Defocus leads to syntax-prosody mismatches in right-dislocated structures

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1 Introduction

Focus has been one center of the study of the syntax-phonology interface over decades (Jackendoff 1972; Selkirk 1984; Nespor & Vogel 1986; Pierrehumbert & Beckman 1988; Truckenbrodt 1995, *i.a.*). It is well known that focus has an effect on prosody, in both the focal field (*focal prominence*) and the post-focal field (*post-focal reduction*). For example, focus may 'shift' the stress in an English sentence from the rightmost element (nuclear stress) to the focused element, with an increased F0 peak, and a reduced F0 range post-focally (Truckenbrodt 1995:156):

(1) a. John met Mary on TUESDAY.   (nuclear stress)

     b. (No,) BILL$_F$ met Mary on Tuesday.   (focal stress)

One predominant approach treats the phonetic effects of focus as a result from prosodic phrasing (Pierrehumbert & Beckman 1988; Truckenbrodt 1995; Kratzer & Selkirk 2020, *i.a.*). Focus, as a prominent element, serves as a prosodic head. When the focused element is not properly aligned with edges of prosodic domains, boundaries are readjusted to ensure the alignment, meanwhile yielding the phonetic effects. In due course, focus may trigger syntax-prosody mismatches by prosodic rephrasing. This is referred to as the **REPHRASING** view. This view, however, is recently challenged by a number of empirical studies (Féry & Ishihara 2010; Féry 2013; Ishihara 2011, *i.a.*). For example, it is shown that focus, even with phonetic effects, does not alter prosodic structures in languages like Japanese (Ishihara 2016) and Mandarin Chinese (Zhang *et al.* 2021, Yuan 2022). Focus may not necessarily be the prosodic head and does not always trigger syntax-prosody mismatches in non-edge positions. This is referred to as the **NO-REPHRASING** view.

These two views, however, only concern whether the *presence* of focus triggers rephrasing. Little attention has been paid to the ***absence/lack*** of focus, i.e. ***defocus*** (or anti-focus, Molnárfi 2002; Lee 2020). Different from post-focal elements (defined by following a focus), defocus refers to a structural position that systematically resists focus interpretation. To the best of our knowledge, there is no discussion in the literature addressing whether defocus triggers rephrasing and syntax-prosody mismatches.[1] The major goal of this study is thus to explore the less-understood role of defocus in the syntax-prosody interface. We argue that crucial evidence can be obtained in right-dislocated structures in Cantonese and Mandarin, where the dislocated chunks are always defocused. Importantly, both

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1. Note that defocus here is distinct from givenness, the latter of which has received some relevant discussions (e.g. Kratzer & Selkirk 2020). See Sect. 2 for the definition of (de)focus in this study.

languages do *not* have focus-rephrasing effects (no readily F0 effects in Cantonese, Wu & Xu 2010; no dephrasing effects in Mandarin, see above). We present a novel view where rephrasing can also be triggered by defocus, whose role must be distinguished from the role of focus, referred to as the DEFOCUS REPHRASING view.

Right dislocated structures in Cantonese and Mandarin are characterized by displacement/doubling of elements at the end of the sentence, often after sentence-final particles (SFPs) (Cheung 2009; Lee 2017, *i.a.*). We refer to the elements following SFPs as *right-dislocated chunks*, and the rest (including the SFPs) as *main chunks*.[2]

(2) [$_{main\ chunk}$ (ZP) XP SFP] ***ZP*$_{right-dislocated\ chunk}$**

Right-dislocated structures have two major types (Cheung 2015): (i) gapped right-dislocation (**RD**), where RD chunks correspond to a gap in main chunks; (ii) gapless dislocation copying (**DC**), where DC chunks double elements in main chunks.

(3) Gapped right dislocation (**RD**)   [_ XP SFP] ***ZP***

	_	wui	heoi	Meigwok	aa3	]	***Mingzai.***	((C)antonese)
[	_	hui	qu	Meiguo	a	]	***Xiaoming.***	((M)andarin)
		will	go	US		SFP	Ming	

Lit.: 'Will go to the US, Ming.' (i.e. 'Ming will go to the US.')

(4) Gapless dislocation copying (**DC**)   [**ZP** XP SFP] ***ZP***

[	**Mingzai**	wui	heoi	Meigwok	aa3	]	***Mingzai.***	(C)
[	**Xiaoming**	hui	qu	Meiguo	a	]	***Xiaoming.***	(M)
	Ming	will	go	US		SFP	Ming	

Lit.: 'Ming will go to the US, Ming.' (i.e. 'Ming will go to the US.')

We argue that a variant of right-dislocated structures, namely, dislocation copying (DC), displays a syntax-prosody mismatch. While having a **biclausal** structure (2 CPs) syntactically, DC consists of only **one intonational phrase** (one ι) prosodically. Connecting it to defocus, we propose that defocus, as a mirror image of focus, cannot receive prosodic head prominence. Given that DC chunks are always defocused, an illegitimate ***headless*** ι would be formed if DC chunks were mapped onto an independent ι. Hence, they are rephrased with the preceding main chunks as one ι, leading to syntax-prosody mismatches. This DEFOCUS REPHRASING view sheds light on the role of (de)focus by representing a weaker version of the REPHRASING view while maintaining the insights from NO-REPHRASING view. Concretely, while focus may not necessarily be a prosodic head and trigger rephrasing, defocus may trigger rephrasing in the very same language. In other words, there is a *dissociation* of the effects of defocus from those of focus. This maintains a minimal role of focus in syntax-prosody mapping: it is the lack of focus that plays a role, rather the presence of focus, at least in the case of Cantonese and Mandarin.

