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Derivational economy in composite probing: the case of the *lian…dou* construction in Mandarin Chinese

Huacheng Cao[1]

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Abstract

Since van Urk (2015), composite [A/Ā] probes have been widely adopted for movements that exhibit both A- and Ā-properties. However, the interaction between the [A] and [Ā] features in composite probes is still poorly understood, particularly regarding which feature acts as the movement trigger. This paper addresses this gap by investigating the *lian…dou* construction in Mandarin Chinese. Although movements in the *lian…dou* construction are motivated by the same focus interpretation, DP foci undergo A-movement whereas VP and CP foci undergo Ā-movement. I argue that this state of affairs follows from the composite [A/Ā] probe involved in the *lian…dou* construction and its interaction with principles of economy. VP and CP foci agree with the [A/Ā] probe only in the [Ā] feature, resulting in Ā-movement of these foci. By contrast, DP foci are fully matching goals. When both types of movement are possible for DP foci, an explicit economy calculus implies that A-movement is a more economical derivation than Ā-movement. Consequently, while DP foci undergo A-movement due to economy, only Ā-movement is available for VP/ CP foci.

Keywords The *lian…dou* construction · Mandarin Chinese · Focus movement · The A/Ā distinction · Composite probes · Economy

Abbreviations

1	First person
3	Third person
ADJ	Adjective
ADV	Adverb(ial)
ASP	Aspect marker
CLF	Classifier
COMP	Complementizer
COP	Copula
EXP	Experience
NEG	Negation

✉ Huacheng Cao
huacheng.cao.19@ucl.ac.uk

[1] Department of Linguistics, Division of Psychology and Language Sciences, UCL, London, UK

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NF	Non-finite
OV	Object voice
P	Preposition
PASS	Passive
PRF	Perfect
POSS	Possessive
PRT	Particles
REL	Relative clause marker
SG	Singular
SFP	Sentence-final particle
TOP	Topic

1 Introduction

One of the key discoveries in linguistic theory is the identification of two distinct types of phrasal movement: A- and Ā-movement (Postal 1971; Chomsky 1977, 1981 and subsequent works). Table 1 summarizes some of the mutually exclusive properties that distinguish A- and Ā-movement, also known as the A- and Ā-properties (for recent overviews on distinct properties of A- and Ā-movement, see van Urk 2015; Safir 2019; Lohninger 2025a).

Since the GB era, the A/Ā distinction has been linked to properties of the landing sites, which are classified into inherent A- and Ā-positions (Chomsky 1981; Déprez 1989; Mahajan 1990; Williams 2003). More recently, there has been a tendency to define the A/Ā distinction in terms of the agreeing feature(s) present on the probing head (Chomsky 2007; Obata and Epstein 2011; Abels 2012; van Urk 2015). [A] features (e.g., [ϕ], [case], [D]) trigger A-movement, while [Ā] features (e.g., [wh], [top]) trigger Ā-movement.

The feature-based approach has received empirical support from movement configurations that simultaneously exhibit A- and Ā-properties, known as composite A/Ā movement. Assuming that multiple agreeing features on a single head can act in unison, composite A/Ā movement has been subsumed under analyses involving composite [A/Ā] probes (van Urk 2015; Longenbaugh 2017; Erlewine 2018; Coon and

Table 1 A- and Ā-properties in movement operations

Properties	A-movement	Ā-movement
Binds an anaphor	Yes	No
Is the subject of a depictive	Yes	No
Licenses parasitic gaps	No	Yes
Induces weak crossover (WCO) effect	No	Yes
Reconstructs for binding and scope	Limited	Mostly yes
Can bypass intervening arguments	No	Yes
Is restricted to argument	Yes	No
Can induce ϕ-agreement	Yes	No
Yields information structural effects	No	Yes

Keine 2021; Scott 2021; Lohninger et al. 2022; Chen 2023; Branan and Erlewine 2024; Lohninger 2025a). For example, in Dinka, topicalization of an object (an Ā-property) is associated with ϕ-agreement (an A-property) at the CP level, as notated by the underlines:

(1) (van Urk 2015, p. 103)

Mîir à-càa tîing.
giraffe 3SG- PRF.1SG see.NF

'A giraffe, I have seen.'

Based on a survey of 14 languages across 9 language families, Lohninger (2025a) shows that composite A/Ā constructions do not show random combinations of A- and Ā-properties. Composite A/Ā constructions may exhibit both A- and Ā-properties that are shaded gray in Table 1 (i.e., with positive values for these properties, such as the Dinka example in (1)). In contrast, for properties that are not shaded gray, composite A/Ā constructions parallel typical A- or Ā-movement. Lohninger (2025a) generalizes that, even though [A] and [Ā] features may form a composite [A/Ā] probe, the movement chain it triggers is either an A- or Ā-chain, but not a chain with mixed A- and Ā-properties. Although Lohninger's (2025a) generalization enhances our understanding of the nature of movement chains in composite A/Ā movement, it remains unclear what determines whether a composite [A/Ā] probe triggers A- or Ā-movement.

The *lian…dou* construction in Mandarin Chinese represents a crucial typological case that sheds light on this question. On the one hand, movements in the *lian…dou* construction align with Lohninger's (2025a) generalization that the movement chain is either an A- or Ā-chain. On the other hand, this construction displays an intriguing pattern where the type of movement alternates with the syntactic category being fronted. Specifically, with the constant focus interpretation across fronted categories, DP foci undergo A-movement while VP/CP foci undergo Ā-movement. For illustration, consider the following examples.

(2) Wo lian Zhangsan$_k$ dou cong ta-ziji$_k$ de jia li ganzou le t$_k$.
I lian Zhangsan dou from s/he-self POSS home in dislodge ASP
'I dislodged even Zhangsan$_k$ from his$_k$ own house.'

In example (2), the movement of the focus *Zhangsan* yields a focus interpretation comparable to the meaning of English *even*. Meanwhile, the fronted DP binds the anaphor *taziji* at the landing site, a typical property of A-movement.[1]

[1] All judgments are either taken from the literature or my consultants. The core observation has been verified by 17 native speakers from mainland China. Their judgments are unanimous. Some reconstruction readings are slightly hard to access without context. Due to limited space, I will provide English translations of the contexts.

As for VPs and CPs, the consensus in the literature is that they generally do not undergo A-movement. Although most tests for A- and Ā-properties cannot be applied to VP and CP foci, I will show that DP and VP/CP foci do behave differently in reconstruction effects. In example (3), the anaphor *taziji* within the fronted DP cannot be bound under reconstruction. By contrast, when the anaphor is embedded in the fronted VP in (4) and the fronted CP in (5), it is bound by a structurally lower argument, namely, *Zhangsan*.[2] Given that A-movement of DP foci does not reconstruct, I take it as evidence that VP and CP foci undergo Ā-movement.

(3) * Wo lian [$_{DP}$ ta-ziji$_k$ de fangzi] dou bi Zhangsan$_k$ maidiao le.
I lian [$_{DP}$ s/he-self POSS house] dou force Zhansgan sell ASP
Intended: 'I forced Zhangsan$_k$ to sell even his$_k$ own house.'

(4) Wo lian [$_{VP}$ maidiao ta-ziji$_k$ de fangzi] dou bi Zhangsan$_k$ zuo le.
I lian [$_{VP}$ sell s/he-self POSS house] dou force Zhansgan do ASP
'I forced Zhangsan$_k$ even to sell his$_k$ own house.'

(5) Wo lian [$_{CP}$ ta-ziji$_k$ de erzi sheng-bing le] dou mei gaosu Zhangsan$_k$.
I lian [$_{CP}$ s/he-self POSS son get-sick SFP] dou NEG tell Zhangsan
'I did not even tell Zhangsan$_k$ that his$_k$ own son got sick.'

I propose that the *lian…dou* construction involves a composite [A/Ā] probe, consisting of a [ϕ] feature and an [EVEN] feature that encodes the focus interpretation (see also Chen 2023). VP and CP foci agree with the [ϕ/EVEN] probe only in the [EVEN] feature, resulting in Ā-movement of these foci. On the other hand, DP foci match with the [ϕ / EVEN] probe in both [ϕ] and [EVEN] features. In principle, the two agreed features can trigger A- or Ā-movement of DP foci. However, A-movement blocks Ā-movement because the former is the more economical derivation.

Under the copy theory of movement (Chomsky 1993, 1995), movement chains are interpreted by distinct interpretation rules: A-chains abstract over individual variables, whereas Ā-chains abstract over choice function variables (Sauerland 1998, 2004; Ruys 2000; Poole 2024; Poole and Keine 2024). I will show that the interpretation rule for A-chains involves fewer derivational steps than that for Ā-chains. Consequently, while A- and Ā-chains yield the same focus interpretation of DP foci, economy prefers the former.

The argumentation proceeds as follows. Sect. 2 provides an overview of the *lian…dou* construction. I demonstrate that all categories move to the same position and for the same focus interpretation. In Sect. 3, I show the A- and Ā-properties of DP foci and argue that these properties result from the properties of the [ϕ/EVEN] probe involved. Sect. 4. shows that in contrast to DP foci, VP and CP foci undergo Ā-movement. In Sect. 5, I point out the main concern of this paper: what makes the triggering feature different in cases of DP and non-DP foci? Sect. 6 develops an economy-based account. Sect. 7 concludes.

[2] I follow Shyu (1995) in assuming that *zuo* 'do' is a dummy verb, similar to supportive *do* in English.

2 An overview of the *lian…dou* construction

In Mandarin Chinese, two particles are used to express the meaning of *even*: *dou* and *lian*, as in (6).[3] *Dou* is obligatory, occupying a preverbal position. *Lian* is optional. It combines with a focused phrase that bears the *even*-meaning. The combination of *lian* and the focused phrase (the *lian*-phrase) must c-command *dou*. As shown by the contrast between examples (7a and b), the focused object undergoes phrasal movement to a position in between the subject and *dou* (Shyu 1995; Badan 2008; Constant and Gu 2010; Badan and Del Gobbo 2015).[4]

(6) (lian) Zhangsan *(dou) chi-dao le.
lian Zhangsan dou late-arrive SFP
'Even Zhangsan arrived late.'

(7) a. * Zhangsan dou gan chi lian chongzi.
Zhangsan dou dare eat lian insect

b. Zhangsan lian chongzi$_k$ dou gan chi t$_k$.
Zhangsan lian insect dou dare eat
'Zhangsan dares to eat even insects.'

As noted by Shyu (1995), VP and CP foci also move to a TP-internal position, as shown in (8) and (9).[5]

[3] The additive particle *ye* 'also' can replace *dou* and co-occurs with *lian*-phrases. However, using *ye* does not change the A- or Ā-properties of fronted categories. The choice between them is largely determined by pragmatic effects (Badan 2012).

[4] Fronted foci can occur in a TP-internal position or a TP-external position (Shyu 1995; Badan 2008; Constant and Gu 2010; Badan and Del Gobbo 2015; Chen 2023). Unlike TP-internal *lian*-DPs, TP-external *lian*-DPs show pure Ā-properties. First, examples (i) and (ii) show that a TP-external *lian*-DP can take a topic maker *a* or a resumptive pronoun *ta*, but a TP-internal *lian*-DP is incompatible with either. Second, unlike the TP-internal *lian*-DP shown in example (3), a TP-external *lian*-DP reconstructs for anaphor binding, as in (iii). The derivation of TP-external *lian*-DPs is schematically shown in (iv).

