

Linearizing syntactic movement: when Economy compromises

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Introduction

- Movement, or the displacement properties, are essential in human language
- Consider the Cantonese sentences in (1) and (2):

(1) **Subject - Verb - Object**

ngo	zungji	ni-bun syu
I	like	this book

(2) **Object - Subject - Verb - ~~Object~~**

ni-bun syu	ngo	zungji
this book	I	like

- When we move something, we usually obtain a “gap”
→ we “clean up” what was there in the original object position
- However, in some cases, the “gap” is not fully cleaned up

Case 1: verb doubling

- In a range of constructions, a **verb** doubly occurs in two positions

(3) Verb doubling in the left periphery

- a. 食，佢係食過呢種魚嘅。

Sik keoi hai **sik**-gwo ni-zung jyu ge2. (cf. Cheng and Vicente 2013)

eat s/he COP eat-EXP this-kind fish SFP

‘As for eating, s/he has eaten this fish (but ...)’

- b. (定係貼咗先) 連裂都唔會裂？

(Dinghai tip-zo sin) lin-**lit** dou m-wui **lit**? (Social media)

or stick-PERF first even-break also not-will break

‘(Or is it that the window) won’t even BREAK (if we put tapes over them)?’

Case 1: verb doubling

(3) Verb doubling in the left periphery

(cont'd)

c. 係掂阿明唔敢掂呢隻動物啫。

Hai-**dim** Aaming m-gam **dim** ni-zek dungmat zel.
 COP-touch Aaming not-dare touch this-CL animal SFP
 'Aaming dare not to TOUCH this animal only.'

(4) Verb doubling in the right periphery

空手道會係冇野學個囉，係。

Hungsaudou wui **hai** mou je hok go3 lo1 **hai**. (Cheung 1997, p.9)
 karate club COP not.have thing learn SFP SFP COP
 'The karate club offers nothing for us to learn.' (corpus data)

→ Non-canonical orders such as **V-SVO** and **SVO-V** are possible in Cantonese.

Case 2: discontinuous predicates

- A verb is “split” into two parts, a.k.a. *separable verbs*
- For example, in the following movie dialog,



- A scene in *Eight Taels of Gold* 《八兩金》 (1989)

(5) Parts of the conversation (glosses on the next page):

a. Sylvia: ... 你tra過vel未架? ‘Have you **traveled?**’

b. Sammo: 未tra過! ‘I haven’t!’

c. Sylvia: ... 你mar咗ry 未架? ‘Have you **married?**’

d. Sammo: 未啊，唔單止未mar過ry，連ss都未ki過
‘I haven’t **married**. I haven’t even **kissed** (someone).’

Case 2: discontinuous predicates

(6) Examples of discontinuous predicates

a. 你 **tra** 過 **vel** 未架？

Nei **caa-** gwo **-fou** mei gaa3?

you travel-EXP travel not.yet SFP

‘Have you traveled?’

b. 唔單止未 **mar** 過 **ry**，連 **ss** 都未 **ki** 過。

M-daanzi mei **me-** gwo **li**, lin **-si** dou mei **kit-** gwo.

not-only not.yet merry-EXP merry even kiss also not.yet kiss-EXP

‘I haven’t married. I haven’t even kissed (someone).’

- A prevalent phenomenon, especially in informal register

Case 2: discontinuous predicates

(7) Pull splits due to intervention (by suffixes or *wh*-expressions)

- a. 我入大學之前都 **肥** 咗好多次 **佬** 。 (σ_1 -SUFFIX-FREQ- σ_2 ; **Social media**)

Ngo jap daaihok zicin dou **fei-** zo houdo ci **-lou** .

I enter college before also fail-PERF many time fail

'I failed many times before I got into college.'

- b. 岩岩 **goo** 左陣 **gle** 都覺得唔太好玩 。 (σ_1 -SUFFIX-DUR- σ_2 ; **Forum**)

Aamaam **gu-** zo zan **-gou** dou gokdak m taai houwaan.

just google-PERF a.while google DOU think not so fun

'I googled for a while just now, and think that it isn't fun at all.'

- c. 你 **sor** 乜野 **ry** 呀? 我又唔係鬧你 。 (σ_1 -WH- σ_2)

Nei **so-** matje **-wi** aa3? ngo jau mhai naau nei.

you sorry what sorry SFP I JAU not blame you

'Why did you say sorry? I am not blaming you.'

Case 2: discontinuous predicates

(8) Inverted splits in focus constructions

a. 我地group ... 連 **sent** 都有得 **pre** 啦。 (FOC- σ_2 ... σ_1 -; **Blog**)

Ngodei group ... lin **-sen** dou mou dak **pi-** laa3.

our group even-present also not.have able present SFP

‘Our group even lost our chance to present.’

b. 咁佢哋以後就連 **修** 都唔使 **裝**。 (FOC- σ_2 ... σ_1 -; **Social media**)

Gam keoidei jihau zau lin **-sau** dou m sai **zong-**.

then they afterwards ZAU even-furnish also not need furnish

‘Then they don’t need to even furnish (this place).’