This paper is organized as follows. Sect. 2 examines the resistance of focus interpretation in right-dislocated structures and argues for a defocus projection in syntax. Sect. 3 argues that DC has a biclausal structure, unlike the monoclonal RD.

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2. It is worth noting that right-dislocated structures are not the same as afterthoughts in various aspects, including information structure, syntactic properties, and prosodic properties (Frey & Truckenbrodt 2015; Ott & de Vries 2016; Wei & Li 2018, *i.a.*). For example, an SFP may be added in afterthought, which is impossible in right-dislocated structures (Wei & Li 2018).

In other words, DC does not share a uniform syntax with RD. Sect. 4 turns to the prosody, and shows that RD and DC both have one intonational phrase, leading to a syntax-prosody mismatch in DC. Sect. 5 proposes an Optimality-Theoretic analysis of how defocus triggers the mismatch in DC, which represents a novel DEFOCUS REPHRASING view that dissociates defocus from focus in syntax-prosody mapping. Finally, Sect. 6 concludes the paper.

2 Defocus in right-dislocated structures

In this section, we examine the role of focus in right-dislocated structures. Specifically, we show that right-dislocated chunks in both right dislocation and dislocation copying constructions systematically resist focus interpretation, and argue that they should be analyzed as ***defocus***, a syntactic (functional) category attested cross-linguistically (e.g. Molnárfi 2002; Zeller 2008; Lee 2017; Lee 2020).

We follow Rooth (1992) and define focus as elements that trigger alternatives in focus semantics, as in (5). These include cases of contrastive focus, *wh*-question-answer pairs, focus particle associates (e.g. *only* focus), etc.

(5)   A focus is an element that triggers a set of alternatives.

Before proceeding, it is important to note that defocus is *not* the same as discourse givenness, and the so-called informational focus is not considered here (Rochemont 1986; Kratzer & Selkirk 2020). Right-dislocated chunks may accommodate new information if the whole sentence is discourse-new, as illustrated in (6). Here, "my mum" is not given in the discourse before, and thus contributes new information.[3]

(6)   Q: Why were you so mad yesterday?
       A: { _/ **ngo Aamaa**} dalaan-zo ngo-zik zip lo1 ***ngo Aamaa***. (C)
       A: { _/ **wo Mama**} dapo-le   wo-de diezi a ***wo Mama***. (M)
           1SG Mum   break-PFV my   plate SFP 1SG Mum
       Lit.: '(My mum) broke my plate, my mum.'

First, stress (marked by capitals) cannot occur in the right-dislocated chunks to mark contrastive focus in both Cantonese and Mandarin (Cheung 2015; Lee 2017; Lee 2022), as in (7)-(8).

(7)   <u>Contrastive focus in Cantonese</u> (stress)   (C)
       a. Zoengsaam _ maai-zo gaa sance   aa3 {****CAMJAT***_F/ ^{OK}*camjat*}.
           Zoengsaam   buy-PFV CL new.car SFP   yesterday   yesterday
           Lit.: 'Zoengsaam bought a new car, *YESTERDAY/yesterday.'
                                                                (RD, adapted from Lee 2017:68)
       b. **Keoi wui** heoi jamngokwui gaa3 {****KEOI***_F *wui*/ **keoi* ***WUI***_F/
           3SG will go   concert   SFP   3SG   will   3SG   will
             *KEOI WUI_F/ ^{OK}*keoi wui*}.
              3SG   will   3SG   will
           Lit.: '(S)he will go to the concert, *(S)HE will/*(s)he WILL/*(S)HE WILL/(s)he will.'   (DC, adapted from Cheung 2015:261)

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3. Such notion of informational focus (or givenness) might play a role in right-dislocated structures in Germanic languages, though, as argued by Ott & de Vries (2016).

(8) Contrastive focus in Mandarin (stress) (M, RD/DC)
{ _/ **Zhangsan**} bu qu Meiguo a {***ZHANGSAN**$_F$/ ^{OK}*Zhangsan*}.
   Zhangsan not go US SFP Zhangsan Zhangsan
   Lit.: '(Zhangsan) will not go to the US, *ZHANGSAN/Zhangsan.'

Second, right-dislocated chunks also cannot be *wh*-words, or answers to a *wh*-constituent question, both of which trigger alternatives (Rooth 1992). The Cantonese facts have already been noted by Cheung (2009); Lee (2017). We show that the same applies to Mandarin, where both RD and DC are unacceptable when the right-dislocated chunks are *wh*-words (9a), as well as answers to *wh*-questions (9b).

(9) *Wh*-questions and answers in Mandarin (M)

a. *Zuotian { _/ **shei**} lai-le a *shei*? (*RD/*DC)
   yesterday who come-PFV SFP who
   Lit.: '(Who) came yesterday, who?.' (Int.: 'Who came yesterday?')

b. Q: Who came yesterday?
   *A: Zuotian { _/ **Lisi**} lai-le a *Lisi*. (*RD/*DC)
   yesterday Lisi come-PFV SFP Lisi
   Lit.: '(Lisi) came yesterday, Lisi.'

