

Partial deletion at word-level: discontinuous predicates in Cantonese

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1 Introduction

As a variant of Copy Deletion (CD), *partial/scattered deletion* (Fanselow and Ćavar 2002, *et seq.*) has been adopted to handle different discontinuous phrasal constituents.

- (1) a. **Left branch extraction**, as in Bošković (2001, 2015), Pereltsvaig (2008), and Bondarenko and Davis (2021)
- b. **Predicate fronting**, as in Bentzen (2008), Urk (2019), Larson (2020)

In this talk, we suggest that the application domain of partial deletion is not restricted to phrasal constituents but also heads → **partial deletion at word-level**.

(2) The empirical foundations: discontinuous predicates

A disyllabic verb in Cantonese can appear in discontinuous form when it takes verbal suffixes (Chan and Cheung 2021).

Example	Literal meaning	Type	Suffixation	Intervention
a. daam-saam ‘worry’ 擔心	bear + heart	V-O	daam-saam- gwo	daam- gwo -saam
b. jing-jan ‘photocopy’ 影印	reflect + print	V-V	jing-jan- zo	jing- zo -jan
c. laai-coeng ‘pull to lengthen’ 拉長	pull + long	V-Rslt.	laai-coeng- faan	laai- faan -coeng
d. zi-sau ‘confess’ 自首	self + inform	Mdf.-V	zi-sau- maai	zi- maai -sau
e. jat-sik ‘(solar) eclipse’ 日蝕	sun + erode	S-V	jat-sik- jyun	jat- jyun -sik

Table 1: Various types of disyllabic verbs

These cases are reminiscent of discontinuous predicates in other languages.

(3) German (Ackerman and Lesourd 1997)

- a. weil wir die Informationen jederzeit **ab-rufen** können
because we the information always call-up can
'because we can call up the information at any time'
- b. Wir **rufen** die Informationen jederzeit **ab**
we call the information always up
'We call up the information at anytime.'

Importantly, we observe a similar pattern with **monomorphemic** disyllabic verbs (mostly English loanwords), suggesting that the intervention is not exclusive on morphologically complex verbs.

(4) Monomorphemic verbs and intervening suffixes

a. 阿明肥佬咗 / 肥咗佬

Aaming **feilou**-zo/ **fe**<zo>**lou**

Aaming fail-PERF/ fail<PERF>

'Aaming failed.'

b. 阿明都OK埋 / O埋K

Aaming dou **oukei**-maai/ **ou**<maai>**kei**

Aaming also okay-ADD/ okay<ADD>

'Aaming also (said) okay.'

c. 阿明farewell緊 / fare緊well

Aaming **feweu**-gan/ **fe**<gan>**weu**

Aaming farewell-PROG/ farewell<PROG>

'Aaming is having a farewell.'

d. 阿明save咗 / sa咗ve

Aaming **seifu**-zo/ **sei**<zo>**fu**

Aaming save-PERF/ ssave<PERF>

'Aaming saved (the file).'

e. 阿明拜拜咗 / 拜咗拜

Aaming **baaibaai**-zo/ **baai**<zo>**baai**

Aaming bye.bye-PERF/ bye.bye<PERF>

'Aaming (said) bye-bye/ Aaming died.'

f. 阿明冇sorry過 / sor過ry

Aaming mou **sowi**-gwo/ **so**<gwo>**wi**

Aaming not sorry-EXP/ sorry<EXP>

'Aaming didn't (say) sorry.'

Note that separation by phrasal elements is possible → hence **no infixation/ metathesis**.

(5) Separation by frequency phrases

a. 肥 咗 十幾次 佬

fei<**zo**><**sapgeici**>lou

fail<PERF><ten.several.time>

'failed a dozen times.'

This talk focuses on how such intervention is sanctioned and derived in the grammar.

(6) Proposal:

Discontinuous predicates in Cantonese are resulted from three independent operations

- a. **Syntactic verb movement** to affixes creates copies (Chomsky 1995; Nunes 1995);
- b. Post-syntactically, affixes trigger a **syllable deletion** rule on their host;
- c. Copy Deletion erases the complement part of the lower copy (i.e. **partial deletion**).