→ A bisyllabic verb σ_1 σ_2 may appear in a discontinuous form.

The puzzles are not language-specific

- While I will only have time to talk about Cantonese, these patterns are by no means exclusive to Cantonese

(11) Verb doubling in Hebrew (Landau 2006)

irkod, Gil lo **yirkod** ba-xayim.
to-dance Gil not will-dance in-the-life
'As for dancing, Gil will never dance.'

(12) Discontinuous predicates in German (Polzin 1997)

Peter **-isst** die Suppe **auf-**.
Peter eats the soup up
'Peter finishes the soup.'

note: **aufessen** 'to eat up'

Linearization

We know that:

- Language comes with **hierarchical structures**
- The physics of speech requires linguistic expressions to be **linearly ordered**

A central task in linguistic theorizing:

(13) **Linearization**

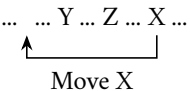
The procedure that derives a linear order from a hierarchical structure

- An important issue - *but not for today* -
How precedence relations are determined by hierarchical relations
(e.g., Kayne 1994; Fox and Pesetsky 2005; Cinque 2022)
- *Today*: **How to pronounce a structure with movement**
(e.g., Chomsky 1995; Nunes 1995, 2004; Landau 2006)

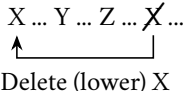
Framework and assumptions

- The generative framework models displacement properties via **movement**
- Under the Copy Theory of Movement (Chomsky 1995, *et seq.*), the Move operation is decomposed into three parts.

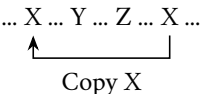
(14) Step 1: Syntactic movement



(16) Step 3: Copy Deletion



(15) Step 2: Copy creation



- Copy Deletion is driven by an economy condition serving to minimize copies

(17) **ECONOMY** (of pronunciation)

(cf. Landau 2006)

Minimize pronunciation of identical copies.

Proposal

- Verb movement cases in Cantonese inform us about the nature of Copy Deletion
- Both **doubling** and **discontinuity** arise when **ECONOMY compromises**
- Two conditions take priority to **ECONOMY**:

① **SYNTACTIC CYCLICITY** overrides **ECONOMY**

→ Copy Deletion is suspended, leading to **full** pronunciation of the lower copy

② **FAITHFULNESS** overrides **ECONOMY**

→ Copy Deletion applies in an incomplete way, leading to **partial** pronunciation of the lower copy

- The idea that Copy Deletion is sensitive to phonological considerations/principles is not new, but precisely how it is so is.
- We obtain a fine-grained theory of how movement chains are linearized

Verb doubling constructions

- For simplicity, I focus on two doubling cases:

(18) (a) Topicalization in **left** periphery: ... **V** ... S ... V ... O ...
 (b) Right dislocation in **right** periphery: ... S ... V ... O ... **V** ...

- Argumentation

- 1 **Verb movement** is involved in both constructions
- 2 I propose that the doubling effect results from the **Suspension of Copy Deletion**
- 3 I cash out the idea in terms of **Cyclic Linearization** (Fox and Pesetsky 2005)

- The content of this section builds on materials in

- Tommy Tsz-Ming Lee. 2021. "Asymmetries in doubling and Cyclic Linearization." *Journal of East Asian Linguistics* 30 (2): 109–139
- Tommy Tsz-Ming Lee, Roumyana Pancheva, and Maria Luisa Zubizarreta. 2022. *Genuinely tenseless: encoding time in Cantonese*. Paper presented at Semantics and Linguistic Theory 32, at El Colegio de México, on June 8-10, 2022

Evidence for movement - Lexical Identity Effects

- One signature property of verb doubling is the **Lexical Identity Effects**
- The verb in the periphery must be lexically identical to the base verb
i.e., synonyms do not work

(19) Lexical identity, but not semantic equivalence, is crucial

- a. 查 / *check, 我係 查 過呢個人。
- { Caa / *cek } ngo hai caa -gwo ni-go jan.
 check/ check I COP check-EXP this-CL person
 ‘As for checking, I have checked this person.’
- b. 阿明聽日會 放 呢啲股票呀 放 / *賣。
- Aaming tingjat wui fong ni-di gupiu aa3 { fong / *maai }.
 Aaming tomorrow will see this-CL stock SFP sell sell
 ‘Aaming will sell these stocks tomorrow.’

- This indicates **syntactic dependencies** between the two verbs, rather than semantic dependencies

Evidence for movement - Lexical Identity Effects

- How about a **set** - **subset** relation between the two elements?

(20) Base generated topics

水果 呢，我中意食 榴槤 。

Seoigwo ne, ngo zungji sik laulin

fruit TOP I like eat durian

‘As for fruits, I like to eat durian.’