Third, right-dislocated chunks cannot accommodate focus particles with their associates. For example, exclusive focus 'only' cannot occur in both RD and DC chunks in Cantonese in (10a-b) (Lee 2022).[4] The same is true for Mandarin.

(10) 'Only' focus in Cantonese (C: *RD/$^{??}$DC, Lee 2022:12)
   [{ *_/ $^{??}$**zinghai ngo**} maai-zo ni-bun syu zaa3] *zinghai ngo*.
      only 1SG buy-PFV this-CL book SFP only 1SG
   Lit.: '(Only I) bought this book, only I.' (i.e. 'Only I bought this book.')

It is important to distinguish between focus particles (operators) and focus associates (focused elements). While particles alone may occur in the RD/DC chunks as in (11a), the focus associates alone cannot appear in the RD/DC chunks in (11b). This is consistent with the definition of focus in (5): it is the focus associate that triggers the alternatives {this book, that book, ...}, but not 'only'. The focus particle operates on the alternative sets (Rooth 1992), and is not the focus *per se*.

(11) 'Only' particles vs. 'only' focus associates in Cantonese (C)

a. [Aaming { _/ **zinghai**} maai-zo [ni-bun syu]$_F$ aa3] *zinghai*.
   Ming only buy-PFV this-CL book SFP only
   Lit.: 'Ming (only) bought *this book*, only.' (i.e. 'Ming only bought
   this book.') (particles: RD/DC)

b. *[Zinghai { _/ **Aaming**} maai-zo ni-bun syu aa3] *Aaming*$_F$.
   only Ming buy-PFV this-CL book SFP Ming
   Lit.: 'Only *Ming* bought this book, Ming.' (i.e. 'Only *Ming* bought
   this book.') (associates: *RD/*DC)

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4. Note that the judgment is slightly improved in DC as compared to RD. Indeed, Lai (2019) (ex. 21-22) reports some cases where *wh*-words and 'only'-focus exceptionally occur in DC. Following him, we suggest that these cases involve a larger (elided) structure along with the focus. The suggestion receives support from the contrast between focus particles and focus associates below.

Apart from 'only', other focus particles with their associates are also disallowed in right-dislocated chunks, including cleft focus formed by a copula and 'even' focus. For space reasons, we do not further illustrate the examples.

Taking stock, the tests of contrastive focus, *wh*-question-answer pairs, focus particles all show that RD and DC do not allow focus, as summarized below in Table 1 (See footnote 4 for some complications in Cantonese DC).

		Cantonese		Mandarin	
Type	**Focus**	RD	DC	RD	DC
Stress	Contrastive focus	✗	✗	✗	✗
Q-A	*Wh*-words	✗	(✗)	✗	✗
	Ans to *wh*	✗	(✗)	✗	✗
Focus	Copula cleft	✗	(✗)	✗	✗
particles	'Only'	✗	(✗)	✗	✗
	'Even'	✗	(✗)	✗	✗

Table 1: The ban on focus in right-dislocated chunks

The systematic resistance of focus interpretation can be captured by positing a **defocus** projection (also called *anti-focus*), following Lee (2017); Lee (2020). In Cantonese and Mandarin, the right-dislocated chunks occupy a designated syntactic slot for defocus interpretation, as in (12):

(12) A **defocus** constituent is an element that resists focus interpretation, manifested syntactically as right-dislocated chunks in Cantonese and Mandarin right dislocation and dislocation copying constructions.

The syntactic manifestation of defocus as right-dislocated chunks is comparable to various defocus/anti-focus marking strategies cross-linguistically. These include P-movement/scrambling in Spanish & Italian (Zubizarreta 1998), scrambling in West Germanic (Molnárfi 2002), object clitic doubling in Albanian and Greek (Kallulli 2001), and subject/anti-focus markers in Bantu languages (Zeller 2008). Notably, both strategies of movement and morphological markers (Bantu anti-focus markers) are found, the latter mirroring focus morphology (e.g. focus concord markers and adfocus particles). Hence, we can conclude that defocus is a cross-linguistically attested syntactic category, which may either attract movement or be realized as agreement-like markers. With the defocus projection established, in the next section we discuss the clausal structure of right-dislocated structures.

3   The non-uniform syntax of right-dislocated structures

Despite the similar defocus requirements in RD and DC, in this section we show that they indeed have different syntactic structures. In particular, they consist of different numbers of clauses: while RD is monoclausal, DC is *biclausal*. This is important to show because in the next sections we see that both constructions have the same prosodic structure, suggesting a syntax-prosody mismatch.

First, following the predominant analysis of RD (Packard 1986; Cheung 2009; Chiang 2017; Lee 2017, *i.a.*), we assume that RD is monoclausal, with two steps of movement: (i) defocus movement, where an element bearing a syntactic [Defoc]

feature moves to the specifier of DefocP projected by a Defocus head; (ii) remnant movement of TP to Spec CP.[5]

(13) The monoclausal analysis of RD

    a. [$_{CP}$ SFP [$_{DefocP}$ *RD chunk* [$_{TP}$ ... _ ...]]]

    b. [$_{CP}$ main chunk [$_{C'}$ SFP [$_{DefocP}$ *RD chunk* [$_{TP}$ ... _ ...]]]]

