NP} [_{AdjP} *weiyi*] *dianying*]]

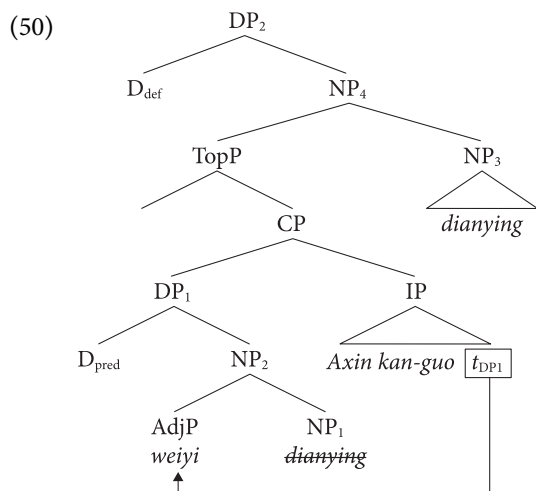
More concretely, we take the underlying structure of (48a) to be (49), where a DP headed by a definite D embeds an NP modified by a relative clause (including a CP and a higher Topic Phrase (TopP), assuming the split-CP hypothesis in Rizzi 1997).⁶ Note that there are two instances of the NP *dianying* 'movie', one base-generated as the head of the relative clause, the other inside the object DP in the relative clause.



Since the D of the object DP is predicative, it undergoes overt movement to Spec-CP of the relative CP as shown in the structure in (50), which is on a par with wh-movement in English relative constructions. The predicative D_{pred}, in other words, is the analogue of a relative wh-pronoun, which is syntactically a D (cf. Kayne 1994) that establishes a predication relation with a head NP, rather than one that forms a referential argument. Moreover, the embedded *dianying* 'movie' undergoes phonological deletion when licensed by the relative clause head (i.e.,

6. We have nothing to say about the status of the adnominal particle *de*. Since *de* is obligatory to all relative clauses and frequently occurs with many modified nominals in Mandarin, we believe its role should be independent of *weiyi*.

what Sauerland 2003 calls *relative deletion*; cf. Citko 2001), and the subject *Axin* raises to Spec-TopP as an instance of topicalization internal to the relative clause, giving rise to the surface order of (48a).⁷



Notice that the entire noun phrase is headed by a definite D, which is posited for the definite interpretation of complex DPs containing relative *weiyi*. Thus, relative

7. As a reviewer correctly remarks, topicalization of *Axin* is obligatory in (48a) (^{??}*weiyi Axin kan-guo de dianying shi...*). Note that obligatory topicalization of a subject occurs in a few other cases as well, e.g., the outer affective construction in (i) and the refutary wh-construal in (ii); see Tsai (2015).

- (i) 阿Q 居然 給 我 (*阿Q) 拿了 錢 就 跑 !
*Akiu juran [gei wo] (*Akiu) na-le qian jiu pao!*
 Akiu unexpectedly AFF I Akiu take-ASP money then run
 'Unexpectedly, Akiu took the money and ran away on me!'
- (ii) 阿Q 哪裡 (*阿Q) 去了 北京 ! (他 去了 上海。)
*Akiu nali (*Akiu) qu-le Beijing! (Ta qu-le Shanghai.)*
 Akiu where Akiu go-ASP Beijing! he go-ASP Shanghai
 'It is impossible for Akiu to go to Beijing! (He went to Shanghai.)'

Tsai's (2015) account of obligatory topicalization utilizes Rizzi's (2004) version of Relativized Minimality, according to which inherently quantificational expressions (Wh, Neg, measure, focus, etc.) block one another in terms of minimality effects. The key idea is that a Mandarin subject is bound by a null D(efiniteness)-operator in TopP, and such a binding relation can be blocked by another quantificational expression sitting between TopP and TP, e.g., *juran* in (i) and *nali* in (ii), unless the subject undergoes topicalization. We submit that (48a) can be analyzed in the same way. Since *weiyi* is a focus element and therefore a member of the quantificational group, the subject *Axin* must move from IP to TopP in order to avoid Relativized Minimality violations in the configuration *[+Quan] ... [+Quan] ... [+Quan].

weiyi is still associated with a definite D just like its adjectival counterpart is, but for the former the definite D is not an immediately c-commanding head.

