# Verbal "infixation" as partial deletion: a case in Cantonese verbs

Sheila Shu-Laam Chan, Tommy Tsz-Ming Lee and Ka-Fai Yip

The Chinese University of Hong Kong, University of Southern California and Yale University

sheilachan@cuhk.edu.hk; tszmingl@usc.edu; kafai.yip@yale.edu

at *The 45th Penn Linguistics Conference (PLC-45),*
*University of Pennsylvania (online),*
*March 19-21, 2021*

# 1 Introduction

A substantial amount of verbs in Cantonese are disyllabic. Their morphological makeup may be different, but they can be separated by verbal suffixes, showing an apparent 'infixation' pattern.

| Types | Examples | Literal meaning | Meaning | Separation by affix |
|---|---|---|---|---|
| Verb + Object | daam-saam 擔心 | bear + heart | worry | daam-**gwo**-saam 擔過心 |
| Verb + Verb | ying-yan 影印 | reflect + print | photocopy | ying-**zo**-yan 影咗印 |
| Modifier + Verb | zi-sak 自殺 | self + kill | commit suicide | zi-**maai**-sak 自埋殺 |
| Verb + Result | laai-coeng 拉長 | pull + long | lengthen by pulling | laai-**faan**-coeng 拉翻長 |
| Subject + Verb | jat-sik 日食 | sun + eat | (solar) eclipse | jat-**jyun**-sik 日完食 |

Table 1: Various types of disyllabic verbs (w.r.t. the relation between the two morphemes)

Notably, even *monomorphemic* disyllabic verbs (mostly English loanwords) allow separation.

(1)  Separation of monomorphemic verbs

    a.  阿明**肥佬**咗 / 阿明**肥**咗**佬**

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

        Aaming fail-PERF/ fail<PERF>

        'Aaming failed.'

    b.  阿明**OK**咗 / 阿明**O**咗**K**

        Aaming **oukei**-zo/ **ou**<zo>**kei**

        Aaming okay-PERF/ okay<PERF>

        'Aaming said okay.'

The focus of this talk is on how such separation is sanctioned by the computational system.

> (2)   Central ideas:
>
>    a.   There is no genuine "separation" nor "infixation". The discontinuous strings of the verb are resulted from **syntactic movement** and **PF deletion rules**.
>
>    b.   A hybrid approach to "separable" verbs:
>         (i) Syntactic head movement is responsible for creating copies;
>         (ii) Affixes trigger a syllable deletion rule in the post-syntactic component;
>         (iii) Copy Deletion erases the complement part of the lower copy.
>
>    c.   We argue against a reanalysis account which suggests that disyllabic verbs can be reanalyzed as V+O phrases.

Road map

## 2.1 Ways of separation

- Separation by verbal suffixes

  The separation patterns are not exclusive to *-zo* but it applies to all the other verbal suffixes, e.g. experiential *-gwo*, progressive *-gan*, modal *-dak* and *-ngaang*, universal *-saai* and *-can* etc.

(6) <u>Separation by verbal suffixes</u>

    a.   阿明肥**咗**佬

        Aaming  **fei**<zo>**lou**                                            (=(1))

        Aaming  fail<PERF>

        'Aaming failed.'

    b.   阿明肥**過**佬

        Aaming  **fei**<gwo>**lou**

        Aaming  fail<EXP>

        'Aaming has failed before.'

- In some cases, certain affixes such as *-can* require obligatory separation, in contrast with *-zo*, which allows non-separation (=(1)).

(7) <u>Obligatory separation</u>

  a. \*阿明肥佬**親**都俾人鬧

    \*Aaming **feilou**-can     dou bei  jan     naau

    Aaming fail-WHENEVER all   PASS person scold

    Int: 'Whenever Aaming failed, he got scolded.'

  b. 阿明肥**親**佬都俾人鬧

    Aaming **fei**<can>**lou**    dou bei  jan     naau

    Aaming fail<WHENEVER> all   PASS person scold

    'Whenever Aaming failed, he got scolded.'