- In this case, no movement is involved

Evidence for movement - Lexical Identity Effects

- However, a similar set-subset relation does not license verb doubling

(21) Lexical identity, but not a set-subset relation, is crucial

a. 炒 / *煮, 我係想炒菜嘅。

{ **Caau** / *zyu }, ngo hai soeng **caau** coi ge2.

stir-fry cook I COP want stir-fry vegetable SFP

Int.: 'As for stir-frying, I want to stir-fry the vegetables.'

b. 阿明下年應該去美國呀應該 / *可能。

Aaming haanin **jinggoi** heoi Meigwok aa3 { **jinggoi** / *honang }

Aaming next.year probably fly US SFP should/ may

Int.: 'Aaming should be going to US next year.'

- The verb in the periphery is unlikely to be base generated there

Evidence for movement - Lexical Identity Effects

- Further evidence for movement includes (i) **Island Effects**, and (ii) **Focus Intervention Effects** → Appendix
(Cf. Matushansky (2006), Cheng and Vicente (2013), and Harizanov (2019))

If there is indeed (verb) movement ...

- Recall the Copy Theory of movement (Move X → Copy X → Delete X)
Copy X is an intermediate step of movement
- The **Lexical Identity Effects** seems to suggest that the movement operation stops at this intermediate step

(22) The question posed by doubling:
Why is the lower copy of the verb not deleted?

Framework and proposal

- Let's consider a configuration in which the first domain is linearized.

(25) A baseline structure

$[\alpha \text{ X Y Z }]$

$OS_\alpha: \alpha(X < Y < Z)$

- In case of movement, **movement of X** does not contradict the established OS.

(26) Scenario 2 - ^{OK}Copy Deletion

$[\beta \dots \text{X W } [\alpha \text{ X } \cancel{\text{Y Z}}]]$

$OS_\beta: X < W < \alpha(X < Y < Z)$

- However, **movement of Y** is problematic. Precisely, *when Copy Deletion targets the lower Y, the established OS cannot be obeyed.*

(27) Scenario 3 - *Copy Deletion

$*[\beta \dots \text{Y W } [\alpha \text{ X } \cancel{\text{Y Z}}]]$

$*OS_\beta: Y < W < \alpha(X < Y < Z)$

Framework and proposal

Proposal:

- If Copy Deletion is suspended, we obtain a well-formed structure.

(28) Copy Deletion Suspension

Copy Deletion is suspended *as a last resort* if its application violates the ordering requirements imposed by Cyclic Linearization.

(29) Scenario 4 - ^{OK}Copy Deletion Suspension

[_{β} ... Y W [_{α} X Y Z]]

OS _{β} : Y < W < α (X < Y < Z)

- This gives us the desirable, non-canonical word order in Cantonese!

Illustrations

(30) 想，阿明係想食魚嘅。

Verb topicalization

Soeng, Aaming hai **soeng** sik jyu ge2.

want Aaming FOC want eat fish SFP

‘As for (whether he) wants, Aaming wants to eat fish (, but...)’

(31) a. **Build:** [_{vP} Aaming hai soeng sik jyu]

b. **Linearize:** OS_{vP}: **Aaming < hai < soeng < sik < jyu**

c. **Verb movement:** [_{TopicP} soeng ... [_{vP} Aaming hai soeng sik jyu]]

d. **Linearize + CD Suspension:**

OS_{TopicP}: **soeng < Aaming < hai < soeng < sik < jyu**

- Verb doubling in the *right* periphery minimally differs from this in the direction of verb movement (assuming rightward movement).

A detour: how about object topicalization?

- What happens when an object is topicalized?

(32) 呢本書，我中意。
Ni-byu syu, ngo zungji.
 this-CL book I like
 ‘This book, I like.’

Object topicalization

- Doubling is not required, due to the possibility of successive cyclic movement.

(33) Scenario 4 - successive cyclic movement

$[\beta \dots O \ [_{\alpha} \emptyset S V \emptyset]]$


OS_β: O < α(O < S < V)

- If successive cyclic movement is possible, doubling does not take place.
 - This indicates the last resort nature of doubling, i.e., CD Suspension.
 - The verb-object asymmetry is reduced to what can move into the “edge” of a domain.

Implications

The lesson that **verb doubling** teaches us:

- Copy Deletion is a “preference,” i.e., the fewer the copies, the better.
- But its application cannot override the hardwired **SYNTACTIC CYCLICITY**.
- **ECONOMY** must compromise in case of conflicts
→ **Copy Deletion Suspension**

Some predictions (for next time):

- In case of object movement, the verb can move to the right periphery without doubling
→ An asymmetry between doubling in the left and right periphery
- If a language has a smaller size of the first domain, verb movement may not lead to doubling
→ e.g., verb movement in Bulgarian (Harizanov 2019)

Discontinuous predicates

- Recall the two types of discontinuous predicates:

(34) a. **Pull splits:** ... σ_1 -X ... σ_2 ...
 b. **Inverted splits:** ... X- σ_2 ... σ_1 ...