Second, we suggest that DC has ***biclausal*** structure and involves deletion in a sluicing-like manner (Cheung 2015; Shi 1992; Tang 2018, *pace* Lai 2019; Lee 2021). First, two clauses (two CPs) are juxtaposed (cf. Abe 2019 for constraints on the juxtaposition; also Ott & de Vries 2016's asyndetic coordination **:**). Second, the DC chunk undergoes defocus movement to DefocP. Third, the remnant TP is elided. As a result, the only overt materials in the second CP are the elements that undergo defocus movement, capturing the systemic resistance of focus in DC chunks.[6]

(14) The **biclausal** analysis of DC

    a. [$_{CP1}$ main chunk [$_{C'}$ SFP]] [$_{CP2}$ [$_{DefocP}$ *DC chunk* [$_{TP}$ _ main chunk]]]

    b. [$_{CP1}$ main chunk [$_{C'}$ SFP]] [$_{CP2}$ [$_{DefocP}$ *DC chunk* [$_{TP}$ _ main chunk]]]

For concreteness, we formulate the alternative monoclausal analysis of DC as below. The derivation is very similar to RD (defocus + remnant movement), with the only difference that the DC chunk copies (resulting from movement) are pronounced in both positions: main chunks and DC chunks, leading to the 'copying'.[7]

(15) The monoclausal analysis of DC *(to be rejected)*

    [$_{CP}$ <DC chunk> + main chunk [$_{C'}$ SFP [$_{DefocP}$ <DC chunk> [$_{TP}$ ... _ ...]]]]

3.1 Argument #1: Imperfect copying

One major piece of evidence for a biclausal analysis of DC comes from the so-called **imperfect copying**, in which the DC chunk is distinct from its corresponding materials in the main chunk. This is illustrated in (16a), where two elements are completely different (pronoun vs. lexical NP), and (16b), where only some elements of the DC chunk are identical to the main chunk (i.e. partial copying). These cases are unexpected under a monoclausal analysis with movement, since each copy of a defocused constituent would be identical, i.e. perfect copying (Lai 2019; Lee 2021).

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5. We assume the TP remnant movement is a post-syntactic movement to satisfy the enclitic requirement of SFPs.

6. One may question why no SFPs in the second clause are realized. This is indeed expected if we assume that SFPs' enclitic requirement triggers TP remnant movement (as in RD) that is absent in DC due to sluicing. Without phonological support of a TP on its left, an SFP cannot be realized.

    (i) [$_{CP1}$ main chunk [$_{C'}$ SFP]] [$_{CP2}$ [$_{C'}$ **(*SFP)** [$_{DefocP}$ *DC chunk* [$_{TP}$ _ main chunk]]]]

7. Note that (15) is a combination of the monoclausal analysis in Lai (2019); Lee (2021), but it makes similar predictions concerning the two arguments given below.

(16) Imperfect copying

    a. Gam **keoi**$_k$ zau-m-zau   hou   ne1 ***Faatgwok-lou**$_k$*?   (C)
        so   3SG   leave-not-leave   good   SFP   France-man
        'So is it better for him to retreat, the French guy?' (Cheung 2015:230)

    b. **Ta**$_k$ lai-le   ma, ***ta**$_k$ xianzai*?   (M)
        3SG   arrive-PFV   SFP   3SG   now
        'Has he arrived, (he) now?'   (Shi 1992:176)

One potential way to save a monoclausal analysis is to use *partial* Copy Deletion. As standardly assumed, syntactic movement creates copies of the moved element, and movement traces are indeed copies that are "deleted". Yet, it has been argued that the Copy Deletion may not be "complete". It applies partially and only deletes part of the copies (e.g. Nunes 2004). One may argue that some cases of imperfect/partial copying like (16b) can be derived by *partial* Copy Deletion, e.g. [$_{CP}$ <S/he ~~now~~> has arrived [$_{DefocusP}$ <*s/he now*> ...]].

This approach, however, faces difficulties in cases involving non-identical DC chunks that cannot be "put back" to the main chunk, such as (17a). The DC chunk is an epithet of the corresponding materials in the main chunk.[8]

(17)   a.   [$_{DP}$ **Go gaa** [$_{NP}$ **hungsik ge**   **paauce**]]$_i$ sei-zo   fo
               that   CL   red   MOD   sport.car   die-PFV   fire
               aa1maa3 [$_{DP}$ *go gaa* [$_{NP}$ *je*   ]]$_i$!
               SFP   that   CL   thing
          Lit.:'That red sport car stalled, that thing!'   (C)

   b. *[$_{DP}$ **Go gaa** [$_{NP}$ **hungsik ge**   (*je*)   **paauce**   (*je*)   ]]
           that   CL   red   MOD   thing   sport.car   thing

As shown in the baseline (17b), the epithet and its corresponding material do not form a licit constituent in one sentence, suggesting that the DC chunk in (17a) must originate in a different clause. These DC variants can only be analyzed as having a biclausal but not a monoclausal structure, as illustrated below.