A reviewer wonders what the nature of the D_{pred} in (50) is and whether it occurs in relative clauses without *weiyi*. We submit that D elements performing a similar function can also be found in constructions involving a secondary predicate, e.g., the long *bei*-passive in (51a) and the manner V-*de* construction in (51b) below (see Huang et al. 2009 and references therein). In both cases, the null operator Op can be taken to be a predicative D projecting a DP that undergoes A'-movement, deriving a secondary predicate of the matrix subject in the same way as the DP headed by D_{pred} raises to Spec-CP to derive a relative clause.

- (51) a. 阿新被 [Op_i [爸爸 打了 t_i]]。
 Axin bei [Op_i [*baba da-le* t_i]].
 Axin bei father hit-ASP
 ‘Axin was hit by (her) father.’
 b. 阿新跑得 [Op_i [t_i 很 快]]。
 Axin pao-de [Op_i [t_i *hen kuai*]].
 Axin run-DE very fast.
 ‘Axin runs fast.’

The difference between D_{pred} in (50) and the Op in (51) is that the former is “transitive” in taking an overt NP complement whereas the latter is “intransitive” taking no complement. This difference parallels that between the definite article *the* and pronouns in English, both being Ds (Postal 1969). As for whether D_{pred} also appears in Mandarin relatives without *weiyi*, this could be the case when the nominal head of a relative does not reconstruct, e.g., when it is a quantifier phrase (QP), which Aoun & Li (2003) have argued to resist reconstruction. This means relativization of a QP argument in Mandarin should be formed by A'-movement of a silent operator, which we believe can be identified with the same type of D_{pred} in (50). On the other hand, relativization of an NP argument is better analyzed with the head-raising strategy according to Aoun & Li, in which case D_{pred} is irrelevant. In brief, while we advocate the existence of D_{pred} for relative *weiyi*, we do not require D_{pred} to be present in every relative construction in Mandarin.

The step-by-step semantic composition of the DP structure in (50) is provided in (52) below. The crucial element is the entry of *weiyi* in (52a), which takes not one but two type $\langle e, t \rangle$ arguments, P and Q , Q being the restriction of the domain of the variable y (i.e., the variable for the alternatives to be excluded by *weiyi*). The relative IP denotes the λ -abstracted proposition in (52d) due to overt movement of DP_1 , which is headed by the predicative D_{pred} . Since D_{pred} is only a functional element introducing predication of an NP, it is semantically vacuous, and thus NP_2 and DP_1 share the same denotation, as in (52c), arrived at through

Functional Application (FA). DP_1 and IP combine through FA again, and the output CP/TopP continues to combine with the head NP_3 through Predicate Modification (Heim & Kratzer 1998). Finally, D_{def} is saturated by NP_4 , yielding DP_2 , which is a function from entities to the sole movie that Axin saw if there is one. The final line in (52i), where ‘WEIYI(MOVIE-A-SAW)’ abbreviates the predicate formula in (52g), is fully parallel to that in (45e), both subject to further type-shifting mechanisms such as IOTA in (46).

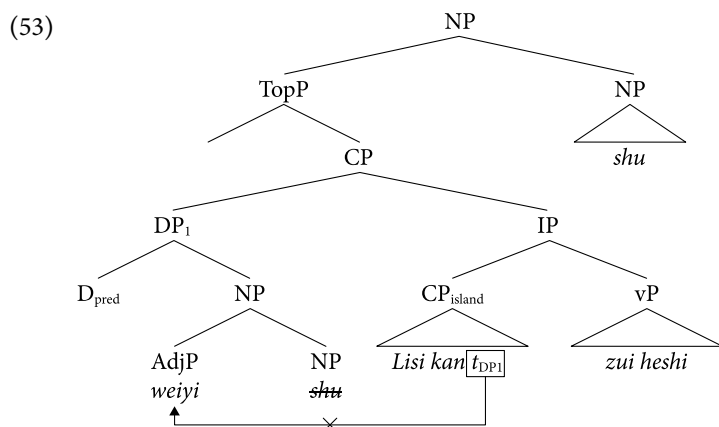
- (52) a. $[[\text{AdjP}]] = \lambda Q. \lambda P. \lambda x. [\partial(P(x)) \ \& \ \forall y[Q(y) \ \& \ y \neq x \rightarrow \neg P(y)]]$
 b. $[[NP_1]] = \lambda x. [\text{movie}(x)]$
 c. $[[NP_2]] = [[DP_1]] = \lambda P. \lambda x. [\partial(P(x)) \ \& \ \forall y[\text{movie}(y) \ \& \ y \neq x \rightarrow \neg P(y)]]$ (FA)
 d. $[[IP]] = \lambda x. [\text{saw}(x)(A)]$
 e. $[[CP/\text{TopP}]] = \lambda x. [\partial(\text{saw}(x)(A)) \ \& \ \forall y[\text{movie}(y) \ \& \ y \neq x \rightarrow \neg \text{saw}(y)(A)]]$ (FA)
 f. $[[NP_3]] = \lambda x. [\text{movie}(x)]$
 g. $[[NP_4]] = \lambda x. [\partial(\text{saw}(x)(A)) \ \& \ \text{movie}(x) \ \& \ \forall y[\text{movie}(y) \ \& \ y \neq x \rightarrow \neg \text{saw}(y)(A)]]$ (Predicate Modification)
 h. $[[D_{\text{def}}]] = \lambda P. \lambda x. [\partial(|P| \leq 1) \ \& \ P(x)]$
 i. $[[DP_2]] = \lambda x. [\partial(|\text{WEIYI(MOVIE-A-SAW)}| \leq 1) \ \& \ \text{WEIYI(MOVIE-A-SAW)}(x)]$ (FA)

