

# On the secondary nature of morphosyntactic change: An argument from Southwestern Mandarin

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## 1. Introduction

- This research argues that (1a), from Putonghua/'Standard' Chinese (PTH; i.e., the only Mandarin variety that has been investigated in depth), and (1b), from Southwestern Mandarin (SWM; 西南官話), though they look similar, are derived in very different ways:

(1) a. *wo xiang mai ben shu* [PTH]  
IP want buy CL book  
'I want to buy a book'

b. *ngo xiang mai ben su* [SWM]  
IP want buy CL book  
'I want to buy a book'

- Though in both Mandarin varieties (they are 95% mutually intelligible), a classifier can occur without an overt numeral in postverbal positions (1a&b) (the exact distribution is more complex than this; the interpretation of the number must be ONE), I will show that (i) PTH CL-NPs are a result of *one*-deletion at PF, while (ii) in SWM (1b), [ONE] (as a set of formal features) gets deleted via an impoverishment rule in morphosyntax, before PF, with *yi* 'one' (as a lexical element) never inserted in the derivation.
- Goals of the talk:
  - To account for the absence of an overt numeral in the PTH (1a) (in terms of PF-deletion of *yi* 'one' Section III) and the SWM (1b) (in terms of a morphosyntactic impoverishment rule Section II), respectively.
  - To connect the SWM case and the PTH case diachronically. Specifically, I will argue that the PTH case (1a) reflects an earlier stage of SWM (1b) Section III.
  - Based on the empirical discussion, I will suggest that though a historical reanalysis at the interfaces (i.e., a phonological or a semantic reanalysis, though only the former will be directly addressed in this study) may feed a morphosyntactic reanalysis, the inverse (i.e., a morphosyntactic reanalysis feeding an interface reanalysis) does not hold. It will be shown that such an asymmetry is expected if one considers seriously the roles played by (i) language acquisition, (ii) economy, and (iii) modularity in language change Section IV.

## 2. *Yi* 'one' in Southwestern Mandarin

- I first provide a rather small synchronic case study of *yi* 'one' in SWM, an understudied Mandarin variety (all variety except PTH are understudied).

### 2.1. *Yi* 'one' cannot be focalized/stressed

- SWM has a numeral system that is almost the same as that of PTH:

(2) A: Count from *one* to *five*!

B: yi, er, san, si, wu  
one two three four five

- We know that the Sinitic languages are classifier languages; things get interesting when we add numeral classifiers:<sup>1</sup>
- (3) A: Count the apples!  
 B: go pingo, *liang-go pingo*, *san-go*, *si-go*, *wu-go*  
 CL apple two-CL apple three-CL four-CL five-CL  
 ‘one apple, two apples, three, four, five’
- The numeral *yi* ‘one’ is missing when the number is ONE.
  - Importantly, this is not a phonological effect (contrary to *one*-drop in PTH; see Section III):<sup>2</sup>
- (4) A: How many books did you buy?  
 B: *ngo mai=lo* WU-ben (su)  
 1P buy=PERF five-CL book  
 ‘I bought FIVE (books)’
- (5) A: Did you buy twenty-four books?  
 B: *meiyou, ngo mai=lo* er-si-WU-ben (su)  
 no 1P buy=PERF two-ten-five-CL book  
 ‘No, I bought twenty-FIVE (books)’
- (4–5) show that a numeral other than *yi* ‘one’ in general can be a focus, and phonologically stressed. The same, however, is not true for *yi* ‘one’:
- (6) A: How many books did you buy?  
 B: \**ngo mai=lo* YI-ben (su)  
 1P buy=PERF one-CL book  
 intended: ‘I bought ONE (book)’
- (7) A: Did you buy twenty-four books?  
 B: *meiyou, ngo mai=lo* er-si-YI-ben (su)  
 no 1P buy=PERF two-ten-one-CL book  
 ‘No, I bought twenty-ONE (books)’
- While *yi* ‘one’, as other numerals, can be focalized and phonologically stressed as in (7B), (6B) is ungrammatical (it’s not about felicity here; (6B) simply cannot be said in any contexts).
  - In (6B) *yi* ‘one’ is *structurally* adjacent to the classifier *ben*, in (7B) it is not, where *yi* first combines with other numeral morphemes to form a complex numeral.
  - To express the intended meaning of (6B), one in fact needs to stress the classifier:

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<sup>1</sup> *Er* in (2) and *liang* in (3) are two allomorphs of ‘two’. See Wu 2023 for an account of their distribution in PTH (SWM behaves the same in this regard), according to which *er* is the ‘absolute’ form of ‘two’, and *liang* is the ‘contextual’ form (the terminology is from Greenberg 1978).

<sup>2</sup> *Ben* is the classifier for books; using different classifiers will not change the patterns below.

- (8) a. *ngo mai=lo* BEN  
 1P buy=PERF CL  
 'I bought ONE (book)'
- b. \**ngo mai=lo* wu-BEN  
 1P buy=PERF five-CL  
 intended: 'I bought FIVE (books)'