(i) Zhangsan lian [Li jiaoshou]$_i$ (*a) dou bu xinren (*ta$_i$).
Zhangsan lian [Li professor] TOP dou NEG trust s/he
'Zhangsan does not trust even Professor Li.'

(ii) lian [Li jiaoshou]$_i$ (a) Zhangsan dou bu xinren (ta$_i$).
lian [Li professor] TOP Zhangsan dou NEG trust s/he
'Even Professor Li, Zhangsan does not trust (him/her).'

(iii) lian [ta-ziji$_{k/*m}$ de pengyou]$_i$ Zhangsan$_k$ dou bi Lisi$_m$ ma guo t$_i$.
lian [s/he-self POSS friend] Zhangsan dou force Lisi scold EXP
'Even his$_{k/*m}$ own friends, Zhangsan$_k$ forced Lisi$_m$ to scold (them).'

(iv) *Lian*-DP$_i$ Subject t_i' *dou* …[$_{VP}$ …t_i …]
Ā-mvt A-mvt

Following the researchers cited above, I assume that TP-external *lian*-phrases are derived by further topicalization of TP-internal *lian*-phrases, which is an independent Ā-operation in Mandarin Chinese. This paper focuses on internal *lian*-phrases because internal *lian*-DPs show composite A/Ā-properties.

[5] Cheng and Vicente (2013) argue that examples like (i) are derived by head movement, with the peculiar property of spelling out more than one copy. However, the head movement analysis is untenable. First,

(8) Zhangsan lian [$_{VP}$ chi chongzi]$_i$ dou gan zuo t$_i$.
Zhangsan lian [$_{VP}$ eat insect] dou dare do
'Zhangsan even dares to eat insects.'

(9) Zhangsan lian [$_{CP}$ diqiu shi yuan-de]$_i$ dou bu xiangxin t$_i$.
Zhangsan lian [$_{CP}$ earth COP round-ADJ] dou NEG believe
'Zhangsan does not even believe that the Earth is round.'

2.1 The same landing site across all fronted categories

Preverbal adverbials in Mandarin Chinese obey the same constraint on the order of adverbials as do all other languages with a well-studied adverbial system, as schematized in (10) (Cinque 1999; Ernst 2014a, b).

(10) Speaker-orientated ≫ Subject-orientated ≫ Neg ≫ Manner/degree

In the *lian*…*dou* construction, all fronted categories show the same rigid order with respect to preverbal adverbials. Specifically, the cluster '*lian*-phrase *dou*' must be higher than negation but lower than subject-orientated adverbs.[6] Examples (11)–(13) show that negation cannot precede *lian*-phrases across all fronted categories.

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the VPs in (ii) are not full-fledged copies of each other since they take distinct objects. Second, Sect. 4.1 shows that movement of VPs obligatorily reconstructs for binding and scope. If VP doubling were derived by movement, it is surprising that the higher VP does not reconstruct, as shown by the contrast between examples (iii) and (iv). Therefore, I follow Hsu (2008, 2013) and Yin (2023) in arguing that in these examples, an adjunct VP focus is base-generated above *dou*.

(i) Ta lian kan dou bu kan.
s/he lian see dou NEG see
"S/he is even not willing to take a look.'

(ii) Ta lian [$_{VP}$ he shui] dou zhi [$_{VP}$ he Bali-shui].
s/he lian [$_{VP}$ drink water] dou only [$_{VP}$ drink Perrier-water]
'S/he drinks only Perrier even when s/he just needs to drink some water'

(iii) Lisi lian [$_{VP}$ nian mou-ge xuesheng de mingzi] dou you liang-ci [$_{VP}$ nian-cuo le].
Lisi lian [$_{VP}$ spell some-CLF student POSS mingzi] dou have two-CLF [$_{VP}$ spell-wrong ASP]
some > two: 'For some students, Lisi even mispronounced their names twice.'
*two > some: 'There are two occasions on which Lisi even mispronounced the names of some (different) students.'

(iv) Lisi you liang-ci lian [$_{VP}$ nian mou-ge xuesheng de mingzi] dou [$_{VP}$ nian-cuo le].
Lisi have two-CLF lian [$_{VP}$ spell some-CLF student POSS mingzi] dou [$_{VP}$ spell-wrong ASP]
*some > two: 'For some students, Lisi even mispronounced their names twice.'
two > some: 'There are two occasions on which Lisi even mispronounced the names of some (different) students.'

[6] Adverbials cannot be attached in between IP internal *lian*-phrases and *dou*. As shown in (i), while the adverb *jingchang* 'often' can adjoin higher than the *lian*-phrase or lower than *dou*, it cannot adjoin immediately above *dou*. The reader may refer to Cao (2025) for a semantic-based account for this adjacency effect.

(i) Zhangsan <jingchang> lian fan <*jingchang> dou <jingchang> bu chi.
Zhangsan often lian meal often dou often NEG eat
'Zhangsan often doesn't even eat.'

(11) Zhangsan <*meiyou> lian [$_{DP}$ zhe-ben shu]$_i$ dou <meiyou> kan t_i.
Zhangsan NEG lian [$_{DP}$ this-CLF book] dou NEG read
"Zhangsan didn't read even this book.'

(12) Zhangsant_k <*meiyou> lian [$_{VP}$ xi yifu]$_i$ dou <meiyou> bang ta_k
Zhangsan NEG lian [$_{VP}$ wash cloth] dou NEG help he
de haizi zuo guo t_i.
POSS kid do EXP
Zhangsan$_k$ didn't even do laundry for his$_k$ children.

(13) Zhangsant_k <*meiyou> lian [$_{CP}$ ta_k tou guo dongxi]$_i$ dou <meiyou>
Zhangsan NEG lian [$_{CP}$ he steal EXP thing] dou NEG
chengren t_i.
admit
'Zhangsan$_k$ didn't even admit that he$_k$ had stolen anything.'

The adverb *congming-de* is ambiguous between a manner and a subject-oriented interpretation. In examples (14) and (15), the adverb *congming-de* has the subject-orientated interpretation when this adverb precedes *lian*. By contrast, the same adverb only has the manner interpretation when it follows *dou*.

(14) Zhangsan <hen congming-de> lian [$_{DP}$ jizhe zui nan-de wenti
Zhangsan very smart-ADV lian [$_{DP}$ reporter most difficult-ADJ question
]$_i$ dou <hen congming-de> huibi le t_i.
] dou very smart-ADV sidestep ASP
congming-de > *lian*: 'Zhangsan$_k$ is smart in that he$_k$ sidestepped even the most difficult question from the reporter.
dou > *congming-de*: 'Zhangsan sidestepped even the most difficult question from the reporter in a smart way.'

(15) Zhangsan <hen congming-de> lian [$_{VP}$ huibi jizhe zui nan-de
Zhangsan very smart-ADV lian [$_{VP}$ sidestep reporter most difficult-ADJ
wenti]$_i$ dou <hen congming-de> bang Lisi zuo le t_i.
question] dou very smart-ADV help Lisi do ASP
congming-de > *lian*: Zhangsan$_k$ is smart in that he$_k$ helped Lisi sidestep even the most difficult question from the reporter.
dou > *congming-de*: 'Zhangsan helped Lisi sidestep even the most difficult question from the reporter in a smart way.'

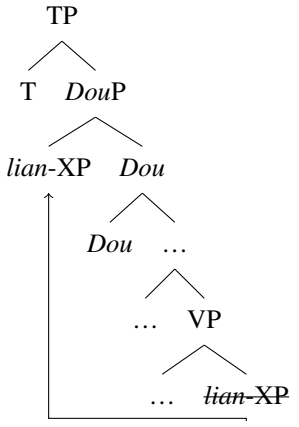
Example (16) involves a fronted CP and another ambiguous adverb *laoshi-de*. Similarly to what we have seen for DP and VP cases, this adverb is disambiguated depending on whether it precedes *lian* or follows *dou*.

(16) Zhangsan$_k$ <hen laoshi-de> lian [$_{CP}$ ta_k tou guo dongxi]$_i$ dou <hen
Zhansgan very honest-ADV lian [$_{CP}$ he steal EXP thing] dou very
laoshi-de> chengren le t_i.
honest-ADV admit ASP.

laoshi-de > *lian*: 'Zhangsan$_k$ is honest in that he$_k$ even admitted to having committed theft.'
dou > *laoshi-de*: 'Zhangsan even admitted to having committed theft in an honest way.'

Assuming that subject-orientated adverbs attach to TP and negation sits higher than the extended verbal projection, these examples suggest that foci of different categories uniformly move to a designated position in between TP and the extended verbal projection. In line with previous analyses (Qu 1994; Shyu 1995, 2001; Paul 2002; Badan 2008; Constant and Gu 2010), I argue that *dou* heads a projection *Dou*P in the TP-internal domain, and that movement of *lian*-phrases (*lian*-XP) targets the specifier of *Dou*P, as depicted in (17).

(17)



2.2 The same focus interpretation across all fronted categories

In English, the focus interpretation of *even* is to introduce an additive presupposition and a scalar presupposition (Karttunen and Peters 1979; Rooth 1985; Krifka 1991; Crnič 2011). Under Roothian focus semantics (Rooth 1985, 1992), the additive presupposition asserts that an alternative proposition distinct from the prejacent (the semantics of the sentence without focus particles) is true. The scalar presupposition asserts that for every true alternative proposition, the likelihood of that proposition exceeds the likelihood of the prejacent. Throughout the paper, I refer to the focus interpretation of *even* as the EVEN interpretation.

It is generally agreed that the *lian*…*dou* construction expresses the same EVEN interpretation as *even* in English (Shyu 1995, 2018; Badan 2008; Xiang, M. 2008; Liao 2011; Xiang, Y. 2020). For concreteness, I follow Shyu (1995) in assuming that *lian* is a scalar particle and *dou* is a focus-sensitive quantifier. The exact meanings of *lian* and *dou* are orthogonal to the focus of this paper. What is crucial is that, in the *lian*…*dou* construction, movement of *lian*-phrases is uniformly motivated by the EVEN interpretation.

In examples (18)–(20), the scalar particle *lian* combines with different categories. However, the *lian*-phrase in each case contains the same focused expression, namely,

laoban 'boss'.[7] The focus interpretation in each example is also roughly the same: compared to criticizing others, *Zhangsan* is less likely to criticize the boss. This suggests that as long as the alternative-generating focus remains the same, the focus interpretation is constant across all fronted categories. In other words, differences in syntactic categories do not affect the focus interpretation.

(18) Zhangsan lian [$_{DP}$ dui laoban$_F$ de pippng]$_i$ dou gan dang-mian
Zhangsan lian [$_{DP}$ against boss COMP criticism] dou dare at-face
ti-chulai t_i.
put-forward
'Zhangsan dares to criticize even the boss$_F$ face to face.'

(19) Zhangsan lian [$_{VP}$ dangmian piping laoban$_F$]$_i$ dou gan zuo t_i.
Zhangsan lian [$_{VP}$ at-face criticize boss] dou dare do t
'Zhangsan even dares to criticize the boss$_F$ face to face.'