The analysis depicted above is a variant of the *matching* analysis of relative clauses (Lees 1960, 1961; Chomsky 1965; Sauerland 1998, 2003; inter alia), in which the relative clause head originates in its surface position matching an identical NP that raises from inside the relative clause (see also Xu 2009 for a similar view on Mandarin relativization), and both NPs are interpreted.⁸ More importantly, adjectival *weiyi* and relative *weiyi* are unified under this approach through a minimal difference in their DP-syntax and interpretation: Adjectival *weiyi* is headed by a definite D and can be characterized with Coppock & Beaver’s (2015) account of adjectival *only*, while relative *weiyi* is headed by a predicative D (akin to a relative pronoun such as *which*) and is semantically associated with a relative CP in addition to an NP. The relative-internal *weiyi* can be said to function as a relative marker in the sense that it occurs inside a (predicative) DP that must move to create relativization.

8. If the internal copy of ‘movie’ is not interpreted, the variable y would not be restricted, and as a consequence the “universal” or “exclusive” part in (52g) would mean that every entity that is not identical to x is such that Axin did not see it before. However, the DP under discussion is concerned only with the set of movies but not anything else, and therefore this internal copy of ‘movie’ is required to be interpreted.

5.3 Explaining previous observations

Let us now see how our analysis captures the four observations in (42). First, since the DP that embeds relative *weiyi* undergoes A'-movement in a relative clause, properties related to A'-movement are expected, such as island effects (see (13)) and licensed parasitic gaps (see (14)). For instance, (13) is ungrammatical because the DP containing *weiyi* has moved out of a Subject Island inside the relative CP, as can be seen from the diagram in (53).



Moreover, since such a DP must be base-generated inside a relative clause, *weiyi* is incompatible with N-complements (see (6)) as it is not possible to insert the DP inside the latter. The impossibility of a resumptive pronoun (see (8)) also follows straightforwardly as *weiyi* signals movement has taken place, and the coordination pattern in (24) needs no further stipulation beyond conjunction reduction of the main predicate inside the relative clause.

The cooccurrence with the object relativization marker *suo* (see (9)) can be made compatible with the present proposal as well if we take *suo* to be an overt D head (cf. Ting 2010) that only occurs in an object DP and incorporates into an Infl-head below the Spec-CP position to which the DP embedding *weiyi* moves, yielding the word order seen in (9).

Connectivity patterns of relative *weiyi* in idiom chunks and bound variable constructions require a little extra explanation. Examples such as those in (15) and (16) are used by Aoun & Li (2003) to support a head-raising analysis in which the head NP moves out of a relative clause but can reconstruct back into the relative-internal position for the purpose of idiomatic interpretation or variable binding. However, a matching analysis can also account for the same facts. Citko (2001), for instance, argues that the idiom in (54a) can be derived as follows. (54b) shows the structure where one copy of *headway* is base-generated in

the matrix level and another inside the relative clause as part of the DP *which headway*, which undergoes wh-movement. In (54c), the lower copy of *headway* is deleted at PF under identity, and then, in (54d), it reconstructs into the object position of *made* to satisfy idiomatic interpretation. Finally, the higher copy of *headway* is deleted at LF (i.e., not interpreted), indicated by means of a shade plus a strikethrough in (54e).