(18)   [$_{CP1}$ That red sport car$_i$ stalled [$_{C'}$ SFP]] [$_{CP2}$ [$_{DefocP}$ *that thing*$_i$ [$_{TP}$ ~~■ stalled~~]]]

3.2   Argument #2: Selective island repair effects

Another argument, which is based on selective island repair effects, supports the sluicing-like deletion/ellipsis that is only present in the biclausal analysis.[9] First, Wei (2013) argues that fragment questions in Mandarin Chinese involve sluicing: the question fragment moves to a higher position with the remnant clause elided as in (19), just like DC. Additionally, he shows that this kind of sluicing may repair an island violation. For instance, left branch extraction, while otherwise not allowed in Chinese, is allowed in the fragment question in (20).

(19)   [$_{CP}$ Question fragment [$_{TP}$ ■ ...]]

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(20) Sluicing in fragment questions repairs islands (Wei 2013:158)

A: Ta renshi [DP **Zhangsan-de** baba] B: **Lisi-de** ne?
 he know   Zhangsan-DE father   Lisi-DE SFP
A: 'He knows Zhangsan's father.'   B: 'What about Lisi's father?'

More importantly, the island repair effects are selective: only certain islands, including Left Branch Condition (LBC) and sentential subject islands, are repaired. Fragment questions still show sensitivity to other islands like complex NP islands (CNPI), adjunct islands, and *wh*-islands (Wei 2013).

Turning to DC cases, strikingly, they show similar *selective* island repair effects that are absent in RD. In (21a), the left branch modifier 'there' of the DP cannot occur in the RD chunk, observing LBC. The sentence is however improved significantly with 'there' doubled in DC. That is, LBC violations are repaired by DC.

(21) Asymmetry in Left Branch Condition in Cantonese

 a. *tengman [DP _ [NP faa]] moujan coi wo3 ***godou*-ge** (*RD)
  hear   flower no.one pick SFP there-MOD

 b. tengman [DP **godou-ge** [NP faa]] moujan coi wo3 ***godou*-ge**
  hear   there-MOD   flower no.one pick SFP there-MOD
  'No one picks the flower there.'   (LBC repaired by DC)

Crucially, such repair effects by DC are *selective*: complex NP islands, for example, block both RD and DC (Cheung 2015), as illustrated in (22). Other islands that disallow both RD and DC are adjunct islands and coordination structures.[10]

(22) No difference in complex NP islands in Cantonese

 *Ngo sik-saai [DP [CP {_/ **Aaming**} zangging lyunlok-gwo] ge
 I   know-all   Ming   already contact-EXP MOD
 go di   gongze] gaa ***Aaming***.
 that CL.PL speaker SFP Ming
 Lit.: 'I know all the speakers that (Ming) contacted, Ming.' (*RD/*DC)

The above contrasts in islands between RD and DC are unexpected if both were monoclausal constructions where the only difference between them is the (non-)pronunciation of movement copies. On the other hand, if one assumes a sluicing-like deletion in DC, the contrasts naturally follow: sluicing is famously known to show (some degree of) island repair effects (Merchant 2001), as independently attested in Chinese fragment questions (Wei 2013). Such sluicing configuration is only available in a biclausal structure (sluicing in CP2, as in DC), but not in a monoclausal structure the clause undergoes remnant movement (as in RD).

In short, we provided novel syntactic arguments for the biclausal analysis of DC, contrasting with the monoclausal analysis of RD. In the next section, we uncover a syntax-prosody mismatch by examining the prosodic phrasing of RD and DC.

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10. RD and DC are not subject to *wh*-islands, which is expected if *wh*-islands are minimality-based and only block question dependencies. The patterns of sentential subject islands are however more complex due to the topic-prominent nature of Chinese, which we set aside for now.

4 The uniform prosody of right-dislocated structures

Despite that the syntax of RD and DC is not uniform, we argue that they do share uniform prosody in having **one intonational phrase** (ι), as schematized below. In other words, while the syntax and prosody are isomorphic in RD, there is a syntax-prosody mismatch in DC (indicated by shading):

(23) <u>The prosodic phrasing of RD and DC (only ι shown)</u>

    a. RD: One clause, one ι

        [$_{\text{CP}}$ main chunk [$_{\text{C'}}$ SFP [$_{\text{DefocP}}$ RD chunk]]]   *syntax*

        (   )ι *prosody*

    b. DC: Two clauses, one ι

        [$_{\text{CP1}}$ main chunk [$_{\text{C'}}$ SFP]] [$_{\text{CP2}}$ [$_{\text{DefocP}}$ DC chunk]]   *syntax*

        (   )ι *prosody*

We present two domain-sensitive phonological phenomena as evidence: (i) boundary tone placement in Cantonese, which applies on the ι-level; (ii) third tone sandhi in Mandarin, which applies on the phonological phrase (ϕ) level or below.[11]

4.1 Cantonese: Placement of boundary tones

Cantonese boundary tones only occur at the right edges of intonational phrases, and there is no left boundary tone in Cantonese (Wong *et al.* 2005:287). Take the boundary tone H% in questions as an illustration. It realizes as local F0 rising on the last syllable to indicate a question (Wong *et al.* 2005; Xu & Mok 2011).

(24) (Mingzai wui heoi Mei**gwok**)$_\iota$**H%** ?