(20) Lisi lian [$_{CP}$ Zhangsan dangmian piping le laoban$_F$]$_i$ dou bu zhidao t_i.
Lisi lian [$_{CP}$ Zhangsan at-face criticize ASP boss] dou NEG know
'Lisi did not even know that Zhangsan criticized the boss$_F$ face to face.'

Sentences are uniformly infelicitous if foci are construed as at the higher end of a likelihood scale, regardless of their syntactic categories. In examples (21)–(23), the focused phrases introduce a scale of water and its alternatives. However, under the context described in (21), water is unlikely to be ranked lower on a likelihood scale.

(21) *Context: people must keep themselves hydrated, particularly during hot days.*

#Lisi lian [$_{DP}$ shui$_F$]$_i$ dou jingchang he t_i.
Lisi lian [$_{DP}$ water] dou always drink
'Lisi always drinks even water$_F$.'

(22) #Lisi lian [$_{VP}$ he shui$_F$]$_i$ dou jingchang zuo t_i.
Lisi lian [$_{VP}$ drink water] dou always do
'Lisi always even drinks water$_F$.'

[7] I use '$\_\_F$' to indicate the alternative-generating focus. For simplicity, I describe fronted categories as focused phrases. However, what is fronted is essentially the category to which the squiggle operator attaches. It can be the focus or contain the focus. This complication has no bearing on the argumentation. Constant and Gu (2010) argue that movement in the *lian*…*dou* construction can target a subpart of the focus (see also Li 2020). They reach this conclusion based on the assumption that there is only one focus per sentence. However, as Neeleman and Szendröi (2004) show, in a sentence, a focus can be embedded in a larger focus. In example (i), the fronted DP focus expresses the EVEN interpretation. At the same time, this DP focus is embedded in VP_1, which serves as a larger contrastive focus. Therefore, being a subpart of a larger focus does not invalidate the focus nature of *lian*-phrases.

(i) Zhangsan$_k$ ningyuan [$_{VP1}$ lian [$_{DP}$ ziji$_k$ de xingming] dou dashang], ye juebu [$_{VP2}$ touxiang].
Zhangsan would [$_{VP1}$ lian [$_{DP}$ self$_k$ POSS life] dou give-up], also NEG [$_{VP2}$ surrender]
'Zhangsan would rather give up even his own life, rather than surrender.'

(23) #Lisi lian [$_{CP}$ ren xuyao he $\underline{\text{shui}}_{F}$]$_i$ dou zhidao t_i.
Lisi lian [$_{CP}$ people need drink water] dou know
'Lisi even knows that people need to drink $\underline{\text{water}}_{F}$.'

3 The A/Ā character of the *lian…dou* construction

Although the landing site and the EVEN interpretation are the same across fronted categories, DP and non-DP foci undergo movement of different types. As summarized in Table 2, movement of DPs shows composite A/Ā properties. On the one hand, fronted DPs exhibit typical A-properties at the landing site. On the other hand, movement of DPs resembles Ā-movement in that it can bypass intervening arguments and is triggered by information structural effects. In contrast, movement of VPs and CPs shows pure Ā-properties. In this section, I will discuss A- and Ā-properties of fronted DPs and argue that these properties follow from the properties of the composite [ϕ / EVEN] probe. Ā-properties of fronted VPs and CPs will be postponed to Sect. 4.[8]

3.1 Backgrounds on composite A/Ā movement

A major claim in minimalist syntax is that all instances of phrasal movement are the output of Merge, accompanied by a process of feature checking (Chomsky 1995,

[8] In the *lian…dou* construction, movement types exhibit the typical A/Ā distinction with respect to the locality of movement. While local movement of DPs shows A-properties, long-distance movement of DP and non-DP foci uniformly involves Ā-movement. Due to limited space, I present examples of fronted DPs and VPs in (i) and (ii). In contrast to local A-movement in example (3), long-distance movement of the DP in (i) reconstructs for anaphor binding. In example (ii), the binding possibility suggests that the fronted VP reconstructs to its base position, a typical property of Ā-moved VPs.

(i) <lian [$_{DP}$ ta-ziji$_{k/*m}$ de pengyou]$_i$> Zhangsan$_k$ <*lian [$_{DP}$ ta-ziji$_{k/*m}$ de pengyou]$_i$> dou juede
lian [$_{DP}$ s/he-self POSS friend] Zhangsan lian [$_{DP}$ s/he-self POSS friend] dou juede
[$_{CP}$ Lisi$_m$ ma guo t_i].
[$_{CP}$ Lisi scold EXP]
'Even his$_{k/*m}$ own friends, Zhangsan$_k$ believes that Lisi$_m$ scolded (them).'

(ii) <lian [$_{VP}$ ma ta-ziji$_{*k/m}$ de pengyou]$_i$> Zhangsan$_k$ <*lian [$_{VP}$ ma ta-ziji$_{*k/m}$ de pengyou
lian [$_{VP}$ scold s/he-self POSS friend] Zhangsan lian [$_{VP}$ scold s/he-self POSS friend
]$_i$> dou juede [$_{CP}$ Lisi$_m$ zuo guo t_i].
] dou think [$_{CP}$ Lisi do EXP]
'Even scold his$_{*k/m}$ own friends, Zhangsan$_k$ believes that Lisi$_m$ did.'

However, an additional complication arises from the landing site of long-distance movement. Long-distance movement of all categories cannot target a TP-internal position; it must instead target the left periphery. I attribute this restriction to an independent constraint on movement paths, known as the Generalised Ban on Improper Movement (van Riemsdijk and Williams 1981; Williams 2003; Abels 2007; Neeleman and van de Koot 2010; Keine 2019; among many others):

(iii) Generalised Ban on Improper Movement (GBOIM, adopted from Poole, 2023, p. 238)
Movement to [Spec, XP] cannot proceed from [Spec, YP] or across YP, where Y is higher than X in the functional sequence (e.g., [$_{CP}$ …[$_{TP}$ …[$_{VP}$…]]]).

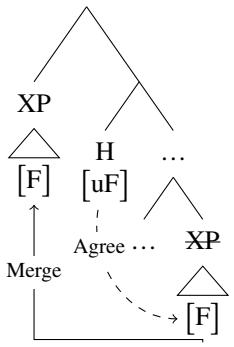
Under GBOIM, although Ā-movement of *lian*-phrases can pass through CPs, it cannot target a TP-internal position in the matrix clause because TPs are structurally lower than CPs. Given this independent constraint on movement paths, a full discussion of long-distance movement falls beyond the scope of this paper. For an analysis of long-distance movement in the *lian…dou* construction, the reader may refer to Cao (2025).

Table 2 The A/Ā character of the *lian…dou* construction

	DPs	VP/CPs
Yields information structural effects	Yes	Yes
Can bypass intervening arguments	Yes	Yes
Reconstructs for binding and scope	No	Yes
Binds an anaphor	Yes	Not applicable (NA)
Is the subject of a depictive	Yes	NA
Induces weak crossover (WCO) effect	No	NA

2001). In this paper, I adopt a specific implementation that all phrasal movement results from the successive application of Agree and Merge. The dashed line in (24) illustrates Agree: a head H with an unvalued feature [uF] (the probe) searches for the closest phrase XP with a matching valued feature [F] (the goal). Then the probe attracts the goal to the specifier of the probing head, as indicated by the solid line in (24).

(24)



Under the featural approach to movement (Chomsky 2007; Obata and Epstein 2011; Abels 2012; van Urk 2015), movement types are solely derived from properties of the feature(s) involved in Agree. Agreeing features are classified into [A] features, such as [D] and [ϕ] features, and [Ā] features, such as [wh], [top] and [foc] features. Instances of the former trigger A-movement, and instances of the latter trigger Ā-movement.

One characteristic of the featural (but not of the positional) approach is that [A] and [Ā] features can form a composite [A/Ā] probe, searching for a goal with the same set of features (Aldridge 2004; Coon and Bale 2014; van Urk 2015; Bossi and Diercks 2019; Coon and Keine 2021; Scott 2021; Branan and Erlewine 2024). The possibility of composite probes predicts that there should be composite A/Ā movement where A- and Ā-properties co-occur in a single movement step. Since van Urk (2015), researchers have shown that composite A/Ā constructions are attested in various languages (van Urk 2015; Longenbaugh 2017; Erlewine 2018; Coon and Keine 2021; Scott 2021; Lohninger et al. 2022; Chen 2023; Lohninger and Yip 2023; Branan and Erlewine 2024; Chou 2024; Lohninger 2025a).

Notably, composite A/Ā constructions never show randomly mixed A- and Ā-properties. Based on a survey of 14 languages of 9 language families, Lohninger (2025a) shows that only a subset of A- and Ā-properties can co-occur.

Table 3 $A/\bar{A}$ properties of the probing head (adapted from Lohninger, 2025a, p. 11)

Properties	[A] probe	[Ā] probe	[A/Ā] probe
Can bypass intervening arguments	No	Yes	Yes
Is restricted to argument	Yes	No	Yes
Can induce ϕ-agreement	Yes	No	Yes
Yields information structural effects	No	Yes	Yes

Table 4 $A/\bar{A}$ properties of the movement chain (adapted from Lohninger, 2025a, p. 11)

Properties	[A] probe	[Ā] probe	[A/Ā] probe	[A/Ā] probe
Binds an anaphor	Yes	No	Yes	No
Is the subject of a depictive	Yes	No	Yes	No
Licenses parasitic gaps	No	Yes	No	Yes
Induces weak crossover (WCO) effect	No	Yes	No	Yes
Reconstructs for binding and scope	Limited	Mostly yes	Limited	Mostly yes

Table 3 illustrates the true source of composite A/Ā movement. While [A] and [Ā] probes show mutually exclusive properties, [A/Ā] probes may exhibit positive values for all four properties. For example, [A/Ā] probes in some languages trigger movement for information structural effects and feed ϕ-agreement at the landing site. Composite A/Ā movement in Dinka provides such a case. In Example (25), repeated from example (1), topicalization of the object *Mìir* (an Ā-property) feeds ϕ-agreement (an A-property) at the CP level, as notated by the underlines.

(25) (van Urk 2015, p. 103)

Mìir à-càa tîing.
giraffe 3SG- PRF.1SG see.NF

'A giraffe, I have seen.'

In contrast, movement chains never show mixed A- and Ā-properties. As shown in Table 4, even in composite A/Ā constructions, properties that are standardly tied to A- or Ā-chains always pattern together in their values. In composite A/Ā movement in Dinka, the resulting movement chain shows pure A-properties. In example (26), the base position of *Bòl* is below the subject *the story about himself*. The binding relation between *Bòl* and the anaphor must be determined at the landing site.

(26) (van Urk 2015, p. 111)

Bòl$_k$ à-íi [àkékôol-tí è ròt-dè$_k$] t$_k$ piôolìc.
Bol 3SG- PRF.OV [story-that P self-SG.3SG] criticize.NF

'Bol$_k$, that story about himself$_k$ has criticized.'