- [illegible]

We suggest Mandarin idioms can be treated in a parallel manner. (15a), reproduced as (55a) below, may receive the same matching analysis proposed above, but with the lower DP copy deleted at PF, as schematized in (55b). The NP *cu* ‘vinegar’ reconstructs to the relative-internal object position, followed by LF deletion of the external copy of the same NP, as in (55c). Thus, the internal copy of *cu* is unpronounced but interpreted, and the external copy is pronounced but not interpreted.

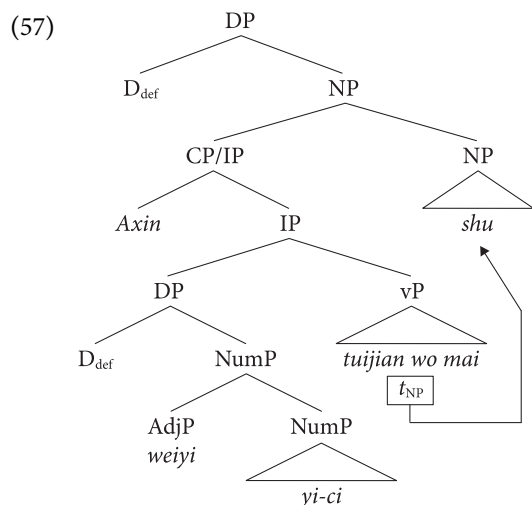
- (55) a. [阿新唯一吃 e_i 的] 醋_i
 [Axin weiyi chi e_i de] cu_i
 Axin sole eat DE vinegar
 'Axin's sole jealousy' (lit. 'the only vinegar that Axin eats')
- b. [_{DP} [_{TopP} A [_{CP} [_{DP} D weiyi ~~eu~~] [_{IP} chi [_{DP} D ~~weiyi eu~~] (de)]]] [_{NP} cu]]
 (PF deletion under identity)
- c. [_{DP} [_{TopP} A [_{CP} [_{DP} D weiyi ~~eu~~] [_{IP} chi [_{NP} cu] (de)]]] [_{NP} ~~eu~~]]
 (LF reconstruction & LF copy deletion)

We assume constructions involving a bound variable z_{ij} in the external head position can be analyzed similarly.

For cases where *weiyi* cooccurs with the eventive classifier *ci*, our solution is that *weiyi* is part of a definite frequency-denoting DP that originates as an adverbial inside a relative clause. More concretely, (56) (repeated from (11a) above) receives the analysis in (57). It is an instance of ordinary relativization in Mandarin that involves raising of the relative head NP ‘book’ (following Aoun & Li 2003); *weiyi* in this case is not associated with ‘book’ but is part of an IP-level

adverbial DP inside the relative clause, and the D head above *weiyi* is the definite, referential D.⁹ In other words, (56) has a meaning that can be roughly paraphrased as ‘the book that Axin recommended me to buy the sole time’.

- (56) 阿新 唯一 一次 推薦 我 買 的 書
Axin weiyi yi-ci tuijian wo mai de shu
 Axin sole one-time recommend I buy DE book
 ‘the book that Axin only once recommended me to buy’



Our earlier claim about (56) that *weiyi* occurs internally to a relative clause still stands, as the DP [*weiyi yi-ci*] is indeed part of the relative CP, although the presence of *weiyi* here is independent of the relativization of the object NP ‘book’.

Regarding (42b), we have characterized the exclusivity of *weiyi* using Coppock & Beaver’s (2015) definition of adjectival *only*. Definiteness, on the other hand, is attributed to a separate D head. While we remain neutral as to whether Mandarin is a DP language or not (see, e.g., Chierchia 1998; Jiang 2012,

9. In this respect, we join Aoun & Li (2003) as well as Lin & Tsai (2015) who propose that matching and raising must be both available to account for the full range of facts in Mandarin relativization. For Aoun & Li, matching and raising strategies are required for adjunct relativization and NP-relativization, respectively; for Lin & Tsai, it is the differences between the relative clauses preceding a Dem-Num-Cl sequence and those following that call for the two strategies. Our position is that when relative *weiyi* is present, matching is a more economic and desirable strategy than head-raising since there is no motivation for the latter if RC-internal A'-movement can be established based on the distribution of relative *weiyi*. At the same time, we are not against the raising analysis for relative constructions without relative *weiyi*, e.g., (56). We thank a reviewer for urging us to clarify this point.