- Argumentation

- σ_2 lacks nominal properties, speaking against a VO-reanalysis approach.
- I propose that the discontinuity effects result from a conspiracy of two operations:
 - Syllable Subtraction** triggered by affixes, and
 - Partial Copy Deletion** (due to **FAITHFULNESS**)

- The content of this section builds on materials in

- Ka-Fai Yip, Tommy Tsz-Ming Lee, and Sheila Shu-Laam Chan. 2021. "Deriving separable verbs in Cantonese." In *Buckeye East Asian Linguistics*, vol. 5, edited by Wei William Zhou et al., 94–104. Ohio State University
- Lee, Tommy Tsz-Ming, Ka-Fai Yip, and Sheila Shu-Laam Chan. In prep. "Partial deletion at word level: discontinuous predicates in Cantonese." USC, Yale U., and Tufts U.

VO reanalysis?

- At first glance, discontinuous predicates look very similar to Verb-Object phrases

(35) VO-phrases

a. 食緊飯

sik-gan faan

eat-PROG rice

‘Eating rice’

b. 連覺都唔瞓

lin-gaau dou m-fan

even-nap also not-sleep

‘Not even sleep’

- Discontinuous predicates in Mandarin are suggested to have undergone **VO-reanalysis** (Chao 1968; Huang 1984; Packard 2000)
 - σ_1 is reanalyzed as **a verb**, and
 - σ_2 is reanalyzed as **an object**
- However, there is evidence against the nominal status of σ_2

σ_2 is not a noun

- σ_2 resists **adnominal modification**

(36) *Numeral-classifiers

*佢 **肥** 咗 三個 **佬** 。

*Keoi **fei-** zo saam go **-lou** .

s/he fail-PERF three CL fail

Int.: 'S/he made three failures.'

- σ_2 cannot be **relativized**.

(37) *Object relativization

*阿明 **goo** 過嘅 **gle** 有好多。

*Aaming **gu-** gwo ge **-gou** jau houdo.

Aaming google-EXP MOD google have many

'The Google searches that Aaming has done are many.'

σ_2 is more like a noun in Mandarin

- Note: Mandarin counterparts differ in this regard.

(38) 幽 他 一 默
 You- ta yi -mo (Chao 1968)
 humor s/he one humor
 ‘make fun of him’

(39) 你 靜 你的 坐 ， 我 示 我的 威
 Ni jing- ni de -zuo , wo shi wo de wei (Huang 2008)
 you sit.in your sit.in I protest my protest
 ‘You do your sit-in protest, I do my demonstration.’

Approaching discontinuous predicates

- If σ_2 is not a noun, then we lack the crucial evidence for a VO reanalysis
- The intriguing fact is that σ_2 seems to be part of the predicate ... despite appearing in a discontinuous form

(40) The question posed by discontinuity:
Why is the predicate partially realized in different positions?

Proposal

A conspiracy of two independent operations:

- First, I propose a language-specific deletion rule

(41) **Syllable Subtraction** in Cantonese

Affixes optionally trigger deletion on the adjacent syllable of their hosts.

- There are two possible cases:

- (42) a. *Suffix-induced Syllable Subtraction*: ... σ_1 ~~σ_2~~ -SUFFIX ... e.g., **fei** ~~leu~~-zo
- b. *Prefix-induced Syllable Subtraction*: ... PREFIX- ~~σ_1~~ σ_2 ... e.g., lin-~~pi~~ **sen**

Proposal

- Importantly, I propose the following condition on Copy Deletion

(43) FAITHFULNESS (as a condition on Copy Deletion)

Copy Deletion must preserve the integrity of an input in its final output.

(cf. phonological recoverability, Landau (2006))

- If the higher copy is reduced, Copy Deletion can only be applied **partially**

(44) Partial Copy Deletion (on head chains)

a. Higher copy: $[_H \sigma_1 \cancel{\sigma_2}]_x \rightarrow$ Lower copy: $[_H \cancel{\sigma_1} \sigma_2]$

~~fei~~ ~~lou~~-zo

~~fei~~ lou

b. Higher copy: $x-[_H \cancel{\sigma_1} \sigma_2] \rightarrow$ Lower copy: $[_H \sigma_1 \cancel{\sigma_2}]$

lin-~~pi~~ ~~sen~~

pi ~~sen~~

Illustrations

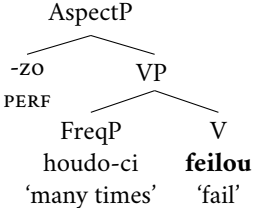
(45) Pull splits due to intervention

a. **肥** 咗好多次 **佬**
fei- zo hound ci **-lou**
 fail-PERF many time fail
 'failed many times'

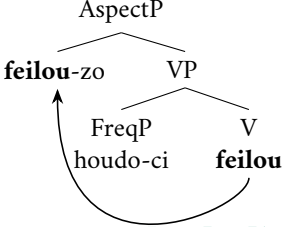
b. **goo** 左陣 **gle**
gu- zo zan **-gou**
 google-PERF a.while google
 'googled for a while.'