Based on these findings, Lohninger (2025a) concludes that even though [A] and [Ā] features can act as a composite probe and search for a goal in unison, the movement chain they trigger is either an A- or an Ā-chain, but never a mixed A/Ā-chain. In other

words, either the [A] feature or the [Ā] feature in a composite [A/Ā] probe acts as the movement trigger, resulting in the corresponding A- or Ā-chain.

In the following, I will show that this cross-linguistic signature of composite A/Ā movement repeats itself in movement of DP foci in the *lian…dou* construction. In a nutshell, the composite [ϕ/EVEN] probe in the *lian…dou* construction targets DPs that bear the EVEN interpretation and triggers A-movement of those DPs.[9]

3.2 A/Ā-properties of fronted DPs

3.2.1 Fronted DPs can bind an anaphor

As the launching site of *Lisi* in (27) is too low to bind the anaphor *taziji*—the binding relation in (28) must involve the landing site. This suggests that the *lian*-DP undergoes A-movement (Cao 2020, 2024; Chen 2023).

(27) * Wo bi ta-ziji$_k$ de erzi chumai le Lisi$_k$.
I force s/he-self POSS son betray ASP Lisi
Intended: 'I forced his$_k$ own son to betray Lisi$_k$.'

(28) Wo lian Lisi$_k$ dou bi ta-ziji$_k$ de erzi chumai le t$_k$.
I lian Lisi dou force s/he-self POSS son betray ASP
'Even Lisi$_k$, I forced his$_k$ own son to betray him$_k$.'

In (30), movement of the universal *meige jingli* yields a co-varying reading that the choice of office varies with the choice of manager, which is not available in (29). This indicates that the universal binds the anaphor *tamenziji* at the landing site.[10]

(29) * Wo zai tamen-ziji$_k$ de bangongshi li piping le mei-ge jingli$_k$ yi-dun.
I at they-self POSS office in criticize ASP every-CLF manager one-CLF
Intended: 'I criticized every manager$_k$ in their$_k$ own offices.'

[9] A position-based approach has difficulties explaining the cross-linguistic signature of composite A/Ā movement. Under the position-based approach, composite A/Ā movement would target a mixed A/Ā-position. Since the properties of movement chains are solely determined by the nature of the landing site, a mixed A/Ā-position wrongly predicts that the movement chain involved in composite A/Ā movement should be a mixed A/Ā-chain. For comprehensive evaluations of the position-based and feature-based approaches to composite A/Ā movement, see van Urk (2015) and Lohninger (2025a).

[10] One reviewer raises the question of whether the plural anaphor *tamenziji* is co-referential with, rather than bound by, the universal quantifier. Although the anaphor *tamenziji* is morphologically plural, it must be interpreted as a bound variable in example (30). The interpretation of example (30) is that each manager was criticized once, with the criticism occurring in that manager's own office. This co-varying reading of (30) is possible only if the plural anaphor *tamenziji* is interpreted as a bound variable, rather than referring to a group of managers.

(30) Wo lian mei-ge jingli$_k$ dou zai tamen-ziji$_k$ de bangongshi li piping le t$_k$ yi-dun.
I lian every-CLF manager dou at they-self POSS office in criticize ASP one-CLF
'I criticized even every manager$_k$ in their$_k$ own offices.'

3.2.2 Fronted DPs can be the subject of a depictive

Movement of DPs in the *lian…dou* construction can create novel interpretations for depictive predicates (Cao 2020, 2024). In example (31a), the object *Mali* cannot be associated with the preverbal depictive *luo-zhe*. When the object is fronted, however, example (31b) becomes ambiguous, with *Mali* construed as the subject of the depictive.

(31) a. Zhangsan$_k$ luo$_{k/*n}$-zhe bao le Mali$_n$ yi-xia.
Zhangsan nude-zhe hug ASP Mary one-CLF
'Zhangsan$_k$ hugged Mary$_n$ nude$_{k/*n}$.'

b. Zhangsan$_k$ lian Malì$_n$ dou luo$_{k/n}$-zhe bao le t$_n$ yi-xia.
Zhangsan lian Mary dou nude-zhe hug ASP one-CLF
'Zhangsan$_k$ hugged even Mary$_n$ nude$_{k/n}$.'

Although there is an ongoing debate about the character of *-zhe* (see Djamouri and Paul 2017 among others), possible interpretations of *-zhe* predicate track the A/Ā distinction in Mandarin Chinese. Example (32) is an ex-situ cleft construction in Mandarin Chinese, which involves Ā-dependency (see Pan 2017 and references therein). In contrast to (31b), it cannot create a novel interpretation of *luo-zhe*. Therefore, the novel interpretation in (31b) indicates that DP foci undergo A-movement.

(32) Shi Malì$_n$, Zhangsan$_k$ luo$_{k/*n}$-zhe bao le t$_n$ yixia.
COP Mary, Zhangsan nude-zhe hug ASP one-CLF
'It is Mary$_n$ that Zhangsan$_k$ hugged nude$_{k/*n}$.'

3.2.3 Fronted DPs do not induce WCO effect

In example (33), the grammaticality of the bound-variable interpretation suggests that the universal *meige haoxuesheng* can bind the pronoun *ta* at the landing site, without inducing WCO effect (Shyu 1995; Cao 2020, 2024; Chen 2023).

(33) Li lian mei-ge hao xuesheng$_k$ dou bi ta$_k$ de laoshi ma guo t$_k$.
Li lian every-CLF good student dou force s/he POSS teacher scold EXP
'Even every good student$_k$, Li forced their$_k$ teachers to scold them$_k$.'

3.2.4 Fronted DPs do not reconstruct

Fronted DPs do not reconstruct for anaphor binding.[11] Although the launching site is lower than *Lihua*, the anaphor *taziji* in (34) cannot be bound by *Lihua* under reconstruction. This sentence is ungrammatical because the anaphor is unbound at the landing site (Shyu 1995; Cao 2020, 2024; Chen 2023).

(34) * Wo lian [ta-ziji$_k$ qian de qian]$_i$ dou ti Lihua$_k$ huanqing le t$_i$.
I lian [s/he-self owe REL money] dou for Lihua pay ASP
Intended: 'I helped Lihua$_k$ pay off even the debt he$_k$ owed himself$_k$.'

Reconstruction for scope is not possible either. Example (35) is unambiguous. The pronoun *ta* cannot be construed as a variable bound by the universal *meige mama*. Example (36) only has the surface scope reading. The reversed scope reading is unavailable, indicating that the fronted DP does not reconstruct into the scope of the universal *meige xuesheng*.

(35) * Wo lian [ta$_k$ haizi shang-xue de feiyong]$_i$ dou daying le mei-ge
I lian [s/he child go-school REL expense] dou promise ASP every-CLF
mama$_k$ chengdan t$_i$.
mother cover
Intended: 'I promised every mother$_k$ that I will cover even the tuition fees of their$_k$ children.'

(36) Li lian [yi-qian de jiang-jin]$_i$ dou fengei le meige xuesheng t$_i$.
Li lian [one-thousand ADJ bonus-cash] dou give ASP every student
$\exists > \forall$: 'Lisi distributed even one thousand yuan (in total) to every student.'
$*\forall > \exists$: 'Zhangsan gave each student even one thousand yuan.'

Based on the A-properties and the absence of reconstruction effects shown above, I argue that DP foci undergo A-movement.[12]

[11] Reconstruction effects with respect to Condition C are complicated (for a discussion of the complications in Mandarin Chinese, see Wang and Liao 2021). For space reasons, I cannot offer a detailed discussion here. Cao (2025) show that the reconstruction for Condition C in DP, VP and CP fronting in the *lian…dou* construction parallels the patterns observed in A-movement of DPs and Ā-movement of VPs and CPs in English. Therefore, reconstruction effects with respect to Condition C will not undermine but further support the claim that there are different movement types involved in the *lian…dou* construction.

[12] A-movement in Mandarin Chinese generally does not reconstruct. In Mandarin Chinese, contrastive topics undergo TP-internal A-movement, without any particles (e.g., Qu 1994; Ernst and Wang 1995; Shyu 2001; Sybesma 2021). Similarly to TP-internal *lian*-DPs in the *lian…dou* construction, fronted contrastive DPs do not reconstruct. In example (i), the anaphor *taziji* cannot be bound under reconstruction. In example (ii), the fronted direct object must be construed with wide scope over the universal.

(i) (Shyu 1995, p. 104)

*Wo [naxie ta-ziji$_k$ de shu]$_i$ yijing jiao Zhangsan$_k$ xian na-zou le t$_i$
I [those s/he-self POSS book] already ask Zhangsan first take-away ASP

'I have asked Zhangsan$_k$ to take away his$_k$ own books.'

3.2.5 DP foci can bypass intervening arguments

Movement of DP foci resembles Ā-movement in two aspects. In Sect. 2.2, we have seen that movement of DP foci is motivated by the EVEN interpretation. In this section, we consider another Ā-property of fronted DPs. That is, movement of DPs can bypass intervening arguments.

Wh-movement in English is a typical Ā-movement. Example (37) shows that the embedded object *who* moves out of non-finite clauses and bypasses intervening subjects.

(37) Who$_i$ do you expect [**Mary** to persuade [**John** to meet t$_i$]]?

Similarly, DP foci in the *lian*…*dou* construction can move across non-finite clause boundaries and bypass intervening arguments, as in (38) (Shyu 1995; Chen 2023).

(38) (Chen 2024, p. 4)

Meiyou-ren lian [zhe-ben shu]$_i$ dou bi [**Zhang** jiao [**Wang** kanwan t$_i$]].
No-body lian [this-CLF book] dou force [Zhang ask [Wang read]]
"Nobody forced Zhangan to ask Wang to read even this book.'

3.3 Composite probing in the *lian*…*dou* construction

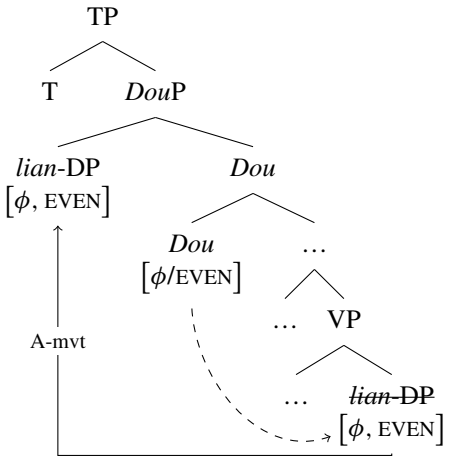
Chen (2023) takes the A/Ā-properties of fronted DPs as evidence that the *lian*…*dou* construction involves a composite [A/Ā] probe. Following her approach, I argue that, in the *lian*…*dou* construction, the head *Dou* hosts a composite probe [ϕ/EVEN], as depicted in (39). I assume that [Ā] features are specified for their information-structural effects, such as [wh] for *wh*-movement and [top] for topicalization (Rizzi 1997, 2004; Abels 2012; van Urk 2015). Since movement in the *lian*…*dou* construction consistently yields the EVEN interpretation, I assume an [EVEN] feature as the Ā-part of the composite probe.[13] In line with most works in the feature-based approach to move-

(ii) Li yuanyi [yi-qian-kuai de jiang-jin]$_i$ fengei meige xuesheng t$_i$.
Li willing [one-thousand-yuan ADJ bonus-cash] give every student
∃ > ∀: 'Li is willing to distribute one thousand yuan (in total) to every student.'
*∀ > ∃: 'Li is willing to give each student even one thousand yuan.'