- Separation by phrasal elements

  Notably, phrasal elements like frequency phrases may be 'inserted' after the affix, separating the two syllables of the verb. Note that they can only be inserted when the affix is 'infixed' (=b), but not 'suffixed' (=c).

(8)    Separation by frequency phrases

    a.   肥佬咗十幾次

        feilou-zo  **sapgeici**

        fail-PERF   ten.several.time

        'failed a dozen times.'

    b.   肥 **咗** 十幾次 佬

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

        fail<PERF><ten.several.time>

        'failed a dozen times.'

    c. *肥 十幾次 佬 咗

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

      fail<ten.several.time>-PERF

      Int.:'failed a dozen times.'

- Other than frequency phrases, affectees may also be 'inserted'. Separation by multiple phrasal elements is also possible as in (b).

(9)   Separation by affectees

    a.   老師肥咗佢佬

        Lousi      fei<zo><**keoi**>lou

        Teacher   fail<PERF><3SG>

        'The teacher failed him.'

    b.   老師肥咗 佢 十幾次 佬

        Lousi      fei<zo><**keoi**><**sapgeici**>lou

        Teacher   fail<PERF><3SG><ten.several.time>

        'The teacher failed him a dozen times.'

- Note that separation by phrasal elements makes a metathesis analysis for infixation implausible here (e.g. Harris and Halle (2005)). Since a local PF metathesis rule does not preserve the syntactic constituency, it cannot guarantee a whole phrase to be 'inserted'.

## 3 Against a reanalysis approach

Previous studies suggested that separable verbs are reanalyzed as verb-object phrases (Chao 1968; Huang 1984; Her 2010). While their implementation may differ in details, they share the core idea that the second syllable of a separable verb is an object-like element.

## 3.1  The second syllable is not an object

If the second syllable of a separable verb (i.e. B in A-x-B) is reanalyzed into an object, we expect it to behave like an object or at least a nominal. We adopt two sets of tests for objecthood and nominal properties:

(10)  a.  <u>Displacement of objects</u>
           (i) Relativization: [A-x _ ] ... B
           (ii) Object fronting: B ... [A-x _]

      b.  <u>Adnominal modifier</u>
           Modification: A-x-ᴍᴏᴅ-B

We only discuss one case of (10a)ii today.

- Object fronting by focus marker (=(10a)ii)

  A genuine object may be fronted by a focus marker *hai*. The second syllable of a separable verb, however, cannot be fronted by *hai*.

(16)  係**魚**阿明唔食啊

    hai  **jyu**  Aaming  m-sik      aa                                                                        (true VO)

    FOC  fish  Aaming  NEG-eat  SFP

    'It is fish that Aaming does not eat (, but not something else).'

(17) *係**sent** 阿明唔 pre 啊

    *hai  -**sen**      Aaming  m-pi          aa                                                            (separable verbs)

    FOC  present  Aaming  NEG-present  SFP

    Int.:'It is presentation that Aaming does not make (, but not something else).'

- Some may notice that the second syllable may also be fronted in *lin* 'even'-focus constructions, which seems to contrast with *hai*-focus.

(18)  連[sent]阿明都冇pre

lin  **-sen**  Aaming  dou  mou  **pi-**  (separable verb)

even  present  Aaming  also  NEG  present

'Aaming even didn't present.'

Yet, *lin* may also target verbs, whereas *hai*-focus cannot target a verb. Hence, (18) does not inform us anything about objecthood. We will go back to *lin* 'even'-focus constructions in section 5.1.

(19)   a.   連[食]阿明都冇食
      lin    **sik** Aaming dou mou **sik**                                   (<sup>OK</sup>regular verb)
      even   eat  Aaming  also  NEG   eat
      'Aaming even didn't eat.'

    b.   *係[食]阿明唔食
      *hai    **sik** Aaming m-**sik**                                          (*regular verb)
      FOC  eat  Aaming  NEG-eat
      Int.:'Aaming doesn't EAT (but he drinks).'