(46) Derivational steps of (45a) in the syntactic component

a. **Building of the AspectP**



b. **Verb movement**

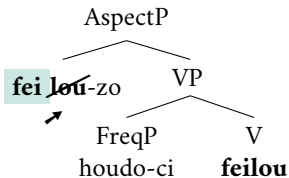


Illustrations

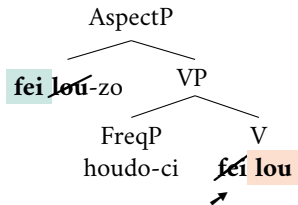
- The suffix *-zo* triggers Syllable Subtraction on its host.
- In obedience to **FAITHFULNESS**, Copy Deletion applies partially.

(47) Derivational steps of (45a) in the *post-syntactic* component

a. Syllable Subtraction



b. Partial Copy Deletion



Implications

The lesson that **discontinuous predicates** teaches us:

- Copy Deletion is a “preference,” i.e., the fewer the copies, the better.
- But its application cannot override the hardwired **FAITHFULNESS**.
- **ECONOMY** must compromise in case of conflicts
→ **Partial Copy Deletion**

Some predictions (for next time):

- Syllable Subtraction, as a property of affixes, can apply without Partial Copy Deletion
→ e.g., A-not-A formations
- If there is no Syllable Subtraction, there is no Partial Copy Deletion
→ e.g. verb topicalization and right dislocation of verb

Putting things together

- The two analyses on doubling and discontinuity are independently motivated, and also **coherent** as a theory of linearization.

(48) 我地group ... 連 **sent** 都有得 **pre** 啦
 Ngodei group ... lin **-sen** dou mou dak **pi-** laa3.
 our group even-present also not.have able present SFP
 ‘Our group even lost our chance to present.’

(49) Derivation of the inverted split case

- a. [_{VP} ... **pi sen** ...]
- b. [_{FocP} lin-**pi sen** ... [_{VP} ... **pi sen** ...]] (**Verb movement** (from Case 1))
- c. [_{FocP} lin-~~pi~~ **sen** ... [_{VP} ... **pi sen** ...]] (**Syllable Subtraction** (from Case 2))
- d. [_{FocP} lin-~~pi~~ **sen** ... [_{VP} ... **pi sen** ...]] (**Partial Deletion** (from Case 2))

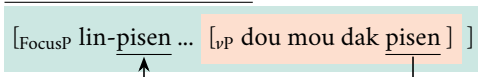
Putting things together

- Indeed, there is an alternate form, with doubling.

(50) 我地group ... 連**present** 都有得 **present**啦。
 Ngodei group ... lin-**pisen** dou mou dak **pisen** laa3.
 our group even-present also not.have able present SFP
 ‘Our group even lost our chance to present.’

- This happens when the prefix does not trigger (the optional) **Syllable Subtraction**
 → No violation to **FAITHFULNESS**, hence no **Partial Copy Deletion**
- However, **SYNTACTIC CYCLICITY** requires **Copy Deletion Suspension**.

(51) A simplified illustration



- ECONOMY** is doomed to compromise in this particular case

Where we set off...

We start our journey with two puzzles relating to verbs in Cantonese:

- (52) a. Verb doubling in **left** periphery: ... **V** ... S ... V ... O ...
 b. Verb doubling in **right** periphery: ... S ... V ... O ... **V** ...

- (53) a. **Pull splits:** ... σ_1 -X ... σ_2 ...
 b. **Inverted splits:** ... X- σ_2 ... σ_1 ...

... and where we land

The lesson that **verb doubling** teaches us:

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- But its application cannot override the hardwired **SYNTACTIC CYCLICITY**.
- **ECONOMY** must compromise in case of conflicts
→ **Copy Deletion Suspension**

The lesson that **discontinuous predicates** teach us:

- Copy Deletion is a “preference,” i.e., the fewer the copies, the better.
- But its application cannot override the hardwired **FAITHFULNESS**.
- **ECONOMY** must compromise in case of conflicts
→ **Partial Copy Deletion**

What's ahead

- Now we understand a little more about Copy Deletion, or more generally, about how syntactic movement is linearized.

(54) Conditions on Linearization (of syntactic movement)

$$\left\{ \begin{array}{l} \text{SYNTACTIC CYCLICITY} \\ \text{FAITHFULNESS} \\ \dots ? \end{array} \right\} \gg \text{ECONOMY} \quad (\gg \text{ indicates a priority relation})$$

(55) The bigger question:

What would be a restrictive theory of linearizing syntactic *movement*?

(cf. the seminal anti-symmetry proposal by Kayne (1994) on linearizing syntactic *structures*)

- A long, but exciting journey.