[13] Chen (2023) follows Shyu (1995) in arguing that the information-structural feature involved is a generic [foc] feature, which forms a composite [ϕ/foc] probe with [ϕ] features. Other researchers propose that the [foc] feature should be specified for the meaning of *dou*, such as a [maximality] feature (Constant and Gu 2010) or a [mirativity] feature (Li 2020). I follow the latter group of researchers in assuming a specific semantic feature because not all types of foci can move above *dou*. As shown in example (i), a focus combined with the exclusive particle *zhiyou* moves above *cai*, but cannot move above *dou*. In contrast, in example (ii), foci combined with the scalar particle *lian* move above *dou*, but cannot move above *cai*. The contrast between (i) and (ii) suggests that the composite probe on *dou* must contain a specific information-structural feature, rather than a generic [foc] feature, so that *dou* probes exclusively for a *lian*-phrase.

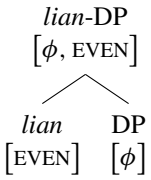
ment, I assume that A-movement is driven by [ϕ] features.[14]

(39)



For *lian*-phrases (the goal), I assume that the scalar particle *lian* is the overt realization of the [EVEN] feature. It adjoins to a maximal projection XP that is or contains the focus, with formal features of *lian* and its sister XP projecting to their mother (Bayer 1996; Aoyagi 1998; Citko 2008; Kotek 2014; Bárány 2023). For example, in (40), *lian* adjoins to a DP focus. The resulting *lian*-DP projects the [EVEN] feature of *lian* and the [ϕ] features of the DP.

(40)



(i) Li zhiyou [Qiaomusiji de shu]$_1$ cai/*dou hui renzhen kan t$_1$
Li only Chomsky POSS book cai/ dou will carefully read
'Only Chomsky's book, Li will read it carefully.'

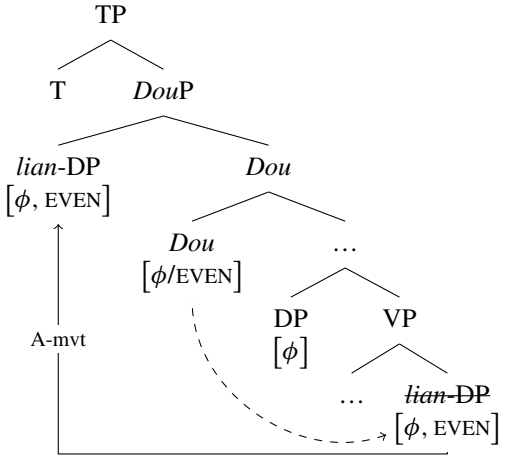
(ii) Li lian [Qiaomusiji de shu]$_1$ *cai/dou bu hui renzhen kan t$_1$
Li lian Chomsky POSS book cai/dou NEG will carefully read
'Even Chomsky's book, Li will not read it carefully.'

However, there have been ongoing debates about the exact meaning of *dou* (for a recent overview, see Feng and Pan 2023). Therefore, I use "[EVEN]" as a neutral label for the specific semantic feature involved in the *lian…dou* construction. For how the EVEN interpretation arises compositionally from the meanings of *lian* and *dou*, the reader may refer to Cao (2025) and references cited there.

[14] One reviewer inquires about the origin of the [ϕ/EVEN] probe. The literature identifies various potential sources for composite [A/$\bar{\text{A}}$] probes (see Lohninger, 2025a and references therein). One possibility is the absence of Feature Inheritance (FI) (e.g., Chomsky, 2007). FI is the hypothesis that [A] and [$\bar{\text{A}}$] features standardly enter the derivation at CPs and vPs. Subsequently, [A] features are inherited downward from C to T, and from v to V. In basic order sentences in Mandarin Chinese, the [ϕ] feature is inherited from v to V. In contrast, in the *lian…dou* construction, FI does not happen. The unvalued [ϕ] feature remains in v, forming a composite probe with the [EVEN] feature.

DP foci's ability to bypass intervening arguments follows from the minimality of composite probing. Minimality is a general restriction on Agree that probes must target the closest matching goal (Rizzi 1990; Chomsky 1995). Composite [A/Ā] probes differ in whether they are sensitive to a closer partial matching goal (an [A] or [Ā] goal)(for a detailed discussion, see Lohninger 2025a). In some languages, a closer partial matching goal blocks further probing of a fully matching goal (Erlewine 2018; Coon and Keine 2021; Coon et al. 2021; Scott 2021; Lohninger et al. 2022; Branan and Erlewine 2024). In other languages, goals that only carry a subset of the features will not terminate the probing process (van Urk 2015; Longenbaugh 2017; Scott 2021; Bárány 2023; Chen 2023; Lohninger 2025a). That is, a composite [A/Ā] probe searches for a fully matching goal and skips over partial matching goals. Chen (2023) shows that the mechanism of composite probing in the *lian…dou* construction belongs to the latter class. As schematically shown in (41), the [ϕ/EVEN] probe searches for a [ϕ] goal that bears the EVEN interpretation. Intervening arguments with inherent [ϕ] features are irrelevant for the [ϕ/EVEN] probe.[15]

(41)



4 Ā-movement of VP and CP foci

We have seen that the A/Ā-properties of DP foci straightforwardly follow from properties of the [ϕ/EVEN] probe. However, VP and CP foci do not show composite A/Ā-properties in the way DP foci do. I will show that VP and CP foci exhibit pure

[15] The minimality of composite probing predicts that if there are multiple fully matching goals, the composite probe attracts the closest one. However, it is impossible to test this prediction because multiple *lian*-phrases are not allowed within a single clause, as in (i).

(i) * Lian Zhangsan dou lian zhe-ben shu dou kan bu dong.
lian Zhangsan dou lian this-CLF book dou read NEG understand
Intended: 'Even Zhangsan cannot understand even this book.'

Ā-properties. First, researchers have accepted the claim that VPs and CPs generally do not undergo A-movement but show typical Ā-properties. I will show that this claim also holds for fronted VPs and CPs in Mandarin Chinese. Meanwhile, in the *lian…dou* construction, in contrast to fronted DPs, fronted VPs and CPs do reconstruct. I take these as evidence that VP and CP foci undergo Ā-movement.

4.1 Ā-properties of fronted VPs

It has been widely accepted that fronted VPs generally show obligatory reconstruction to their base positions (Barss 1986, 2001; Huang 1993; Heycock 1995; Takano 1995; Sauerland and Elbourne 2002; Kobele 2012). Huang (1993) shows that topicalized VPs in Mandarin Chinese must reconstruct to their base positions. In example (42a), the anaphor contained in the topicalized DP can be bound by the matrix or the embedded subject. However, when the anaphor is contained in the topicalized VP, as in (42b), it must be bound by the embedded subject.

(42) (adapted from Huang, 1993, p. 119)

a. [$_{DP}$ ta-ziji$_{k/n}$ de shi]$_i$ Zhang$_k$ xiwang Lisi$_n$ neng guan-yi-guan t$_i$.
[$_{DP}$ s/he-self POSS matter] Zhang hope Lisi can care-a-little
'His$_{k/n}$ own business, Zhang$_k$ hopes Lisi$_n$ will care for a bit.'

b. [$_{VP}$ piping ta-ziji$_{*k/n}$]$_i$ Zhang$_k$ zhidao Lisi$_n$ juedui bu hui t$_i$
[$_{VP}$ criticize s/he-self] Zhang know Lisi definitely not will
'Criticize himself$_{*k/n}$, Zhang$_k$ knows Lisi$_n$ definitely will not.'

Fronted VPs in the *lian…dou* construction also show obligatory reconstruction for binding and scope. In (43), the anaphor *taziji* contained in the fronted VP is bound by *Lihua* under reconstruction. By contrast, when movement targets the DP, as in example (34) above, the anaphor cannot be bound.

(43) *Context: Lihua is my most cherished son. Although he is already an adult, I still found him a suitable job and bought him a house for his wedding. But it is far from enough.*

Wo lian [$_{VP}$ huanqing ta-ziji$_k$ qian de qian]$_i$ dou ti Lihua$_k$ zuo le t$_i$.
I lian [$_{VP}$ pay s/he-self owe REL money] dou for Lihua do ASP

'I even helped Lihua$_k$ pay off the debt he$_k$ owed himself$_k$.'

In example (44), the pronoun *ta* is bound by the universal *meige-mama* under reconstruction. This contrasts with example (35), where movement of the DP focus does not allow the bound-variable interpretation in this context. Example (45) is unambiguous regarding its scope relation: the fronted VP must be interpreted in the scope of the universal *meige xuesheng*.

(44) *Context: Zhangsan and I work at the Women's Federation. We are helping each single mother find a suitable job. In order to get a promotion opportunity faster, I am willing to do more for them.*

Wo lian [$_{VP}$ chengdan ta$_k$ haizi shang-xue de feiyong]$_i$ dou daying le
I lian [$_{VP}$ cover she child go-school REL expense] dou promise ASP
mei-ge mama$_k$ t$_i$.
every-CLF mother
'I promised every mother$_k$ that I will even cover the tuition fees of their$_k$ children.'

(45) Lisi$_k$ lian [$_{VP}$ gei ta$_k$ yi-bai-kuai]$_i$ dou bi mei-ge haizi zuo t$_i$.
Lisi lian [$_{VP}$ give s/he one-hundred-yuan] dou force every-CLF child do
$\forall > \exists$: 'Lisi$_k$ forced each student even to give him$_k$ one hundred yuan.'
$*\exists > \forall$: 'Lisi$_k$ forced every child even to give him$_k$ one hundred yuan (in total).'

4.2 Ā-properties of fronted CPs

Like VPs, CPs generally do not undergo A-movement. This claim is supported by observations that go back to Koster (1978). Koster (1978) shows that so-called sentential subjects actually occupy a left-peripheral topic position, rather than the canonical subject position. For example, CPs (46a), unlike argument DPs (46b), cannot occur in the ECM subject position:

(46) (Alrenga 2005, p. 185)
a. *John believes [$_{CP}$ that the cult members cloned a human baby] to be true.
b. John believes their claim to be true.

Another piece of evidence is that sentential subjects (47a), unlike DP subjects (47b), cannot appear after preposed auxiliaries:

(47) (Alrenga 2005, p. 177)
a. *Never before has [$_{CP}$ that you are unqualified for this job] been so obvious.
b. Never before has your lack of qualifications been so obvious.

In addition, in some languages, an overt DP is the real subject in sentences with so-called sentential subjects. In Dutch, the pronoun *data* occupies the subject position, with the sentence-initial CP in a left-periphery position, as in (48a). A similar English example (48b) is also acceptable when the pronoun *that (much)* bears sufficient emphatic stress, as notated with capital letters.

(48) (Alrenga 2005, p. 181)
a. Dat hij komt (data) is duidelijk.
hat he comes that is clear
'That he will come is clear.'
b. That the Giants lost the World Series, THAT (MUCH) is now clear.