and references therein), the data presented in §4 seem to us to support the postulation of a definite D at least in the presence of *weiyi*. One might as well argue that *weiyi* is the definite D, but we do not know of any determiner that displays the semantics of *the* and *sole/only* simultaneously.¹⁰ In addition, disentangling *weiyi* from a definite D also has the advantage of accounting for the fact that both adjectival and relative *weiyi* can be preceded by the Num-Cl sequence, as exemplified by the following naturally occurring examples in (58) (see also Jin 2021):¹¹

- (58) a. 中國 歷史上 確實 出了 [一位 唯一的 女狀元]。
Zhongguo lishi-shang qieshi chu-le [yi-wei weiyi de nü-zhuangyuan].
 China history-on indeed out-ASP one-CLF sole DE female-top.scorer
 ‘In the history of China, there indeed was a sole female *zhuangyuan* (top scorer).’
 b. 他打了 [一個 他唯一 知道的 號碼]。
Ta da-le [yi-ge ta weiyi zhidao de haoma].
 he dial-ASP one-CLF he sole know DE number
 ‘He dialed a sole (phone) number he knows.’

In this respect, *weiyi* resembles English *sole* (but not *only*; Coppock & Beaver 2014) in being compatible with an indefinite marker, which would be surprising if *weiyi* were inherently definite.¹² We maintain that a definite D cooccurs with *weiyi*

10. It is possible, however, that *weiyi* is not simply an adjectival adjunct inside a noun phrase, but rather could be the head of some focus-related nominal projection which maintains an agreement or selection relation with D, which is why both adjectival *weiyi* and relative *weiyi* display obligatory Definiteness Effects. We leave this possibility for future research.

11. A reviewer asks what happens if the Num-Cl in (58b) is placed immediately before the head N, namely *ta weiyi zhidao de yi-ge haoma*. Jin (2021) makes no prediction about the (in)definiteness of such a nominal as her account does not deal with relative *weiyi*. For the present work, this nominal appears to be indefinite as well based on the tests in §4.1, and our proposal can derive this interpretation because *weiyi* is not inherently definite.

12. Sometimes adjectival *weiyi* appears to be interpreted as ‘unique’ in the scope of Num-Cl. The Example (i), for instance, does not mean that every kind of vaccine/placebo is assigned the same number and there does not exist any other number in the relevant context. Rather, it means every kind of vaccine/placebo has a number that is distinct from the number of any other vaccine/placebo.

(i) 每種 疫苗/安慰劑 都有 [一個 唯一的 編號]。
Mei-zhong yimiao/anweiji dou you [yi-ge weiyi de bianhao].
 every-kind vaccine/placebo DOU have one-CLF sole DE number
 ‘Every kind of vaccine/placebo has a sole/unique number.’

For such case, we assume with Coppock & Beaver (2014) that the modified NP *bianhao* is a relational noun argument such that its sole referent is relative to each kind of vaccine/placebo.

by default, but other type-shifting operations are also available (such as Coppock & Beaver's (2015) *IOTA* or existential *EX*) in place of the definite *D*.¹³

That relative *weiyi* can take scope outside a relative clause, namely (42c), follows from the lexical entry in (52b), according to which the relative clause is one of the arguments of relative *weiyi*, together with the compositional relation between the relative CP and head NP (i.e., Predication Modification). Thus, in restrictive relatives *weiyi* behaves as if it is located in a syntactically higher position scoping over both the relative and its head NP. As for nonrestrictive cases such as (28), we suggest it has the DP-DP coordination structure in (59) (cf. de Vries 2006), in which the relative head is not *Obama* but a silent NP predicate ONE, the exact domain of which depends on the context, and *Obama* is never part of the relative construction.

- (59) [_{DP} D_{def} [_{CP} sole one who has black blood DE] [_{NP} ONE]] [_{DP} Obama]
'Obama, the sole one who has black blood'

Since adjectival *weiyi* cannot modify a proper name (e.g., #*weiyi de Obama*) unless under the special interpretation 'the only person who has the name/characteristics of Obama' where *Obama* has a predicative construal, the nonrestrictive property of (59) is coherent with our matching analysis of relative *weiyi* because it is not possible for the DP [*weiyi de Obama*] to be born as a subject inside the relative clause.