Extension and beyond

So far,

- A *theoretical* perspective on the phonological realization of Cantonese verbs
- ... based on *retrospective* data, and some (cherry-picked) naturally occurring data
- To get a more comprehensive understanding of doubling and discontinuity, it is crucial to expand our horizon to:
 - ① cross-linguistic **variation** in verb doubling
 - ② the **discourse functions** of the right periphery
 - ③ the **processing** of discontinuous predicates
 - ④ **lexical idiosyncrasies** of discontinuous predicates

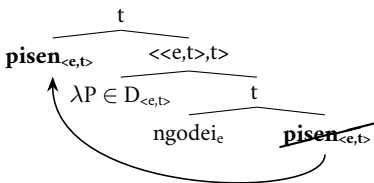
Extension - verb doubling

2 The discourse functions of the right periphery

- For type reasons, verb movement is *truth-conditionally inert* in most cases

(59)

cf. $P(\text{we}) \rightarrow \lambda P. P(\text{we}) \rightarrow \llbracket \text{present} \rrbracket (\text{we})$



- I proposed that the right periphery is designated for **defocus** (Lee 2017, 2020)

	✓ Discourse continuity	✗ Discourse continuity
✓ Noteworthiness	Focus	N/A
✗ Noteworthiness	Topic	Defocus

- But Mongolian/Japanese/Korean seem to allow focus interpretation (An upcoming talk at WAFL 16)
- Next: an eye-tracking experiment using the visual world paradigm

Extension - discontinuous predicates

③ Processing of discontinuous predicates (with Carmen Tang, Ka-Fai Yip, and Sheila Chan)

- I presented *syntactic* evidence against a VO-reanalysis
- Experimental* data may help further distinguish different analyses
 - Partial Deletion:** *monomorphemic* and *compound* verbs are processed alike, but they differ from *VO phrases*
 - VO-reanalysis:** all of them are processed alike, as the former is “reanalyzed” as VO
- A pilot (n=20) self-paced reading task:

今 次 記 得 著 咗 鞋 先 出 門 口 啦 。

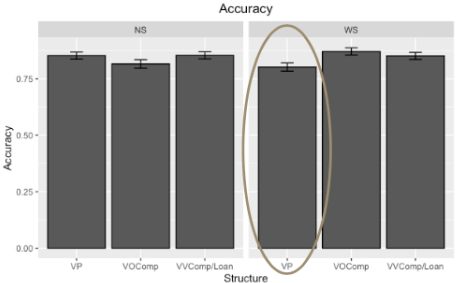
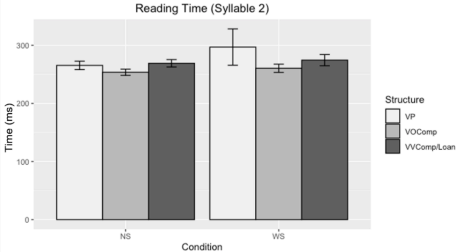
Q: 有冇人準備出門口？

- 2 x 3 design:

	Verb phrase (VP)	VO compound	VV compound / Loanword
With separation (WS)	今次記得著咗鞋先出門口啦。	間舖尋日已經休咗息唔賣野喇。	班綁匪要投咗隆先行出嚟。
No Separation (NS)	阿芬話佢下晝會出街買嘢喇。	佢已經留學兩年，下年就會返。	表弟上個月考試肥佬咗喇，實俾人話。

Extension - discontinuous predicates

- a The reading time of the second syllable/object **no significant** main effects of Separation ($p = .697$), Structure ($p = .542$), or their interaction ($p = .621$).
- b The accuracy rate of comprehension questions **significant** interaction for Separation x Structure ($F(2, 2855) = 5.772, p = .003$). Lower accuracy rate for VP compared to VOComp in WS condition (est = $-.070$, SE = $.022, t = -3.231, p = .004$).



Extension - discontinuous predicates

4 Lexical idiosyncrasies and variations - in search of descriptive accuracy

(60) Some verbs work better

OK **pi** -zo **sen** 'presented'

OK **pre** 㗎 **sent**

?? **kom** -zo **men** 'commented'

?? **com** 㗎 **ment**

(61) Some suffixes work better

OK **fei** -ngaang **lou** 'doomed to fail'

OK **肥** 硬 **佬**

?? **fei** -gang **lou** 'doomed to fail'

?? **肥** 梗 **佬**

(62) Some speakers accept discontinuous tri-syllabic predicates

%之前 ... 報左, **in** 埋 **terview** .

%Zicin ... bou-zo. **In** -maai **tafiu** .

(σ_1 -X- $\sigma_2\sigma_3$; Forum)

before ... apply-PERF interview-ADD interview

'(I) applied, and also had an interview.'