The same phenomenon is attested in Mandarin Chinese. In example (49), an optional DP *zhe-jian shi* follows the sentence-initial CP and functions as the subject of the verbal predicate.

(49) [$_{CP}$ Guo-ping dui shu le] (zhe-jian shi) rang minzhong
[$_{CP}$ national-pingpong team lose ASP] this-CLF matter make people
wufa jieshou.
unable accept
'That the national ping pong team lost is unacceptable to the public.'

Although researchers diverge in their specific treatments of CP fronting, these facts have led them to argue that CPs can only undergo Ā-movement (Koster 1978; Alrenga 2005; Takahashi 2010; Moulton 2013).

Besides the general agreement that CPs cannot undergo A-movement, fronted CPs in the *lian…dou* construction behave differently from fronted DPs in that they show reconstruction effects. Recall that A-movement in Mandarin Chinese does not reconstruct; reconstruction effects in movement of CP foci further confirm its Ā-properties. In example (50), the embedded subject *taziji* is bound by *Zhangsan* under reconstruction.

(50) Wo lian [$_{CP}$ ta-ziji$_k$ de erzi sheng-bing le] dou mei gaosu Zhangsan$_k$.
I lian [$_{CP}$ s/he-self POSS son get-sick SFP] dou NEG tell Zhangsan
'I did not even tell Zhangsan$_k$ that his$_k$ own son got sick.'

Bound-variable interpretations are also attested. The pronoun *ta* in (51) is bound under reconstruction even if the CP is fronted above the universal *meige xuesheng*.

(51) *Context: I told the students many things about Mr. Li's misconduct. For instance, Mr. Li withheld the stipends allocated to each student and confiscated the letters they wrote to their parents. Taking the risk of being expelled,*

wo lian [$_{CP}$ Li laoshi cuangai le ta$_k$ de chengji]$_i$ dou toutou gaosu
I lian [$_{CP}$ Li teacher falsify ASP s/he POSS grade] dou secretly tell
le mei-ge xuesheng$_k$ t$_i$.
ASP every-CLF student

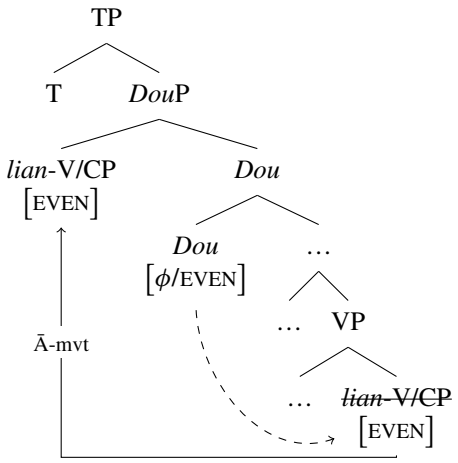
"I even secretly informed every student$_k$ that Mr. Li had falsified their$_k$ grades.'

4.3 Independent probing in the *lian…dou* construction

In Sect. 3, I argued that DP foci represent cases where the [ϕ/EVEN] probe identifies a fully matching goal. Crucially, the [EVEN] feature determines that movement yields the EVEN interpretation, and the [ϕ] feature triggers A-movement of DP foci.

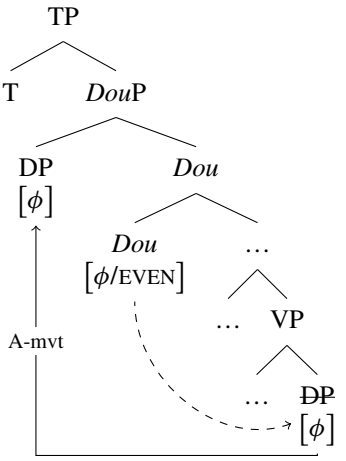
With Ā-properties of fronted VPs and CPs identified, we can now turn to cases in which the [ϕ/EVEN] probe fails to find a fully matching goal. The Ā-properties of VP and CP foci suggest that movement of these categories is triggered solely by the [EVEN] feature, without referring to the [ϕ] feature. Specifically, in cases of VP/CP foci, the [ϕ/EVEN] probe only finds a goal that carries the [EVEN] feature, as shown in (52). Since only the [EVEN] part is matched between the probe and the goal, VP and CP foci undergo Ā-movement.

(52)



While the [EVEN] feature triggers Ā-movement of an [EVEN] goal, the [ϕ] feature never probes independently for a plain [ϕ] goal. In the following, I will show that movement of a plain [ϕ] goal is disallowed in the *lian…dou* construction, regardless of whether the EVEN interpretation is available (as in example (57)) or not (as in example (54)). First, movement of a [ϕ] goal is ungrammatical in the absence of the EVEN interpretation. That is, the derivation depicted in (53), in which the [ϕ/EVEN] probe only identifies a plain [ϕ] goal, is not possible.

(53) *



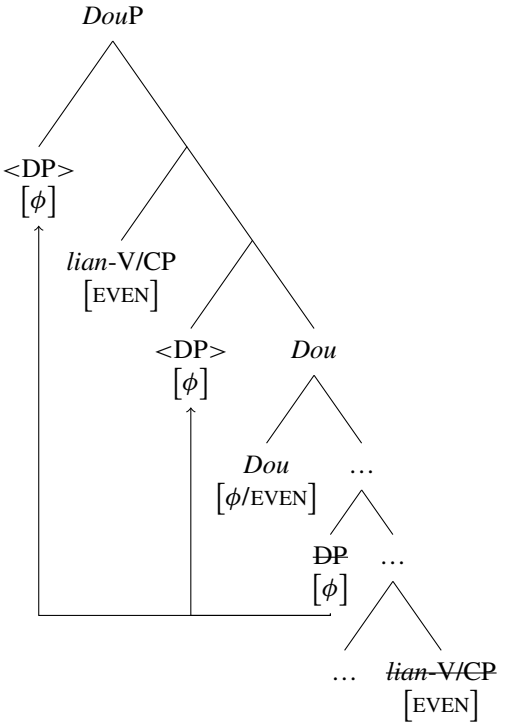
In Mandarin Chinese, DP fronting that results in an SOV order is licensed only by specific interpretive effects. The specific interpretation involved depends on prosodic stress and/or the presence of certain particles, such as the EVEN interpretation with the focus particle *dou* and contrastive readings without any particles (see footnote 12 and references therein). For example, the sentence in (54) is acceptable only when *Lisi* is stressed, marking it as the focus bearing the EVEN interpretation. In contrast,

when *Lisi* is not stressed, fronting of this DP becomes unacceptable.[16] I take this as evidence that the [ϕ/EVEN] probe cannot trigger movement of a plain [ϕ] goal.

(54) You-ren Lisi$_k$ dou bu renshi t$_k$.
Have-people Lisi dou NEG know
Stress on *Lisi*: 'Somebody does not know even Lisi.'
*No stress on *Lisi*: 'Somebody knows Lisi.'

Second, as depicted in (55), even if the [EVEN] feature identifies an [EVEN] goal, movement of a [ϕ] goal is still prohibited, regardless of whether the [ϕ] goal moves above or below the [EVEN] goal. For illustration, let's consider movement of VP foci. Examples (56) and (57) are a minimal pair. Example (56) is a control example where the [EVEN] feature in the [ϕ/EVEN] probe triggers movement of a focused VP. In contrast, in example (57), the additional movement operation that targets the DP *Zhao* renders the sentence ungrammatical.

(55) *



(56) Mieyou-ren lian [$_{VP}$ kan zhe-ben shu]$_i$ dou bi Zhao jiao Li zuo t$_i$.
No-people lian [$_{VP}$ read this-CLF book] dou force Zhao ask Li do
'Nobody forced Zhao to ask Li to even read this book.'

[16] In Mandarin Chinese, prosodic stress sufficiently marks an expression as the focus (Simpson 2014; Lee 2019 and references therein). I assume that, in examples like (54), *lian* is always present, covertly or overtly (Shyu 1995, 2016; Kuo 2003; Xiang, M. 2008).

(57) * Mieyou-ren <Zhao$_j$> lian [$_{VP}$ kan zhe-ben shu]$_i$ <Zhao$_j$> dou bi t_j
No-people Zhao lian [$_{VP}$ read this-CLF book] Zhao dou force
jiao Li zuo t_i.
ask Li do
Intended: 'Nobody forced Zhao to ask Li to even read this book.'

I argue that the probing strategies employed in the *lian…dou* construction instantiate a novel typological pattern that extends Lohninger's (2025a) typology of last resort probe splitting:

(58) (Lohninger 2025a, p. 147)

- *Probe together* (composite probing): [A/$\bar{A}$] tries to probe for a full match.
- *Independent probing*:
  a. *Split*: If no such goal is found, [A/$\bar{A}$] splits up and agrees with two different goals.
  b. *Fail*: If only one (partially fitting) goal can be found, one probe ([$\bar{A}$] or [A]) can fail.

Composite probes (presumably in all languages) optimally search for a fully matching goal, referred to as *composite probing* (see Sect. 3.3 and references therein). In some languages, when no fully matching goal is available, the features bundled in composite probes can split and probe for different goals independently, a process known as *independent probing* (van Urk 2015; Scott 2021; Lohninger and Yip 2023; Lohninger 2025a). Lohninger (2025a) proposes that independent probing is a last resort to avoid a crash of the derivation. There are two options under independent probing, as shown in (58). One option is called *split* (58a), where both features probe independently and trigger separate movement operations. The other is *fail* (58b), where only one feature successfully probes and triggers movement, while the other fails to do so.

Bossi and Diercks (2019) and Scott (2021) identify languages that allow *split* while disallowing *fail* (Pattern II in Table 5) . Lohninger (2025a) reports two additional patterns: the languages investigated either disallow independent probing altogether (Pattern III) or permit both options (Pattern I). Based on this range of data, Lohninger (2025a) concludes that independent probing as a whole and the *fail* option under it should be parameterized across languages. Consequently, the typology of last resort probe splitting may form a hierarchy along which languages can exhibit different cut-off points: *probe together* $\gg$ *split* $\gg$ *fail*. This hierarchy implies that the availability of *fail* is dependent on *split*. That is, a language may permit *fail* only if it also permits *split*. Under this restrictive setting, Pattern IV, where *split* is not available but *fail* is allowed, is predicted to be impossible, as illustrated in the second column from the right in Table 5.

However, due to the limited language sample, there is an alternative parametric setting that Lohninger (2025a) does not consider. That is, the two options under independent probing—*split* and *fail*—are parameterized independently. A key difference is that, under this independent parameterization, the availability of *fail* is no longer contingent on the availability of *split*. As a result, this alternative setting is more

Table 5 *Possible patterns in independent probing*

	Independent Probing		Lohninger's (2025a) hierarchy	Independent Parameterisation
	Split	*Fail*		
Pattern I	Yes	Yes	✓	✓
Pattern II	Yes	No	✓	✓
Pattern III	No	No	✓	✓
Pattern IV	No	Yes	✗	✓

permissive. As indicated in the rightmost column of Table 5, it captures the attested cross-linguistic variation and, crucially, also allows for Pattern IV. Although the language sample in Lohninger's (2025a) study is too limited to decisively favor one setting over the other, the pattern observed in the *lian…dou* construction suggests that the more permissive setting is empirically necessary.[17]

In the *lian…dou* construction, *fail* is permitted, but *split* is not. The ungrammaticality of example (57) suggests that the option *split* is unavailable in the *lian…dou* construction. Ā-movement of VP and CP foci indicates that, if only an [EVEN] goal is available, the [ϕ] probe fails. Following Preminger (2009, 2011, 2014) and Georgi (2014), I assume that the [ϕ] probe is deleted or assigned a default value.[18]

The updated typology of last resort probe splitting is as follows. Some languages exhibit positive values for both *split* and *fail* (Pattern I). A second group of languages permits *split* but disallows *fail* (Pattern II). A third group disallows both *split* and *fail* (Pattern III). The *lian…dou* construction in Mandarin Chinese shows that the final logical possibility under independent parameterization is also attested: *fail* is permitted, but *split* is not (Pattern IV).