Finally, the question of why preverbal *weiyi* only appears in relative clauses but not other kinds of clauses is addressed by the analysis that relative *weiyi* is headed by a predicative *D* which moves to Spec-CP to establish a predication relation with the relative head NP. In other words, the appearance of relative *weiyi* in a preverbal position is a reflex of overt relative pronoun/DP movement, although *weiyi* is not the relative *D* per se. Hence, *weiyi* does not occur outside a nominal phrase for the same reason as the English relative pronoun *which* does not, unless there is a [+predicative] *C* (Rizzi 1990) that triggers movement of the relative DP.

13. Moreover, demonstratives may also cooccur with both types of *weiyi*, as shown in (i) and (ii).

- (i) 這位／那位 唯一的 學生
zhe-wei/na-wei *weiyi de xuesheng*
this-CLF/that-CLF DE student
'this/that sole student'
- (ii) 這位／那位 阿新 唯一 教過 的 學生
zhe-wei/na-wei *Axin weiyi jiao-guo de xuesheng*
this-CLF/that-CLF Axin sole teach-ASP DE student
'this/that sole student who Axin taught before'

On the other hand, overt *D* elements expressing plurality ('every', 'some', 'many', etc.) cannot cooccur with *weiyi* due to number mismatch.

6. A comparison with English *all*-clefts

The phenomenon of an exclusive focus expression acting as a relative marker of some sort is somewhat reminiscent of *all*-clefts in English, recently discussed by Homer (2019) and Tellings (2020). Below we present the key observations and core proposal advanced by Tellings (2020), and suggest a connection between *all*-clefts and relative *weiyi*. All the English data from (60) to (66) below are reproduced from Tellings (2020).

First, the distribution of English *all*-clefts is restricted: They only appear in specificational copular sentences, e.g., (60a) and (60b), and do not arise in predication copular constructions such as (60c). Supporting evidence includes the connectivity effects as shown in (61), which are also typical of specificational copular sentences.

- (60) a. [All I ate for dinner] was a salad.
 b. That's [all I ate for dinner].
 c. *All I ate for dinner was healthy.
- (61) a. All they_i did was embrace each other_i. (Reciprocity connectivity)
 b. *All she_i said to me was that I should call Mary_i. (Principle C connectivity)

Moreover, *all*-clefts behave like headed relatives in English in that both require a C or a relative pronoun, as shown in (62), and both non-subject relatives and non-subject *all*-clefts may drop a C or relative pronoun. These (and other) observations suggest that *all* in *all*-clefts heads a relative clause.

- (62) a. the man *(that/who) saw me
 b. All *(that) surprised me was that Mary was there.

Semantically, the meaning of *all*-clefts has an at-issue component parallel to that of *only*. To wit, both (63a) and (63b) are felicitous continuations of *I know Mary ate a pizza*, a fact which indicates that the exclusion of anything other than a pizza is at-issue information of *only*. Crucially, the same pattern holds for the *all*-clefts in (64). In particular, what is negated in the continuation (64b) is the claim that Mary ate nothing other than a pizza, which is identical to the at-issue content of (63a) and (63b).

- (63) I know Mary ate a pizza ...
 a. but I've just heard she only ate a pizza.
 b. but she didn't only eat a pizza.
- (64) I know Mary ate a pizza ...
 a. but I've just heard that all she ate was a pizza.
 b. but it's not the case that all she ate was a pizza.

Furthermore, both *only* and *all*-clefts exhibit the *mirative effect* (Beaver & Clark 2008; Zeevat 2009) or what Tellings calls *smallness effect*, namely a “less than expected” interpretation. The funny Example (65a) shows the smallness effect (‘a 1-kg steak is small for Mary’) is distinct from the exclusivity of *only* (Mary didn’t eat more than a 1-kg steak), and question (65b) also conveys a smallness effect.

- (65) a. Mary only ate a 1-kg steak.
 b. Was a salad all you ate for dinner?
 (⇒ a salad isn’t much to eat for dinner)

After considering and rejecting several possible treatments, Tellings (2020:21) opts for one in which *all*-clefts involve a relativization structure with a built-in *only*. In particular, he adopts Boeckx’s (2007) account of pseudoclefts and assumes *all* is the phonetic realization of the relativization of *only*. The full derivation from an *only*-sentence to an *all*-cleft is shown in (66), the crucial step being (66e) in which *only* and *all* are related through relativization.