Road map for today:

§2: The VO-reanalysis approach

§3: More properties

§4: Proposal: Syllable Deletion + Partial Deletion

§5: Conclusions

2 VO-reanalysis?

A common suggestion on discontinuous predicates is that they have undergone **reanalysis**, where the two morphemes are coerced into a phrasal V+Obj structure on the basis of a predicate-theme like reading (Chao 1968; C.-T. J. Huang 1984; Her 2010).

In a V-V-type compound verb such as *jing-jan* 'photocopy', the second verbal morpheme is reanalyzed as a noun in the lexicon (Packard 2000; Her 2010).

(7) *jing-jan* 'photocopy' in the Lexicon

a. [_V *jing*_V-*jan*_V]

No reanalysis

b. [_V *jing*_V-*jan*_V] → [_{VP} [_V *jing*] [_N *jan*]]

VO reanalysis

Applying to monomorphemic verbs,

(8) *feilou* 'fail' in the Lexicon

a. [_V *feilou*_V]

No reanalysis

b. [_V *feilou*_V] → [_{VP} [_V *fei*] [_N *lou*]]

VO reanalysis

Crucially, the VO-reanalysis approach makes the following empirical predictions:

- (9) When a disyllabic (compound) verb appears in a discontinuous form,
 - a. the second syllable is a nominal expression.
 - b. only the first syllable preserves verbal properties.

We however argue that these predictions are not borne out in Cantonese. Instead, we suggest that the opposite of these predictions follows if discontinuous predicates retain their verbal status.

3 Properties of discontinuous predicates in Cantonese

3.1 The second syllable and the lack of nominal properties

We suggest that the second syllable in discontinuous predicates in Cantonese does not display standard object/nominal properties, e.g. it cannot be displaced or modified.

We illustrate this point with two tests, and contrast them with VO phrases.

(10) (A = 1st syllable; B = 2nd syllable; x = the suffix)

- a. Nominal modification: ***A-x** CL/NUM/MOD **B**
- b. Object fronting: ***B** ... [VP **A-x** **B**]

3.1.1 Nominal modification

First, as genuine nominals, objects in VP phrases can be preceded by individual **classifiers**.

(11) 佢睇咗三本書

keoi **tai**-zo saam bun **syu**

(VO phrase)

3SG watch-PERF three CL book

‘He read books.’

This contrasts with the second syllable of a discontinuous predicate.

(12) *佢肥咗三個佬

*keoi **fei**-zo saam go **lou**

(Discontinuous predicate)

3SG fail-PERF three CL fail

Int.: ‘He failed three times.’

Note that some cognate objects (in VO phrases) allow direct modification by numerals, unlike thematic objects. Yet, it is not allowed for discontinuous predicates either.

(13) 佢瞓咗一覺

keoi **fan**-zo jat **gaau**

3SG sleep-PERF one nap

'He took a nap.'

(V+cognate object)

(14) *佢**so**咗一**ry**

*keoi **so**-zo jat **wi**

3SG sorry-PERF one sorry

Int.: 'He (said) sorry once.'

(Discontinuous predicate)

Second, a **duration or frequency phrase** may form a modifier phrase with the modifier marker *ge*. Syntactically, it appears before the object; semantically it modifies the event denoted by the whole verb phrase.

(15) 佢睇咗成十幾日嘅戲喇

keoi **tai**-zo [seng sapgei-jat ge] **hei** laa (VO phrase)

3SG watch-PERF as.much.as ten.several-day MOD movie SFP

‘He has watched movies for days.’

(16) 佢瞓咗十幾日嘅覺喇

keoi **fan**-zo [sapgei-jat ge] **gaau** laa (V+cognate object)

3SG sleep-PERF ten.several-day MOD nap SFP

‘He has been sleeping for ten several days.’

On the other hand, the second syllable of a discontinuous predicate is incompatible with such kind of modification.

(17) Discontinuous predicates

*你要**so**翻三次**嘅****ry**我先會原諒你

*nei jiu **so**-faan [saam-ci ge] -**wi** ngo sin wui jyunloeng nei

You must sorry-AGAIN three-time MOD wi ngo first will forgive you

'You have to (say) sorry three times (and) then I will forgive you.'

Based on these tests, we conclude that the second syllable should not be regarded as objects or nominals. As we will see shortly, it retains a verbal status, but is realized in a reduced form.