5 The remaining question: the trigger of movement

So far, we have observed that, in the *lian…dou* construction, the [ϕ] feature in the [ϕ/EVEN] probe triggers A-movement of fully matching goals (DP foci), while the [EVEN] feature triggers Ā-movement of partial matching goals (VP/CP foci). Although this state of affairs fits with Lohninger's (2025a) generalization regarding the types of movement triggered by [A/Ā] probes, it raises the question of what determines whether the [ϕ/EVEN] probe triggers A- or Ā-movement. In other words, given that the [EVEN] feature can trigger Ā-movement of focused phrases, why does it fail to induce Ā-movement of DP foci?

[17] Lohninger (2025a) proposes that this hierarchy also reflects a ranking of probing strategies by preference. *Probe together* is the optimal strategy, followed by *split*, and finally *fail*. At first glance, the *lian…dou* construction may appear to be a counterexample. However, the main claim of this section is that *split* and *fail* should be parameterized independently. Whether universal grammar prefers one option over the other is an independent issue. One way to preserve Lohninger's (2025a) hierarchy is to relativize it to the availability of *split* and *fail*. The revised hierarchy would be: *probe together* ≫ (*split*) ≫ (*fail*), where *split* takes precedence over *fail* only when both are part of a language's grammar. Whether this revised hierarchy is empirically supported remains an open question, and I leave its validation to future research.

[18] In languages with overt ϕ-agreement, the choice between deletion and default valuation is relatively transparent, as the default value of [ϕ] features is generally third person singular. However, since Mandarin Chinese lacks overt ϕ-agreement, it is difficult to determine whether the [ϕ] probe is deleted or assigned a default value. I therefore present both possibilities in the main text and remain agnostic on this issue.

In the next section, I will argue that although the [ϕ] and [EVEN] features can in principle create A- and Ā-chains of DP foci, economy prefers A-chains because they are less costly.

6 Derivational economy in composite probing

The distinctive characteristic of the *lian…dou* construction is that different features in the [ϕ/EVEN] probe act as the movement trigger, depending on whether the goal is fully matched. Specifically, while the [ϕ] feature triggers A-movement of fully matching goals (DP foci), the [EVEN] feature triggers Ā-movement of partial matching goals (VP/CP foci). I argue that the divergence in movement triggers reflects the effect of economy on the semantic derivations of movement chains. Researchers have proposed that A- and Ā-chains differ in their semantic derivations. Namely, A-chains abstract over individuals, whereas Ā-chains abstract over choice functions (Sauerland 1998, 2004; Ruys 2000; van Urk 2015; Poole and Keine 2024; Poole 2024). I propose that the derivational costs associated with A- and Ā-chains are tied to the types of abstraction involved. A-chains are less costly than Ā-chains because abstraction over individuals requires fewer operations. Consequently, when both features are agreed in cases of DP foci, economy prefers A-chains over Ā-chains. I will show that the A/Ā distinction in terms of reconstruction results from two distinct types of abstraction over movement chains (Sect. 6.1), and that an explicit economy calculus implies that A-chains are arguably less costly than Ā-chains (Sect. 6.2). Although economy prefers A-chains over Ā-chains, the interpretation rule for A-chains cannot be applied to movement of VP and CP foci (Sect. 6.3).

6.1 Two types of movement chains

A- and Ā-movement are known to show distinct properties in terms of reconstruction. Namely, reconstruction in A-movement is more limited than that in Ā-movement (see Sportiche 2017 for a recent overview). Under the copy theory of movement (Chomsky 1993, 1995), reconstruction is accounted for by how the copies in a movement chain are modified for interpretation. Suppose that a feature [F] triggers movement of a DP headed by a semantic operator OP. The result of movement is a copy chain, as illustrated in (59).

(59) $[_{DP}$ OP [NP]] …$[_{DP}$ OP [NP]]

Given that A-movement in Mandarin Chinese does not reconstruct, I assume that there are only two interpretation rules for movement chains, determined by the nature of the feature [F]. If feature [F] is an [A] feature, the chain in (59) will be translated into an A-chain, as formulated in (60).

(60) Interpretation rule for A-chains (van Urk 2015, p. 41):
In a movement structure formed by Agree for [A] features, adjoin a node λx to the probing head.

(61) $[_{DP}$ OP [NP]] λx_e…$[x_e]$

As depicted in (61), the resulting A-chain forms a predicate abstracting over individuals, with the head of the chain serving as its external argument.[19] Its semantic derivation involves the application of Trace Conversion, an operation that converts the lower copy into an individual variable of type *e* (Sauerland 1998, 2004; Fox 2002; Elbourne 2005).[20] As Chomsky (1995) argues, such A-chains allow argument-related properties, such as scope and binding, to be interpreted at the head of the chain, while leaving its trace to be theta-marked. In other words, A-chains do not reconstruct.[21]

In contrast, if feature [F] is an [Ā] feature, the chain in (59) will be translated into an Ā-chain that abstracts over choice function variables, as stated in (62).

(62) Interpretation rule for Ā-chains (van Urk 2015, p. 40):
In a movement structure formed by Agree for [Ā] features, adjoin a node λf to the probing head.

(63) $[_{\text{DP}}$ OP $[\sout{\text{NP}}]]$ $\lambda f_{\text{cf}} \ldots [f_{\text{cf}}(\text{NP})]$

In the Ā-chain depicted in (63), a counterpart operation of Trace Conversion replaces the lower OP with a choice function variable (e.g. Quantificational Copy Conversion proposed by van Urk 2015). Besides the conversion operation, the higher OP is converted into a quantifier over choice functions and its NP complement is deleted.[22] This means that, in Ā-chains, the non-operator part of the moved phrase must reconstruct.

A typical instance of Ā-chains is *wh*-movement. Assuming that *wh*-phrases are semantically *wh*-operators, the *wh*-question in (64) would have a simplified representation in (65), in which the *wh*-operator and its NP complement are disassociated.[23] At the head of the chain, everything but the *wh*-operator is deleted. Meanwhile, the lower copy of the *wh*-operator is converted into a choice function variable. The bound

[19] Throughout the paper, I will abstract away from intensionality and use λ-operator-variable notation as in (61) to conveniently indicate the semantic type of the variable that the lower copy will be translated into.

[20] It has been argued that traces are complex semantic objects, namely, bound definite descriptions (Engdahl 1980, 1986; Sauerland 1998, 2004; Fox 1999, 2002, 2003). However, whether traces are complex or not is orthogonal to their semantic type.

[21] In languages like English, reconstruction in A-chains is attested, but only in certain contexts (May 1977; Barss 1986; Hornstein 1995; Fox 1999; Lebeaux 2009). Given that reconstruction in A-chains is by far more restricted than what syntactic reconstruction predicts, I assume reconstruction effects in A-chains can be attributed to semantics (Cresti 1995; Rullmann 1995; Lechner 1998, 2013; Sternefeld 2001; Ruys 2015; Poole and Keine 2024). This issue is irrelevant to the case here because A-chains in Mandarin Chinese do not reconstruct.
One reviewer suggests an alternative analysis in which reconstruction effects of fronted VPs and CPs are due to semantic reconstruction. I do not adopt this approach because it faces challenges that are not easy to solve. In the literature (see references above), semantic reconstruction is generally available in A-movement of DPs. However, to capture the asymmetry in reconstruction between DP foci and VP/CP foci in the *lian…dou* construction, semantic reconstruction would need to be blocked in A-movement of DP foci. I do not know how semantic reconstruction would enter into the economy calculation. It remains unclear to me what factors, if any, could block semantic reconstruction in cases involving DP foci.

[22] It is beyond the scope of this paper to discuss how exactly an operator should be made computable with a predicate of choice functions but see Sauerland (1998) and Abels and Martí (2010) for possible solutions.

[23] The exact computation of constituent-questions is not crucial for the purpose here. First, abstraction over choice functions is motivated independently from constituent-question semantics (Reinhart 1997; Winter 1997; Ruys 2000). Second, most influential theories of constituent-question semantics are compatible with my main claim that the non-operator part of the moved phrase must reconstruct (Engdahl 1980, 1986; Reinhart 1997; Romero 1998; Beck and Kim 2006; Beck 2006; Cable 2007; Kotek 2014; Heim 2019).

variable interpretation indicates that the complement of *which* is interpreted via its lower copy.

(64) Which picture of herself$_k$ does no woman$_k$ like?

(65) [which [~~picture of herself$_k$~~]] λf_{cf}…no woman$_k$ …[f_{cf}(picture of herself$_k$)]

In the *lian*…*dou* construction, movement of DP foci is the result of the [ϕ/EVEN] probe matching with a fully matching goal. Since both features are agreed, the interpretation rules in (60) and (62) can be potentially applied, resulting in the A- and Ā-chains in (66). The A-chain and the Ā-chain only differ in that the latter forces the fronted DP to reconstruct. However, the data presented in Sect. 3 suggests that Ā-chains are not possible for DP foci. If they were, DP foci should show reconstruction effects. In the following, I will argue that Ā-chains of DP foci are ruled out by economy.

(66) a. A-chains:[*lian*-DP] λx_e *dou*…[x_e]
b. Ā-chains:[*lian*-~~DP~~] λf_{cf} *dou*…[f_{cf}(DP)]

6.2 Economy and costs of movement

In the generative theory of grammar, it has been a standard assumption that the principles of grammar should include principles of economy (for a recent overview of economy considerations in syntax and semantics, see Bošković and Messick 2017). One formulation of the principles of economy is given in (67).

(67) (Chomsky 1995, p. 184)
"If the derivation converges without the application of some operation, then that application is disallowed."

In this paper, I adopt a more restrictive view that only representations with essentially the same semantic interpretation can be compared for economy of derivations (Golan 1993; Fox 1995, 2000; Reinhart 2006). Under this view, when movement takes place for the same effect (including morphosyntactic and semantic effects) and several derivational options are available, movement takes place in the most economical way.

One manifestation of this economy effect on movement is that, all else being equal, a shorter movement chain is preferred. Example (68a) illustrates a typical superiority violation in English, where the lower rather than the higher *wh*-phrase moves. As shown in (68b) and (69b), moving either *who* or *what* yields the same interrogative interpretation. However, since the derivation in (68a) involves a longer movement chain than that in (69a), the latter is preferred by economy.

(68) (Reinhart 2006, p. 27)
a. */? What$_i$ did who buy t$_i$?
b. For which <x, y>, x bought y.