Conclusions

- Movement creates “gaps,” but “gaps” are not always empty
→ In some cases, “gaps” are not fully cleaned up
- The diverse patterns of verbs in Cantonese is regulated by a set of underlying principles, and their interactions
- The project supplements existing theories of linearization by focusing on structure with movement/gaps

Conclusions

- “When we forget the problems to which the ideas were solutions, we lose the close relationship that others might once have had with them:
we become now on **a respectful relationship** ... with the ideas, rather than **a familiar relationship**.”
 - John Goldsmith, and Bernard Laks (2019) *Battle in the Mind Fields*, p.597
 - “problem”: non-canonical pronunciation of movement chains
 - “solution”: **SYNTACTIC CYCLICITY** and **FAITHFULNESS** takes priority over **ECONOMY**
- “If I have seen a little further it is by standing on the shoulders of Giants.”
 - Isaac Newton (1643–1727)

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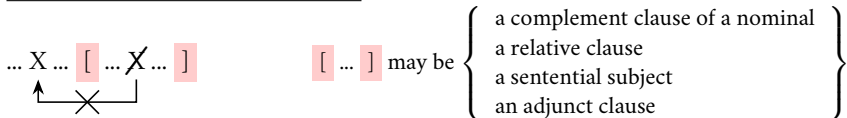
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8 Appendix

Evidence for movement I - Island Effects

- Since the seminal work by Ross (1967), certain syntactic domains are identified to block movement
- This is metaphorically known as the **Island Effects**.

(63) Syntactic islands block movement



- But a **complement clause of a verb**, for example, do not constitute “islands” in general.

Evidence for movement I - Island Effects

- The two verbs cannot span across **syntactic islands**.

(64) *Complex NP islands

a. *睇，我同意 [嗰個佢係睇過嘅] 意見。

***Tai**, ngo tungji [go-go keoi hai **tai**-gwo ge] jigin.

read I agree that-CL s/he COP read-EXP MOD opinion
 ‘As for reading, I agree with the opinion that s/he has read (it).’

b. *阿明想學 [阿芬可以講嘅] 呢種語言呀，可以。

*Aaming soeng hok [Aafan **hoji** gong ge] ni-zung jyujin aa3

Aaming want learn Aafan can speak MOD this-CL language SFP

hoji.

can

‘Aaming wants to learn this language that Aafan can speak.’

Evidence for movement I - Island Effects

- The two verbs cannot span across **syntactic islands** (Ross 1967, *et seq.*).

(65) *Adjunct and sentential islands

a. *睇， [睇阿明係睇完本書之後]，我先返到屋企。

***tai** [hai Aaming hai **tai**-jyun bun syu zihau]，ngo sin
 read at Aaming COP read-finish CL book after I first
 faan-dou ukkei.
 return-arrive home

‘As for reading, I was back after Aaming has already finished reading the book.’

b. * [阿明今晚訓呢張床] 已經無可避免喇，訓。

* [Aaming gammaan **fan** ni-zoeng cong] jiging mouhobeimin laa3 **fan**.
 Aaming tonight sleep this-CL bed already unavoidable SFP sleep
 ‘That Aaming (will) sleep on this bed tonight is unavoidable.’

Evidence for movement I - Island Effects

- But they can do so across clausal (CP) boundaries.

(66) ^{OK}Cross-clausal dependencies

a. 想，我諗 [阿明係想去呢個會議] 嘅。

Soeng, ngo lam [Aaming hai **soeng** heoi ni-go wuiji] ge2.
 want I think Aaming COP want go this-CL meeting SFP
 'I think Aaming wants to go to this meeting.'

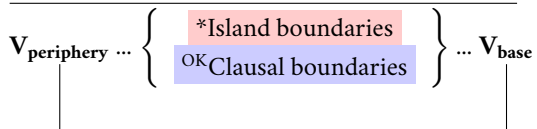
b. 天氣報告話 [聽日可能落雨喎] ，可能。

Tinhei-bougou waa [tingjat **honang** lokjyu wo5] **honang**.
 weather-report say tomorrow be.possible rain SFP be.possible
 'The weather report said that it may rain tomorrow.'

Evidence for movement I - Island Effects

- Schematically,

(67) A schematic representation of the locality effects



- Island Effects** are typical diagnostics for syntactic movement
(cf. Cheng and Vicente 2013; Lee 2017)

Evidence for movement II - Focus Intervention Effects

- **Focus Intervention Effects** in verb movement (cf. Rizzi 2004; Kim 2006; Yang 2012; Li and Cheung 2012)

(68) *買，邊個係買過？

*Maai, bingo hai maai-gwo?

buy who COP buy-EXP

Int.: 'Who has BOUGHT (it)?'

(69) *連睇，得佢都有睇。

*Lin-tai, dak keoi dou m-tai.

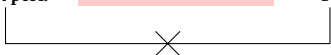
even-read only s/he also not-read

Int.: 'Only s/he didn't even READ.'

(70) Focus Intervention Effects

i.e., focused elements blocking focus movement

$V_{\text{left peri.}}$... focused elements ... V_{base} ...