3.1.2 Object fronting

First, the object in a VO phrase may be preposed in a **disposal construction** marked by *zoeng* (cf. Mandarin *ba*-constructions).

(18) 佢將齣戲睇咗

keoi [zoeng **ceot hei**] **tai-zo** **ceot hei** (VO phrase)

3SG DISP CL movie watch-PERF

‘He has watched that movie.’

This contrasts with the second syllable of a discontinuous predicate.

(19) *佢未將個ry sor完

*keoi mei [zoeng **go -wi**] **so-jyun** **go -wi** (discontinuous predicate)

3SG not.yet DISP CL sorry sorry-FINISH

Int.: ‘He has not yet finished the sorry (i.e. the apology).’

Second, the object in a VO phrase may be associated with **the focus marker *dak*** ‘only’ (Tang 2002).

(20) 得魚阿明唔食啫

dak **jyu** Aaming m-**sik** **jyu** ze (VO phrase)
only fish Aaming NEG-eat SFP

‘It is only fish that Aaming does not eat (, but not something else).’

The second syllable of a separable verb, however, cannot be fronted by *dak*.

(21) a. *得佬阿明唔想肥啫

*dak **-lou** Aaming m-soeng **fei** **-lou** ze (discontinuous predicate)
only fail Aaming NEG-want fail SFP

Int.: ‘It is (only) fail that Aaming does not want (, but not something else).’

b. *得ry阿明冇sor啫

*dak **-ry** Aaming mou **sor-** **-ry** ze (discontinuous predicate)
only sorry Aaming not.have sorry SFP

Int.: ‘It is only an apology that Aaming didn’t give (, but not something else).’

A complication

There is a case where the second syllable appears to be fronted: the *lin* 'even'-focus constructions.

- (22) 連[ry]阿明都有sor
lin -ry Aaming dou mou sor- (discontinuous predicate)
even sorry Aaming also not.have sorry
'Aaming didn't even apologize.'

However, it is instructive to note that *lin*-focus construction can also target verbs, which results in doubling (Cheng and Vicente 2013).

- (23) 連[食]阿明都有食
lin sik Aaming dou mou sik (^{OK}regular verb)
even eat Aaming also NEG eat
'Aaming didn't even eat.'

If so, the fronted *-ry* in (22) does not necessarily provide evidence for the nominal/object status. It is also possible that the fronted *-ry* in (22) is a reduced occurrence of the full predicate *sorry*.

This suggestion is supported by the fact that both disposal *zoeng* construction and *dak*-focus construction cannot target a verb.

(24) *佢將[睇]好快嘅(睇咗)齣戲

*keoi zoeng **tai** houfaai-gam (**tai-zo**) ceot hei (*regular verb)

3SG DISP watch quick-ly watch-PERF CL movie

Int.: 'Aaming quickly watched that movie.'

(25) *得[食]阿明唔(食)

*dak **sik** Aaming m-(**sik**) (*regular verb)

only eat Aaming NEG-eat

Int.: 'Aaming doesn't eat only (but he drinks).'

These observations suggest the following generalization:

(26) Generalization on the second syllable

The second syllable of a discontinuous predicate can be displaced only in constructions that can displace a verb.

3.2 The verbal nature of discontinuous predicates

As briefly discussed, *lin* ‘even’ focus constructions can target a verb. In such cases, the verb must be doubled (Cheng and Vicente 2013).

(27) 連[食]阿明都有*(食)過呢碗飯

lin **sik** Aaming dou mou *(**sik**)-gwo ni wun faan (cf. (23))
 even eat Aaming also NEG sik-EXP this CL_{bowl} rice
 ‘Aaming didn’t even eat this bowl of rice.’

Under a VO reanalysis approach, the first syllable is a verb. We then expect that, in *lin* focus constructions, the first syllable can be fronted and doubled. However, this is not the case.

(28) a. *連**so**阿明都**so**埋**ry**

*lin **so** Aaming dou **so**-maai -**wi**
 even sorry Aaming also sorry-ADD sorry
 ‘Aaming even also said sorry.’

b. *連自阿明都自埋首

*lin **zi** Aaming dou mou **zi**-maai -**sau**
 even confess Aaming also not.have confess-ADD confess
 ‘Aaming didn’t even confess (his crime).’

Instead, it is the whole verb that can be fronted and doubled. Note that these sentences are slightly marked but show a sharp contrast with sentences in (28).