(69) (Reinhart 2006, p. 27)
a. Who$_i$ t$_i$ bought what?
b. For which <x, y>, x bought y.

Notably, example (70a), where the derivation in (68a) happens in the embedded clause, is much better. Golan (1993) argues that example (70a) is grammatical because it yields an interpretation that is not available with the shorter chain in (71a). (70a) is acceptable only if the embedded *who* takes matrix scope, as illustrated in (70b). In contrast, (71a) only allows interpretations where the embedded *who* takes embedded scope, as shown in (71c and d). Thus, there is no alternative, more economical derivation that can achieve the interrogative interpretation in (70b). This suggests that the superiority effect is relativized to economy considerations, rather than being tied to some absolute syntactic constraints (e.g., the Superiority Condition by Chomsky 1973).

(70) (Reinhart 2006, p. 26)

a. Who$_i$ t$_i$ knows what$_k$ who bought t$_k$?

b. For which <x, y>, x knows what y bought
(e.g., *Lucie* knows what *Max* bought).

c. *For which <x, z>, x knows who bought z
(e.g., *Lucie* knows who bought *a car*).

d. *For which <x>, x knows who bought what
(e.g., *Lucie* knows who bought what).

(71) (Reinhart 2006, p. 26)

a. Who$_i$ t$_i$ knows who$_k$ t$_k$ bought what?

b. *For which <x, y>, x knows what y bought
(e.g., *Lucie* knows what *Max* bought).

c. For which <x, z>, x knows who bought z
(e.g., *Lucie* knows who bought *a car*).

d. For which <x>, x knows who bought what
(e.g., *Lucie* knows who bought what).

I argue that composite probing in the *lian…dou* construction instantiates another economy effect on movement. Namely, when the [ϕ/EVEN] probe potentially triggers A- or Ā-chains to express the same EVEN interpretation, economy prefers A-chains because A-chains involve fewer derivational steps. As repeated in (72a), the A-chain only require Trace Conversion. In contrast, in the Ā-chain repeated in (71b), the derivation involves not only a comparable conversion operation but an additional deletion operation targeting the higher copy. I argue that the additional deletion operation is precisely what makes Ā-chains more costly. Thus, though A- and Ā-chains are equal in expressing the EVEN interpretation, A-chains are less costly.

(72) a. A-chains:[*lian*-DP] λx_e *dou*…[x_e] (preferred by economy)

b. Ā-chains:[*lian*-~~DP~~] λf_{cf} *dou*…[f_{cf}(DP)]

It should be noted that the specific number of derivational steps may vary depending on how one conceives the semantic derivation of A- and Ā-chains. However, it does

not undermine the overall argument that A-chains are less costly in that they involve fewer derivational steps than Ā-chains.[24]

Fox (2002) proposes that Trace Conversion consists of two operations: Variable Insertion and Determiner Replacement. In the economy calculus assumed here, I treat Trace Conversion as a single derivational step, abstracting away from its internal operations. One may take an alternative view that Variable Insertion and Determiner Replacement are two independent derivational steps. However, under this view, the counterpart of Trace Conversion in Ā-chains would also comprise (at least) two independent operations. At the same time, Ā-chains still require an extra deletion operation targeting the higher copy, making them more costly than A-chains.

An alternative derivation of A-chains is the Wholesale Late Merger mechanism proposed by Takahashi and Hulsey (2009). Takahashi and Hulsey (2009) claim that, while in A-chains, the NP restrictor of a determiner can merge with the determiner at the head of the chain, this kind of counter-cyclical merge is not possible for Ā-chains. Consequently, Ā-chains must reconstruct but A-chains do not have to. However, even if one adopts Takahashi and Hulsey's proposal, s/he will arrive at the same conclusion that A-chains involve fewer derivational steps than Ā-chains. In a model with Wholesale Late Merger, A-chains require a modified version of Trace Conversion, which applies to copies of the determiner. Ā-chains still require a comparable conversion operation plus distributed deletion. Therefore, A-chains are generally less costly than Ā-chains, regardless of whether Wholesale Late Merger is allowed.

6.3 Deriving the A/Ā distinction between DPs and non-DPs

In Sect. 4, one of the arguements for Ā-movement of VP and CP foci is the claim that these categories generally cannot undergo A-movement. In this section, I will provide a semantic account for this claim.

For VP and CP foci, the interpretation rule for A-chains cannot be applied because their semantic types are not compatible with individual-type variables. Therefore, there are no alternative, more economical derivations for VP and CP foci, resulting in Ā-movement of these foci.[25]

VPs are traditionally treated as predicates of type $< e, t >$. Alternatively, by assuming the VP-internal Subject Hypothesis or the *v*P projection, VPs and their extended projections denote propositions of type $< s, t >$.[26] Nevertheless, what is crucial is

[24] I assume that individual variables and choice function variables are the results of conversion operations with equal costs. If there are concerns, it is conceivable that conversion to a higher-type expression is more costly. This means that a choice function variable (type $< et, e >$) incurs more costs than an individual-type variable (type $< e >$).

[25] The precise semantic representations of Ā-chains of VPs and CPs are beyond the scope of this paper. One potential direction to pursue is that Ā-movement of VPs and CPs also involve abstraction over choice function variables. However, choice functions are motivated by phenomena restricted to nominals (Reinhart 1997; Winter 1997; Kratzer 1998; Schwarz 2011). Therefore, extending existing theories of choice functions to account for Ā-movement of VPs and CPs is a non-trivial task. I will leave it aside here.

[26] Once taking tense and aspect into consideration, VPs denote predicates of time $< i, st >$ or of event $< v, st >$.

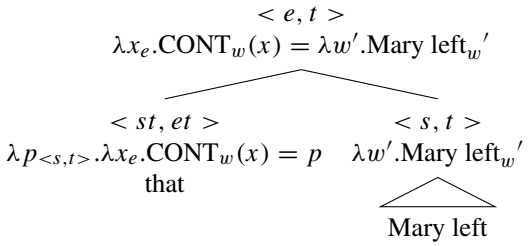
that the semantic type of VPs is not compatible with an individual variable, as shown in (73). Therefore, movement of VP foci cannot be translated into an A-chain.

(73) *A-chains: [*lian*-VP$_{<e,t>}$] λx_e *dou*…[x_e] or [*lian*-VP$_{<s,t>}$] λx_e *dou*…[x_e]

As for CPs, I adopt the predicate approach to the semantics of CPs (Kratzer 2006; Moulton 2009, 2015; Elliott 2016; Bochnak and Hanink 2022). Under this approach, finite CPs are predicates of propositional content (type $< e, t >$). The complementizer C selects a proposition $< s, t >$ and identifies this proposition as the content of a set of individuals, as in (74). A finite CP would have the simplified LF structure in (75).

(74) $[\![C]\!] = \lambda p_{<s,t>}.\lambda x_e.\text{CONT}_w(x) = p$

(75) …that Mary left



The ban on A-chains of CPs follows from the same rationale as that of VPs. Namely, the semantic type of CPs is not compatible with individual variables, as in (76).

(76) *A-chains: [*lian*-CP$_{<e,t>}$] λx_e *dou*…[x_e]

7 Conclusion and outlook

In this paper, I showed that in the *lian*…*dou* construction, the composite [ϕ/EVEN] probe triggers A-movement of DP foci but $\bar{\text{A}}$-movement of VP and CP foci. This finding provides further empirical confirmation for Lohninger's (2025a) generalization that although [A] and [$\bar{\text{A}}$] features may form a composite probe, the movement chain they trigger is either A- or $\bar{\text{A}}$-chains.

The main question this paper aims to answer is what determines the triggering feature in the composite [ϕ/EVEN] probe. I argue that while the [ϕ/EVEN] probe potentially triggers A- or $\bar{\text{A}}$-chains of DP foci, economy prefers the former. A- and $\bar{\text{A}}$-chains differ in their interpretation rules: A-chains abstract over individuals while $\bar{\text{A}}$-chains abstract over choice functions. What is relevant to economy calculus is that the interpretation rule for A-chains involves fewer derivational steps. Therefore, all else being equal, economy prefers A-chains over $\bar{\text{A}}$-chains. Meanwhile, the interpretation rule for A-chains cannot be applied to VP and CP foci due to type mismatch. Consequently, while DP foci undergo A-movement due to economy, VP and CP foci undergo $\bar{\text{A}}$-movement.

Lohninger (2025a) suggests two possible determining factors of the movement trigger in composite [A/$\bar{\text{A}}$] probes. The first candidate is the strength of features. Lohninger (2025a) assumes that agreeing features can be merged as strong or weak features (Chomsky 1995). In a composite [A/$\bar{\text{A}}$] probe, the strong feature triggers

movement due to its EPP property, whereas the weak feature is agreed as a free rider. There are two main problems with this approach. The first problem is conceptual. This approach does not answer the question; it merely restates it in a different form. The strength of features is highly stipulative and not well-defined in the literature. It is unclear whether features being strong or weak is universal cross-linguistically, or should be relativized to specific languages. The question of what determines the triggering feature in composite [A/Ā] probes thus becomes a question of what determines the strength of features. The second problem is empirical. Recall that, in the *lian…dou* construction, the [ϕ] feature triggers A-movement of DP foci. This suggests that the [ϕ] feature should be a strong EPP feature in the [ϕ/EVEN] probe. However, this wrongly predicts that the [ϕ] feature can trigger movement of a plain [ϕ] goal when it probes independently. To avoid such overgeneralization, we must stipulate that, within a single configuration, the [ϕ] feature is sometimes strong, and sometimes weak. However, I do not believe this is a satisfactory solution.

Lohninger's (2025a) another idea, which aligns with the main claim of this paper, is that an independent principle determines that A-movement takes precedence over Ā-movement in composite A/Ā constructions. This idea has been implemented differently in our respective analyses. In my analysis, I propose that economy prefers A-movement over Ā-movement. Lohninger (2025a) adopts the hierarchy of movement operations by Abels (2007) and argues that A-movement is preferred because it is timed before Ā-movement on the hierarchy. In other words, if A-movement is available, it obligatorily applies. Notably, the typological findings by Lohninger (2025a) suggest that the preference for A-chains is cross-linguistically universal in composite A/Ā constructions. According to Lohninger (2025a), the only instance of [A/Ā] probes triggering Ā-movement is long-distance agreement constructions. By contrast, instances of [A/Ā] probes triggering A-movement are widely attested in cross-clausal A-movement, promotion to pivot, topicalization, focalization and (non-canonical) passive constructions in different languages. If A-movement is indeed prioritized—whether due to economy or the hierarchy of movement operations—it is unsurprising that the preference for A-chains correlates with a higher statistical tendency for A-movement in the typology of composite A/Ā constructions. Another difference is that Lohninger's (2025a) implementation makes a stronger prediction: there should be no Ā-movement in composite A/Ā constructions (see also Lohninger 2024, 2025b). Under this view, an alternative analysis of long-distance agreement constructions is required (e.g., Preminger 2009). By contrast, my economy-based analysis predicts that Ā-movement in composite A/Ā constructions would be exceptions to the economy preference. At present, it is unclear to me what the violable conditions are, and the available language sample is too limited to test these predictions. I will leave these for future research.

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