- The blocking effects follow from the "Shortest" condition on movement
- (An upcoming talk at NACCL 34)

References I

- Aoyagi, Hiroshi. 2006. "On the Predicate Focus Construction in Korean and Japanese." In *Harvard Studies in Korean Linguistics XI*, edited by Susumu Kuno, 359–373. Kyunggi: Hanshin Publishing.
- Chao, Yuen Ren. 1968. *A Grammar of Spoken Chinese*. Berkeley: University of California Press.
- Cheng, Lisa Lai-Shen, and Luis Vicente. 2013. "Verb doubling in Mandarin Chinese." *Journal of East Asian Linguistics* 22 (1): 1–37.
- Cheung, Lawrence Yam-Leung. 1997. *A study of right dislocation in Cantonese*. MA thesis, The Chinese University of Hong Kong.
- Chomsky, Noam. 1995. *The minimalist program*. Cambridge, Massachusetts: MIT Press.
- Cinque, Guglielmo. 2022. *On Linearization*. 12. Cambridge, MA: MIT Monographs in Linguistics.

References II

- Fox, Danny, and David Pesetsky. 2005. "Cyclic Linearization of syntactic structure." *Theoretical Linguistics* 31 (1-2): 1–46.
- Hagstrom, Paul. 1995. "Negation, Focus, and do-support in Korean." *Unpublished manuscript, MIT*.
- Harizanov, Boris. 2019. "Head movement to specifier positions." *Glossa: a journal of general linguistics* 4 (1): 140. 1–36.
- Hein, Johannes. 2018. "Verbal Fronting: Typology and theory." PhD diss., Universität Leipzig.
- Huang, C.-T. James. 1984. "On the Distribution and Reference of Empty Pronouns." *Linguistic Inquiry* 15:531–574.
- Huang, C.-T. James. 2008. "On *Ta de laoshi dangde hao* and related problems." *Linguistic Sciences*, no. 3: 225–241.

References III

- Kayne, Richard. 1994. *The Antisymmetry of Syntax*. Cambridge, Massachusetts: MIT Press.
- Kim, Shin-Sook. 2006. “Questions, Focus , and Intervention Effects.” In *Harvard Studies in Korean Linguistics XI*, edited by Susumu Kuno, 520–533. 2. Harvard-Yenching Institute.
- Landau, Idan. 2006. “Chain Resolution in Hebrew V(P)-fronting.” *Syntax* 9 (1): 32–66.
- Lee, Tommy Tsz-Ming. 2017. “Defocalization in Cantonese right dislocation.” *Gengo Kenkyu* 152:59–87.
- Lee, Tommy Tsz-Ming. 2020. “Defending the Notion of Defocus in Cantonese.” *Current Research in Chinese Linguistics* 99 (1): 137–152.
- Lee, Tommy Tsz-Ming. 2021. “Asymmetries in doubling and Cyclic Linearization.” *Journal of East Asian Linguistics* 30 (2): 109–139.

References IV

- Lee, Tommy Tsz-Ming, Roumyana Pancheva, and Maria Luisa Zubizarreta. 2022. *Genuinely tenseless: encoding time in Cantonese*. Paper presented at Semantics and Linguistic Theory 32, at El Colegio de México, on June 8-10, 2022.
- Li, Haoze, and Candice Chi-Hang Cheung. 2012. “The syntactic analysis of focus intervention effects in Mandarin.” *Linguistic Sciences* 11 (2): 113–125.
- Matushansky, Ora. 2006. “Head movement in linguistic theory.” *Linguistic Inquiry* 37 (1): 69–109.
- Nunes, Jairo. 1995. “The copy theory of movement and linearization of chains in the Minimalist Program.” PhD diss., University of Maryland.
- Nunes, Jairo. 2004. *Linearization of Chains and Sideward Movement*. Linguistic Inquiry Monographs. Cambridge, Massachusetts: MIT Press.
- Packard, Jerome Lee. 2000. *The Morphology of Chinese : A Linguistic and Cognitive Approach*. Cambridge: Cambridge University Press.

References V

- Polzin, Thomas S. 1997. "Separable Verb Prefixes In German." *Unpublished manuscript*.
- Rizzi, Luigi. 2004. "On the Cartography of Syntactic Structures." In *The Structure of CP and IP*, edited by Luigi Rizzi, 3–15. Oxford: Oxford University Press.
- Ross, John. 1967. "Constraints on variables in syntax." PhD diss., Massachusetts Institute of Technology.
- Yang, Barry Chung-Yu. 2012. "Intervention effects and *wh*-construals." *Journal of East Asian Linguistics* 21 (1): 43–87.
- Yip, Ka-Fai, Tommy Tsz-Ming Lee, and Sheila Shu-Laam Chan. 2021. "Deriving separable verbs in Cantonese." In *Buckeye East Asian Linguistics, vol. 5*, edited by Wei William Zhou, John Bundschuh, Mineharu Nakayama, and Zhiguo Xie, 94–104. Ohio State University.