- (66) a. Ed only eats a salad. (non-clefted counterpart)
 b. [_{FocP} [a salad]_i Foc⁰ [Ed only eats *t*_i]] (movement to Spec-FocP)
 c. [_{TopP} [Ed only eats *t*_i]_j Top⁰ [_{FocP} [a salad]_i Foc⁰ *t*_j]] (remnant movement)
 d. [_{TopP} [what_i Ed only eats *t*_i]_j Top⁰ [_{FocP} [a salad]_i Foc⁰ *t*_j]] (relativization)
 e. [_{ForceP} all_m [_{TopP} [(that/what_i) Ed ~~only~~_m eats *t*_i]_j Top⁰ [_{FocP} [a salad]_i Foc⁰ *t*_j]]] (*all*-relativization)
 f. [_{ForceP} all_m [_{TopP} [(that/what_i) Ed ~~only~~_m eats *t*_i]_j is [_{FocP} [a salad]_i Foc⁰ *t*_j]]] (copula insertion)

Although Tellings’s assumption that *all* is transformed from *only* via relativization might appear arbitrary at first sight, we believe his idea finds (indirect) support from Mandarin *weiyi*. Recall that we have argued in previous sections that relative *weiyi* starts out as part of a relative DP that moves to establish a predication relation with the head NP of a relative clause, and the entire complex DP is headed by a definite D (by default). We would therefore like to entertain the idea that *all*-clefts and relative *weiyi* are possibly two sides of the same coin, each representing a strategy of realizing a particular relative configuration correlated with exclusive focus interpretation and the smallness effect. It seems plausible to consider the implicit *only* component in an *all*-cleft a near-counterpart of relative *weiyi*, both standard exclusive focus expressions, except that *only* in Tellings’s account is an adverbial and that English pronounces *all* with *only* deleted whereas Mandarin goes the other way around by pronouncing *weiyi* but not (the external) D.¹⁴

14. As shown in (66e)/(66f), Tellings takes *all* to be inserted in ForceP. However, since a complementizer is possible in an *all*-cleft, *all* may as well be analyzed as an external D selecting a

In other words, *all* in an *all*-cleft may be the reflex of an exclusive focus which is part of a relative pronoun in the following relative clause, and the smallness effect of an *all*-cleft stems from the exclusive focus component.

On the other hand, as Tellings remarks, *all*-clefts carrying the smallness effect only arise in specificational copular sentences, quite unlike the distribution of relative *weiyi*, which is not as restricted. We assume this difference is due to *weiyi* being phonetically realized in Mandarin: Since exclusivity is overtly marked, the smallness effect does not depend on the syntactic environment in which a complex DP containing *weiyi* occurs.

7. Conclusion

We have advocated, with extensive arguments, that relative *weiyi* is syntactically inside a relative clause, thus distinguishing it from adjectival *weiyi*. We have also identified *weiyi* with exclusivity and definiteness, and proposed that it cooccurs with a D in syntax. Adjectival *weiyi* requires a definite D (in the absence of a preceding Num-Cl expression), whereas relative *weiyi* is headed by a predicative D but can still be associated with a definite D outside the relative clause.

A major implication of our analysis is that while Mandarin is known to lack relative pronouns such as *which* and *who*, relative *weiyi* may be an indicator of syntactic A'-movement, comparable to *wh*-movement, in Mandarin relative constructions (cf. Ning 1993; Aoun & Li 2003). Chiu (1995) and Ting (2003; 2010) have convincingly argued (though with different analyses) that the particle *suo* in Mandarin is a marker of relativization of a verbal object, base-generated in an object position before raising to somewhere above *vP*. If our proposal is on the right track, *weiyi* can be considered another relative marker in Mandarin, which is part of a relative DP that originates within a relative clause and undergoes overt phrasal movement to Spec-CP in the familiar fashion.

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relative clause. In addition, the derivation in (66) can still proceed even if the *only* component starts out as an adjective, since Tellings's *all*-relativization does not hinge on *only*'s categorial status.

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Abbreviations

AFF	affective
ASP	aspectual
CLF	classifier
DE	adnominal or postverbal manner/result marker in Mandarin
PF	Phonetic Form
POSS	possessive
RC	relative clause
TOP	topic

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Authors' addresses

Cheng-Yu Edwin Tsai (corresponding author)
 Department of English
 Faculty of Arts and Humanities
 University of Macau
 Avenida da Universidade
 Taipa, Macau
 China
 cytsai@um.edu.mo

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