      Ming   will go   US

      'Will Ming go to the US?'

It is degraded to place boundary tones such as H% in RD before the RD chunk (Yip 2020).[12] This contrasts with question particle *aa4* which can occur before the RD chunk. This is expected if RD constitutes one ι and there is no ι boundary before the RD chunk. Crucially, as shown in (b), such placement is also banned in **DC**, suggesting that there is no (right) ι boundary before the DC chunk as well.

(25) <u>Placement of H% question intonation in Cantonese RD and DC</u>

    [{a. _ /b. Keoi} wui heoi Mei**gwok** {***H%**/ **aa4**}]? *keoi*

               3SG   will go   US   SFP   3SG

    'Will s/he go to the US?'

The same applies to other DC variants like imperfect copying:

(26) *[Mingzai$_j$ wui heoi Mei**gwok H%**]? ***keoi***$_j$ (imperfect copying)

      Ming   will go US   3SG

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11. We also conducted an acoustic experiment to examine the prosodic cues for ι boundaries, such as final lengthening, pitch reset, and pause. While we do not present the results here, such cues are absent in DC between the DC chunk and the main chunk (i.e. no final lengthening of the SFP; no pitch reset on the DC chunk; no pauses), consistent with the phonological evidence.

12. Indeed, a boundary tone also cannot be placed at the end of RD sentences, which is a right-edge of ι. See Yip (2020) for an explanation based on the syntactic position of boundary tones.

Hence, DC in Cantonese receives *negative* evidence from boundary tones for the prosodic phrasing. Concretely, the failure to apply ι phonology suggests the **absence** of *right* ι boundaries before DC chunk. The main chunk does *not* form a separate ι excluding the DC chunk, rather, it forms an ι together with the DC chunk.

4.2 Mandarin: Third tone sandhi

Mandarin offers another type of phonological evidence: third tone (T3) sandhi. T3 sandhi applies to consecutive T3 syllables, where the first one changes from a low tone to a rising tone, similar to the contour of tone 2 (Shih 1986, *i.a.*).

(27) T3-T3 $\rightarrow$ **sT2**-T3   'alcoholic, lit. wine-ghost'
     [21]-[21] $\rightarrow$ **[35]**-[21]   jiu3-gui3 $\rightarrow$ **jiu2**-gui3
     L-L $\rightarrow$ **LH**-L   [21]-[21] $\rightarrow$ **[35]**-[21]

Mandarin T3 sandhi may apply across phonological phrase ϕ boundaries, such as a subject-VP juncture in (28). Yet, it does *not* across ι boundaries, such as a juncture between the adverbial clause and the main clause in (29).

(28) Tone 3 sandhi can apply across a subject-VP juncture
$[_{CP}$ Zuo2-tian1 $[_{Subj}$ na4-xiang1 shao1-**jiu3$^{[21>35]}$**] $[_{VP}$ **shao3$^{[21]}$**-le0
                $\phi_1($
                                                            $)\phi_1$ $\phi_2($
   yesterday   that-box   Soju   miss-PFV
   yi1-ping2]]
              $)\phi_2$
   one-bottle
'Yesterday, one bottle of Soju went missing from that box of Soju.'

(29) Tone 3 sandhi is not possible across clausal boundaries in complex sentences
$[_{CP}$ Lao3-Wang2   shuo1   yao4   jin1-tian1   **zou3$^{[21/*35]}$**], $[_{CP}$
$\iota_1($ $)\iota_1$ $\iota_2($
   Old Wang   say   want   today   leave
   ke3$^{[21]}$-shi4   mei2   zou3   cheng2]   (Shih 1997:100)
                                $)\iota_2$
   but   didn't   leave   succeed
'Old Wang said that he wanted to leave today, but it didn't work out.'

Thus, we can test the juncture strength between the main chunk and the RD/DC chunk by applying T3 sandhi. If there exists an ι boundary, we expect T3 sandhi to be impossible. As can be seen in (30), T3 sandhi is *allowed* in RD as well as DC. This shows that the boundary in-between the DC/RD chunks and the main chunks is not as large as ι boundaries, but should be smaller, say, ϕ boundaries.

(30) Tone 3 sandhi in Mandarin RD and DC
   {a. _ /b. Lao3wang2} xi3huan1 he1   **jiu3$^{[21>35]}$** *Lao3$^{[21]}$wang2*
             Laowang   like   drink wine   Laowang
   Lit.: 'likes drinking wine, Laowang.'

Again, the same applies to other DC variants:

(31) Lao3wang2 xi3huan1 he1 **jiu3[21>35]** *Lao3[21]wang2 ke3neng2*
Laowang like drink wine Laowang perhaps
Lit.: 'Laowang likes drinking wine, Laowang perhaps.' (partial copying)

In short, Mandarin offers *positive* evidence from tone 3 sandhi for the prosodic phrasing of DC. That ϕ-level (or below) phonology can be applied shows the **absence** of both *left* and *right* ι boundaries before DC chunk. The DC chunk does not form a separate ι, but rather, it forms an ι together with the main chunk.

To sum up, both ι-level boundary tone placement and ϕ-level third tone sandhi support that RD and DC share a uniform prosody: there are no internal ι boundaries in RD/DC. In other words, there is only one intonational phrase in both RD and DC. Since the latter has two CPs, we witness a case of syntax-prosody mismatch.