(29) a. (?) 連**sorry**阿明都**so**埋**ry**

(?)*lin* **sowi** Aaming dou **so**-maai **-wi**
even sorry Aaming also sorry-ADD sorry

‘Aaming even also said sorry. (What else do you want from him?)’

b. (?) 連自首阿明都自埋首

(?)*lin* **zisau** Aaming dou **zi**-maai **-sau**
even confess Aaming also confess-ADD confess

‘Aaming even also confessed (his crime). (What else do you want from him?)’

These observations suggest that the discontinuous predicates as a whole are verbal by nature, since they must be doubled in *lin* ‘even’ focus constructions.

4 Proposal

4.1 Syllable deletion and partial Copy Deletions

Assumptions:

- (30) a. The copy theory of movement (Chomsky 1995; Nunes 1995, 2004; Bošković and Nunes 2007)
- b. Affixes are syntactic heads (Tang 1998, *contra* Gu 1993; Huang, Li, and Li 2009).
- c. Verbal suffixation involves syntactic verb movement to the suffix (Tang 2003).

Our proposal consists of two ingredients. First, we propose the following rule in the post-syntactic component:

(31) Affix-induced Syllable Deletion

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

Second, we suggest that Copy Deletion can be applied in a *partial* fashion, which erases the complement part of the other (usually the higher) copy.

An illustration:

(32) (阿明) 肥咗十幾次佬

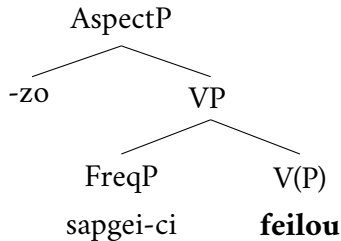
(Aaming) **fei**<zo><sapgei-ci>**lou**

(Aaming) fail<PERF><ten.several-time>

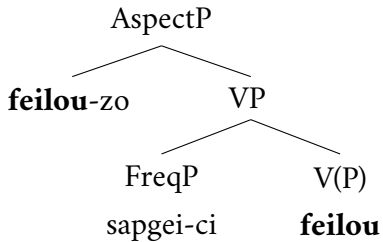
‘(Aaming) failed a dozen times.’

(33) Derivation of (32), before introducing the subject

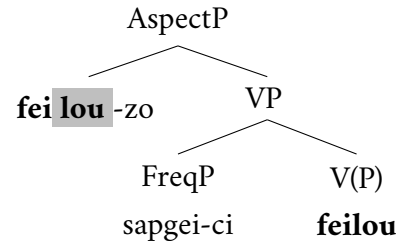
a. Syntax: building of the AspectP



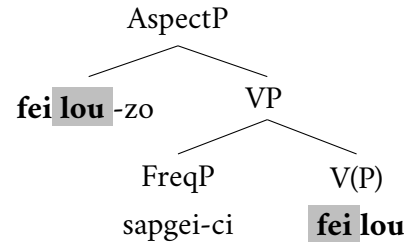
b. Syntax: verb movement



c. PF: Affix-induced Syllable Deletion



d. PF: partial Copy Deletion



Deriving the properties of discontinuous predicates:

(34) a. The discontinuous form is optional.

→ Optionality comes from the proposal that affixes can optionally trigger deletion. If syllable deletion is not triggered, the lower copy as a whole will be deleted by Copy Deletion.

b. They are typically intervened by verbal suffixes, and also by phrasal elements.

→ Potential intervening elements are basically all elements that syntactic verb movement can move across.

c. The second syllable does not show object or nominal properties.

d. They must be doubled as a whole in construction requiring verb doubling.

→ (c) and (d): Discontinuous predicates retain their verbal status in the derivation.

4.2 Further evidence for Syllable Deletion

4.2.1 Deletion of the first syllable triggered by prefixes

Apart from verbal suffixes, there are other affixes that may trigger Syllable Deletion. We discuss a case in *lin*-focus constructions, which display an opposite direction of syllable deletion.

As discussed, there is an apparent case of fronting of the second syllable in *lin*-focus constructions.

(35) (Apparent) fronting of the second syllable

連ry阿明都sor埋

lin wi Aaming dou so-maai

even sorry Aaming also sorry-ADD

‘Aaming even (said) sorry.’