# 4    Proposal: syllable deletion

(36)    Affix-induced Syllable Deletion
Affixes optionally trigger deletion on an adjacent syllable of their hosts.

(37)    Derivation steps for separable verbs

| | | |
|---|---|---|
| a. | [-x [AB]] | (base structure) |
| b. | [<AB>-x [<AB>]] | (verb movement) |
| c. | [<A~~B~~>-x [<AB>]] = A-x-AB | (affix-induced syllable deletion) |
| d. | [<A~~B~~>-x [<~~A~~B>]] = A-x-B | (partial copy deletion) |

We assume that verbal suffixation generally involve syntactic verb movement to the suffix (Tang 2003). We also assume the copy theory of movement (Chomsky 1995; Nunes 1995, 2004; Bošković 2007), and that if the higher copy is not fully spelt out, the remaining part would be spelt out in the lower copy.
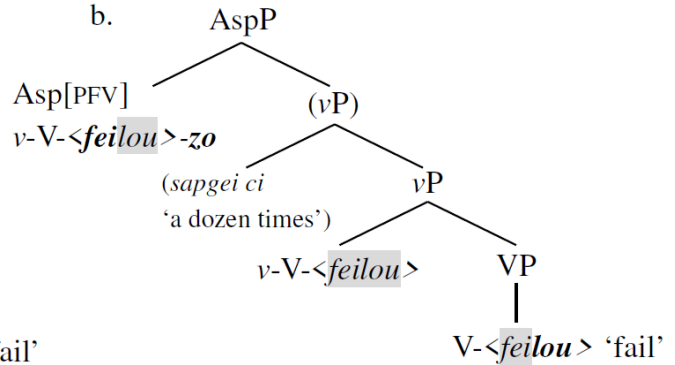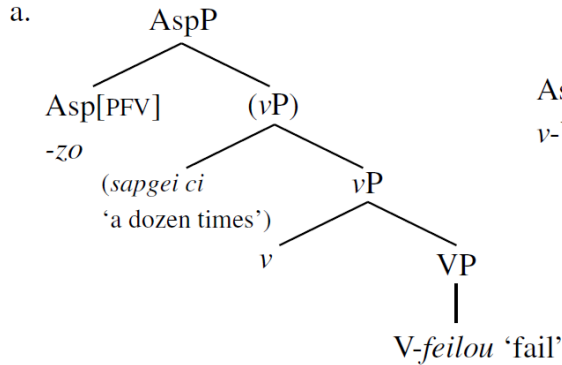
An immediate consequence is that it explains why the following patterns below are unattested:

| Examples | Schema | Syllable Deletion | Copy Deletion |
|---|---|---|---|
| a. *lou\<zo>fei 佬咗肥 | *B-x-A | ✗<sub>non-adjacent deletion</sub> | |
| b. *fei\<zo>fei 肥咗肥 | *A-x-A | | ✗<sub>fail to apply</sub> |
| c. *lou\<zo>feilou 佬咗肥佬 | *B-x-AB | ✗<sub>non-adjacent deletion</sub> | ✗<sub>fail to apply</sub> |
| d. *fei\<zo>feilou 肥咗肥佬 | *A-x-AB | | ✗<sub>fail to apply</sub> |

- Derivation of insertion of phrasal elements

(38) a. 肥咗十幾次佬

fei\<zo>\<**sapgeici**>lou        (=8b)

fail\<PERF>\<ten.several.time>

'failed a dozen times.'