5 Proposal: Defocus triggers rephrasing indirectly

The case of syntax-prosody mismatch in dislocation copying constructions in Cantonese and Mandarin is at first glance puzzling: while (i) focus does not trigger rephrasing in both languages (*cf.* Wu & Xu 2010; Zhang *et al.* 2021), in line with the NO-REPHRASING view; (ii) the mismatch in DC seems to be related to focus (defocus), apparently at odd with the NO-REPHRASING view.

We suggest that this case indeed reveals the role of defocus in prosody. The leading idea is that defocus, unlike focus, cannot receive *head* prominence. Thus, if the DC chunk (a clause/CP) were mapped onto an intonational phrase, the only overt material, the defocus, cannot serve as the prominent prosodic head. To avoid forming an illegitimate headless intonational phrase (ι), the DC chunk is integrated into the preceding ι formed by the main chunk, giving rise to the mismatch.

To account for the mismatch, we first assume the MATCH(CP,ι) constraint in (32), which favors an isomorphic syntax-prosody mapping (one CP, one ι).[13]

(32) MATCH(CP,ι) (after Selkirk 2011:451)
Assign a violation mark if the left and right edges of a CP in the input syntactic representation do not correspond to the left and right edges of an intonational phrase in the output phonological representation.

Second, we assume a constraint in (33) on the headedness of intonational phrases. ι-headedness in English may be realized as nuclear stress on the rightmost ϕ. While Cantonese and Mandarin have no English-type stress, Feng (2019) has argued that nuclear stress is still detectable in word order alternation like heavy NP shift, where the phonologically heaviest constituent prefers to be placed at the end.[14]

(33) IntonationalPhrase:Head (ι:HEAD)
An intonational phrase must have at least one daughter constituent designated as its head.

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13. Since subordinate clauses in Mandarin block Tone 3 sandhi, CP should be the locus of ι instead of illocutionary clauses (cf. Selkirk 2005).

14. Unlike previous formulations of headedness where existence and uniqueness of a head are often conflated (e.g. Ishihara 2011's CULMINATIVITY), ι:HEAD only requires at least one head, remaining silence on multi-headed ι. A potential testing ground could be multi-focus constructions, which are allowed in English but not in Italian (Calabrese 1984).

Last not but least, we propose that defocus must not receive *head* prominence, formulated in (34) as DEFOCUS. Df refers to the element with the [Defoc] feature, which moves to Spec DeFocP (e.g. the DC chunk *excluding* the elided material).

(34)   DEFOC(US) (Head prominence-based)
        Let Df be a defocus element and PDf be the highest prosodic constituent in the output corresponding to Df. Assign a violation mark if PDf is a prosodic head and a daughter of a higher prosodic category or a higher projection of the same category as PDf.

The intuition behind this is that while focus receives prominence and serves as a prosodic head (Truckenbrodt 1995), *defocus* can never do so. In other words, defocus always has non-prominence resulting from being a non-head.[15] Two illustrations are given below, one concerning the ι-level (left), another concerning the ϕ-level (right). In the left tableau, the rightmost ϕ_k is the PDf. In candidate (b), ϕ_k is assigned as the head of a higher prosodic category, namely ι, violating DEFOC. In contrast, the head is another constituent in candidate (a), the middle ϕ, but not ϕ_k. DEFOC is hence not violated.[16] The same can be said on the ϕ-level in the right tableau. In candidate (b), ϕ_k, the PDf, is the head of the recursive ϕ_{max}. Since ϕ_{max} is a higher projection of the same category as the PDf, DEFOC is violated. In order to avoid DEFOC violation, the left ϕ serves as the head, as in candidate (a).[17]

(35)   Sample evaluation of DEFOC

[$_{CP}$ YP ZP$_{Df k}$]	DF.
☞ a. ((YP)$_\phi$ (ZP)$_{\phi k}$)$_\iota$	
b. ((YP)$_\phi$ (ZP)$_{\phi k}$)$_\iota$	*!

(where ι's head is underlined)

[YP ZP$_{Df k}$]	DF.
☞ a. ((**XP**)$_\phi$ (ZP)$_{\phi k}$)$_{\phi.max}$	
b. ((XP)$_\phi$ (**ZP**)$_{\phi k}$)$_{\phi.max}$	*!

(where ϕ_{max}'s head is **bolded**)

To account for the syntax-prosody mismatch, we propose that the mapping constraint MATCH(CP,ι) is outranked by DEFOC and ι:H in Cantonese and Mandarin:

(36)   The proposed ranking of the three constraints in Cantonese and Mandarin
        {DEFOC, ι:H} » MATCH(CP,ι)

With the proposed ranking, output candidates of a DC sentence that have syntax-prosody mismatches win over those without mismatches, as illustrated in the tableau (37) below. If CP2 is mapped onto a ι_j without any daughter constituent assigned as the head, as in (a), ι:H is violated. If the head is assigned to the only overt material in CP2 ZP, as in (b), the higher-ranked DEFOC is violated. It is because the PDf ϕ_k corresponding to the defocus, ZP, now heads a higher prosodic category ι_j. To avoid violating ι-headedness and DEFOC, the syntax-prosody mapping "compromises". In candidate (c), there is only one ι, and there is no ι corresponding to

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15. For example, in languages where heads readily have a prosodic reflex like accent, defocus will be realized as an accentless phrase. Such effects are not directly observable in Cantonese, but may be reflected indirectly such as the heaviness constraint on DC chunks (Cheung 2015), where the DC chunks have a preference to be shorter than the main chunks.