We argue that these sentences involve verb fronting instead of object fronting. Note (again) that *lin*-construction can target verbs, not just objects. Also, full verb copying is possible.

(36) (Full) verb doubling

連**sorry**阿明都**sorry**埋

lin **sowi** Aaming dou **sowi**-maai

even sorry Aaming also sorry-ADD

'Aaming even also said sorry.'

The pattern in (35) follows straightforwardly if we assume that *lin* is a prefix. Crucially, *lin* optionally triggers syllable deletion on the adjacent (first) syllable. Schematically,

(37) A schematic derivation of sentences in (35)

- a. [VP ... [AB] ...] (base VP structure)
- b. lin-<AB> ... [VP ... [<AB>] ...] (verb fronting for focus)
- c. lin-<A B> ... [VP ... [<AB>] ...] (Affix-induced Syllable Deletion)
- d. lin-<A B> ... [VP ... [<A B>] ...] (partial Copy Deletion)

In other words, Syllable Deletion is sensitive to the types of affixation: while a suffix deletes the second syllable, a prefix deletes the first syllable.

Additional support for this analysis comes from two other verb dislocating constructions, where no affixal elements comparable to *lin* are involved.

- (38) a. Verb topicalization (Cheng and Vicente 2013)

食，阿明係食咗三碗飯

sik, Aaming hai **sik**-zo saam wun faan

eat Aaming COP eat-PERF three CL_{bowl} rice

‘As for (whether he) ate, Aaming did eat three bowls of rice (, but they are small bowls.)’

- b. Right dislocation of verbs (Lee 2017)

阿明話買三架車呀，買

Aaming waa **maai** saam gaa ce aa3 **maai**

Aaming say buy three CL car SFP buy

‘Aaming said (he will) BUY three cars (not SELL three cars).’

In these cases, verbs cannot appear in discontinuous form.

(39) a. Verb topicalization

*ry, 阿明係sor咗

-wi, Aaming hai so-zo

sorry Aaming COP sorry-PERF

Int.: 'As for (saying) sorry, Aaming did (say) sorry.'

b. Right dislocation of verbs

*佢肥超過十次喇, 佬

keoi fei ciugwo sap-ci laa3 -lou

s/he fail exceed ten-time SFP fail

Int.: 'S/he FAILED for more than ten times.'

This follows immediately from the proposed analysis: in the absence of affixes that trigger Syllable Deletion, discontinuous predicates are unavailable.

Note that full doubling of these predicates are possible.

(40) a. Verb topicalization

sorry, 阿明係sor咗ry

sowi, Aaming hai so-zo-wi

sorry Aaming COP sorry-PERF

'As for (saying) sorry, Aaming did (say) sorry.'

b. Right dislocation of verbs

佢肥佬超過十次喇, 肥佬

keoi feilou ciugwo sap-ci laa3 feilou

s/he fail exceed ten-time SFP fail

's/he FAILED for more than ten times.'

4.2.2 Different forms of discontinuous predicates: Syllable Deletion with(out) partial deletion

While the A-x-AB form is banned in suffixation cases, at least at surface value, it is basically the form of an A-not-A string in Chinese polar questions or disjunction formation.

(41) A-not-A formation

a. 你**so**唔**sorry**呀？

nei **so**-m-**sowi** aa3?

you sorry-not-sorry SFP

'Will you (say) sorry?'

b. 阿明**O**唔**OK**都唔關我事

Aaming **ou**-m-**oukei** dou m-gwan ngo si

Aaming okay-not-okay also NEG-relate 1SG matter

'I don't care whether Aaming says okay or not.'

We suggest that these A-not-A(B) strings are not counterexamples to the proposal; rather, they provide further evidence that Syllable Deletion can occur independently of (partial) Copy Deletion.

The reasoning is as follows:

- (42)
- a. Copy Deletion applies to members of a movement chain.
 - b. If there is no movement at all, Copy Deletion does not apply.
 - c. If the two *As* in the string *A-x-AB* are *not* created via syntactic movement, then Copy Deletion does not apply and the string does not violate any constraint.

We assume with C.-T.J. Huang (1991), R.-h. R. Huang (2008), and Tseng (2009) that A-not-A formation is resulted from some phonological operation. We suggest that A-not-A formation involves the following steps:

(43) A-not-A formation in the post-syntactic component

- a. The negation m carries a reduplication operator RED that duplicates its associating verb.