(39)

a.

```
                AspP
              /      \
        Asp[PFV]      (vP)
         -zo          /  \
              (sapgei ci)  vP
              'a dozen times')  /  \
                            v     VP
                                  |
                           V-feilou 'fail'
```

b.

```
                AspP
              /      \
  Asp[PFV]            (vP)
  v-V-<feilou>-zo     /  \
              (sapgei ci)  vP
              'a dozen times')  /    \
                     v-V-<feilou>    VP
                                     |
                              V-<feilou> 'fail'
```

# 5   Extension to other cases

- Partial verb fronting: *lin* 'even'-focus construction

- Partial reduplication: A-not-A (not being discussed today)

## 5.1 Partial verb fronting: *lin* 'even'-focus construction

*Data.* Apparently, the second syllable may be fronted, leaving the first syllable stranded:

(40)  (Apparent) partial verb fronting

    a.  連**sent**阿明都冇**pre**

       lin    **sen**      Aaming  dou  mou  **pi**

       even  present  Aaming  also  NEG  present

       'Aaming even didn't present.'

    b.  連**ry**阿明都冇**sor**

       lin    **wi**     Aaming  dou  **so**-maai

       even  sorry  Aaming  also  sorry-ADDITIVE

       'Aaming even said sorry.'

Interestingly, full copying of both syllables is also possible:

(41) (Full) verb doubling

    a. 連**present**阿明都冇**present**

       lin    **pisen**   Aaming dou mou **pisen**

       even present Aaming also NEG present

       'Aaming even didn't present.'

    b. 連**sorry**阿明都冇**sorry**

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

       even sorry Aaming also sorry-ADDITIVE

       'Aaming even said sorry.'

*Analysis.* Syllables are not terminals and cannot undergo syntactic movement. It should be the whole verb moving. We suggest that (40) is derived by (41) through syllable deletion, by assuming *lin* 'even' to be a prefixal element:

(42) <u>Derivation steps for partial verb fronting</u>

    a.   [even- [Aaming [also [not [pi-sen] ] ] ] ]                                (base structure)

    b.   [even-<pi-sen> [Aaming [also [not [<pi-sen>] ] ] ] ]        (focus movement of verb, =(41))

    c.   [even-<p̶i̶-sen> [Aaming [also [not [<pi-sen>] ] ] ] ]     (*pre*fix-induced syllable deletion)

    d.   [even-<p̶i̶-sen> [Aaming [also [not [<pi-s̶e̶n̶>] ] ] ] ]     (partial copy deletion, =(40))

Crucially, the deletion is sensitive to the direction of affixation: while a suffix deletes the second syllable, a prefix deletes the first syllable.

# 7   Concluding remarks

- **A head movement approach to complex words**
  Compatible with a non-lexicalist approach, i.e. no complex objects can be stored in lexicon. They are all derived in syntax or a post-syntactic component (Halle, O'Neil, and Vergnaud 1993; Tsai 2001; Tang 2003). Affixation is derived in syntax by head movement but not in the lexicon.

- **Distributed deletion on the word level**

  - Copy Deletion does not necessarily delete a full copy. Sub-parts of copies may also be deleted, i.e. Distributed (Copy) Deletion (Fanselow and Ćavar 2002). It has been attested on the phrasal level (e.g. discontinuous noun phrases in German, Croatian, Polish).

  - This paper shows that Copy Deletion interacts with PF operations such as the proposed syllable deletion rule and can be scattered, leading to Distributed Deletion on the word level.

- **Cross-linguistic: German and Dutch separable verbs**

  German and Dutch also have separable complex verbs, where a prefix (generally particles, but could also be a noun or an adjective) may be 'separated' from the verbal stem:

(50)   Separable complex verbs in German (Polzin 1997:4)

    a.   ... daβ  Peter  die  Suppe  **aufiβt**
             that  Peter  the  soup    up-eat
      '...that Peter finishes the soup.'

    b.   Peter  **iβt**  die  Suppe  **auf**
          Peter  eats  the  soup   up
      'Peter finishes the soup.'

(51) <u>Separable complex verbs in Dutch</u> (Booij 1990:46)

    a.   dat  John  [PRO me $t_i$] wil   **opbellen$_i$**
        that  John         me    want up-ring
        'that John wants to phone me.'

    b.   dat  John  [PRO me **op** $t_i$] wil   **bellen$_i$**
        that  John         me up    wants ring
        'that John wants to phone me.'

Given the similarity of these examples with the partial verb fronting in Cantonese, it is worthwhile to explore how a syllable deletion account may extend to German and Dutch.