16. ι is indeed right-headed in Cantonese and Mandarin, and (a) is not the actual phrasing of DC.

17. It is very important to note that the non-head requirement by DEFOCUS is different from deaccenting discourse-given phrases (non-prominence by Féry 2013, dephrasing by Kratzer & Selkirk 2020). The notion of defocus is calculated based on Rooth's alternative focus but not givenness.

CP1 nor CP2, violating the lowered-ranked MATCH(CP,ι) twice. Yet, it does not violate ι:H and DEFOC: the ι has a head, which is the rightmost recursive ϕ_{max}; moreover, the heads of both ι and ϕ_{max} are *not* assigned to the defocus (i.e. the PDf ϕ_k). Since it is less costly to violate the mapping constraint, meaning that it is less costly to have syntactic-prosody mismatches, candidate (c) is chosen. This captures the attested syntax-prosody mismatches in dislocation copying.[18]

(37) Rephrasing triggered by headless ι

[$_{CP1}$ ZP YP]$_i$ [$_{CP2}$ ZP$_{\text{Df}k}$ ~~YP~~]$_j$	ι:H	DEFOC	MATCH(CP,ι)
a. ((ZP)$_\phi$ (YP)$_\phi$)$_{\iota i}$ ((ZP)$_{\phi k}$)$_{\iota j}$	*!		
b. ((ZP)$_\phi$ (YP)$_\phi$)$_{\iota i}$ ((ZP)$_{\phi k}$)$_{\iota j}$		*!	
☞ c. ((ZP)$_\phi$ ((**YP**)$_\phi$ (ZP)$_{\phi k}$)$_{\phi.max}$)$_\iota$			**

(where ι's prosodic head is underlined, and ϕ_{max}'s prosodic head is **bolded**)

The proposed analysis represents a DEFOCUS REPHRASING view: even though focus does not trigger mismatches (as in Cantonese and Mandarin), defocus does. It further implicates that the role of defocus in prosody must be distinguished from focus. The dissociation can be further appreciated by the placement of narrow focus in DC. In (38), a narrow focus is put on the modal *gai* 'should':

(38) Xiaobing dongtian **GAI** kai canting ma *Xiaobing*? (M)
Xiaobing winter should open restaurant SFP Xiaobing
'SHOULD Xiaobing open a restaurant in the winter, Xiaobing?'

Schematically, we have a focus (XP) in the middle of CP1 (the main chunk) followed by a non-focused element (YP) and defocus (ZP) in another CP. While defocus triggers rephrasing and forms a unit with the preceding YP, the focus forms its own ϕ and does *not*, say, erase the post-focal ϕ boundaries.[19] A dissociation between defocus and focus is thus needed to capture these cases.

(39) a.   [$_{\text{main-chunk}}$ ZP$_{\text{Non-focus}}$ XP$_{\text{FOCUS}}$ YP$_{\text{Non-focus}}$] [$_{\text{DC-chunk}}$ ZP$_{Defocus}$]
    b.   ((ZP$_{\text{Non-focus}}$)$_\phi$ (XP$_{\text{FOCUS}}$)$_\phi$ ((**YP$_{\text{Non-focus}}$**)$_\phi$ (ZP$_{Defocus}$)$_\phi$)$_{\phi_{max}}$)$_\iota$

6   Concluding remarks

To summarize this paper, we have shown that a variant of right-dislocated structures, dislocation copying (DC), involves a syntax-prosody mismatch: it has a *biclausal* syntactic structure, but only *one intonational phrase*. Given that right-dislocated chunks in Cantonese and Mandarin are always *de*focused, we propose that defocus triggers prosodic rephrasing to avoid a *headless* intonational phrase. The current DEFOCUS REPHRASING view ultimately weakens the REPHRASING approach, and dissociates the rephrasing effects by defocus from those by focus.

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18. Candidate (c) represents "deep integration" where the DC chunk does not form a separate ϕ, but part of some maximal ϕ. We suggest that a lower degree of integration where the DC chunk is mapped onto an separate/maximal ϕ violates DEFOC given that ι is right-headed in both languages.
19. Such ϕ boundaries are observable in the acoustics. Although *kai canting* in (38) undergoes post-focal reduction, its pitch range is still higher than the defocus *Xiaobing*.

As a final remark, right-dislocated structures are cross-linguistically diverse, in terms of both focus interpretation and prosodic phrasing. On one hand, right-dislocated structures in several langauges are argued to allow a focus element (e.g. Japanese, Korean, Mongolian, Abe 2019; Lee 2022). On the other hand, right-dislocated structures in languages like French involve a bi-intonational phrase structure (Delais-Roussarie *et al.* 2004). Whether their prosodic organization is correlated with the focus occurrence remains to be explored. The current defocus-rephrasing approach can predict an OT-style factorial typology with possible different rankings of the mapping constraint with DEFOC/headedness, allowing us to study the cross-linguistic variations in a theoretically-informed manner.

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