$m_{\text{RED}} \text{AB} \rightarrow \text{AB } m_{\text{RED}} \text{AB}$

- b. m_{RED} triggers Syllable Deletion on the AB-string on the left.

A **B** m_{RED} **AB**

- c. **A** survives Copy Deletion since it is not a member of a movement chain.

Here, we have to assume m_{RED} is an suffix-like element such that it deletes the B on its left but not the A on the right (if it were a prefix).

5 Conclusions

The proposed **Syllable Deletion + Partial Deletion** approach derive the following empirical pattern:

Construction	Verb movement?	Deletion trigger?	Discontinuous predicate?
Suffixation	V-Aspect	suffixes	A-X-B
<i>Lin</i> -focus	V-Focus	prefixal <i>lin</i>	<i>lin</i> -B ... A ...
A-not-A	✗ _(reduplication)	suffixal m_{RED}	A- <i>m</i> -AB
Verb topic.	V-Topic	✗	✗
RD of verbs	V-Topic/Defocus	✗	✗
Object fronting	✗	✗	✗

Table 2: A non-exhaustive list of the distribution of discontinuous predicates

Implications

- (44)
- a. Partial deletion is not specifically applied to phrase movement chains, but also **head movement chains**.
 - b. Partial deletion is not a special subtype of Copy Deletion (which scatters over different copies), but a **combination of two deletion operations**: a PF deletion rule (on the higher copy) and the general Copy Deletion (on the lower copy)
 - c. **Copy Deletion may be disturbed by the PF deletion rule** with regard to the calculation of what to be deleted on the lower copy.
 - The partial nature of Copy Deletion is derived from its interaction with PF operations

Appendix: Idiosyncrasies

First, different suffixes display different preferences to discontinuous predicates, which may be divided into three groups (out of 24 suffixes). Note that the differences in separability are not a categorical one but rather a continuum.

(45) a. Group I: Optional separation

e.g. experiential *gwo* 過, perfective *zo* 咗, addictive *maai* 埋, universal *saai* 晒 and *can_{universal}* 親, and epistemic necessity *ngaang* 硬, etc.

b. Group II: Degraded separation

e.g. durative *zyu* 住, habitual *hoi* 開, delimitative *haa5* 吓, repetitive *faan* 翻, *dak_{only}* 得 etc.

c. Group III: No separation

e.g. inceptive *hei* 起, *can_{adversive}* 親, *zoek* 著, partitive *gam* 嘅, epistemic necessity *gang* 梗 etc.

Note that the two epistemic necessity suffixes, *ngaang* and *gang*, fall into different groups.

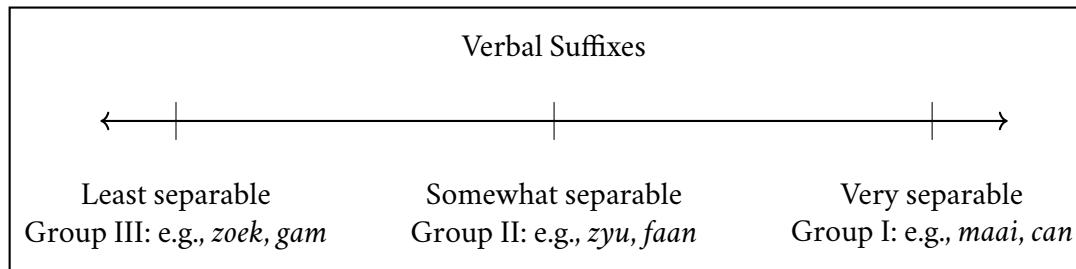


Diagram 1: Continuum of Cantonese verbal suffixes

Second, lexical roots display different preferences. Certain verbs are more tolerant to the discontinuous form. The choice of suffixes may play a role as well.

(46) Distribution by morphological relation

- a. VO compounds: 62% with attested discontinuous forms (Chan and Cheung 2021)
- b. Non-VO compounds: 29% with attested discontinuous forms(Chan and Cheung 2021)
- c. Monomorphemic verbs: 40% (24 out of 60, this study) with attested discontinuous forms

The discontinuous form of verbs is probably subject to further phonological and morphological constraints, which remain unclear for now.