## 2.2. The *da*-construction

- With the help of a particle *-da-*, a numeral in SWM can be (partially) reduplicated, resulting in a 'subjective large quantity' reading (roughly translatable as 'as many/much as'):
- (9) a. *ta kan=lo* WU-da-wu *ben su*  
 3P read=PERF five-DA-five CL book  
 'she read as many as FIVE books'
- b. *ta kan=lo* ER-da-er-si-wu *ben su*  
 3P read=PERF two-DA-two-ten-five CL book  
 'she read as many as TWENTY-FIVE books'
- As (9) shows, the first syllable of a numeral is reduplicated before *-da-*.
    - In (9a) the numeral is monosyllabic and is reduplicated as a whole.
    - In (9b) only the first syllable of *er-si-wu* 'twenty-five' reduplicates (a partial form-meaning mismatch: it is the whole complex numeral that is semantically focalized).
  - What happens with ONE in the *da*-construction?
- (10) a. *ta tian kan=lo* BEN-da-ben *su*  
 3P CL<sub>day</sub> read=PERF CL-DA-CL book  
 'she read as many as ONE book (i.e., a whole book) in one day'
- b. *ta go xiaosi ho=lo* GONG-da-gongjin *jiu*  
 3P CL hour drink=PERF ki-DA-CL<sub>kilogram</sub> wine  
 'she drank as much as ONE KILOGRAM of wine in one hour'
- No overt numeral occurs, and reduplication targets (the first syllable of) the classifier.
  - Generalization: *yi* 'one' does not show up when it could have merged directly with a classifier (recall from (7B) that it is not about linear adjacency).
    - Evidence from the *da*-construction (2.2) indicates that *yi* 'one' is missing when the reduplication applies.
    - Evidence from the stress pattern (2.1) indicates that *yi* 'one' is not there in underlying representation.

## 2.3. An impoverishment-based account

- I propose the peculiarities of SWM *yi* 'one' can be captured by the impoverishment rule (11):<sup>3</sup>
- (11) [ONE] => Ø / \_\_ CL  
 (12) [ONE] <=> *yi*

<sup>3</sup> Another way to formalize the same idea is to posit an obliteration rule which deletes the whole Num node when it is structurally adjacent to a classifier (an impoverishment rule will only delete the features) (Arregi & Nevins 2007). The choice is not important for the current purpose.

- In morphosyntax, ONE (as a set of formal features) gets deleted if it is structurally adjacent to a classifier. Consequently, the vocabulary insertion rule (12) fails to apply in this context.
- Since *yi* is simply not inserted, it is always the classifier that (i) bears the stress when focalization targets the whole Num-CL construction, and (ii) undergoes (partial) reduplication in *da*-construction (10).
- (11) as a PF rule does not affect semantics, i.e., [ONE] still gets interpreted at LF.
- To illustrate further how (11) works, I assume (13) to be the nominal structure of SWM (or of Sinitic languages in general), where the numeral and the classifier form a complex Num-CL head (c.f., Tang 1990; Krifka 1995):<sup>4</sup>

(13) [DP D [CLP Num-CL [NP N ]]]  
 e.g., [DP ∅ [CLP *wu-ben* [NP *su* ]]] [five-CL book] ‘five books’

- Moreover, a FocP, headed by *-da-*, can be optionally projected above CLP (14); *-da-* copies the first syllable in CLP to its left (15):

(14) [DP D [FocP *-da-* [CLP ...]]]  
 (15) [DP [FocP *wu* *-da-* [CLP *wu* *-ben* [NP *su* ]]]]

- Assuming that morphosyntactic rules and vocabulary insertion apply cyclically, the introduction of *-da-* necessarily happens *after* (11) (& (12)) apply to the Num-CL head:

(16) a. [CLP ONE-CL [NP BOOK ] ] => [CLP ~~ONE~~-*ben* [NP *su* ] ] ((11) applies) => [CLP *ben* [NP *su* ] ]  
 b. [DP [FocP *ben* *-da-* [NumP *ben* [NP *su* ]]]] (*da* copies the first syllable of the classifier)

- Recall, again, that the context where (11) happens is defined structurally: it is not about linear adjacency.
  - Two ways to express ordinality in SWM: (i) by using the ordinal prefix *di-* ‘-th’ (17a); (ii) by using zero-marked numerals (17b), in which case *yi* ‘one’ behaves just like other numerals.
  - Assume that (17b) has the same underlying structure as (17a), i.e., (18); the numeral and the classifier do not merge directly with each other, as in (19):

(17) a. *di-yi/wu-jie*      *ko*                      b. *yi/wu-jie*      *ko* (*yi* being focalizable & stressable)  
 ORD-one/five-CL    class    one/five-CL    class  
 ‘the first/fifth class’    ‘the first/fifth class’ (impossible: ‘one/a class’)

(18) [CLP [OrdP (*di-*) [NumP Num ] ] CL ]

(19) [CLP [OrdP *di-/∅-* [NumP *yi-/wu-*]] *jie* ]

- (17b) is not a counterexample to our generalization/analysis.

### 3. The phonological nature of *one*-drop in PTH

- The impoverishment rule (11) is language-particular and looks ‘unnatural’—how does it come into being in the first place?

<sup>4</sup> I also assume that the DP layer is always present in Chinese nominals; nothing hinges on this hypothesis.

### 3.1. One-drop in PTH as a phonological effect

- The genesis of SWM ONE-impoverishment will be clear after we examine a well-reported phenomenon in Chinese languages, i.e., ‘one-drop’, which is arguably phonological.

- In PTH (it is just not appropriate to just call it ‘Mandarin’, especially in the current study), the numeral ‘one’ can optionally ‘drop’ in postverbal positions (Lü 1944; Li 1998; Cheng & Sybesma 1999; Wu & Bodomo 2009; Zhang 2013; Wang 2019; PTH *yi* and SWM *yi* are cognates):

(20) *wo xiang mai (yi) ben shu* [PTH]  
 1P want buy one CL book  
 ‘I would like to buy one book’

(21) *ta shi (yi) ge maimairen* [PTH]  
 3P be one CL businessman  
 ‘she is a businessperson’

- (20) & (21) are totally natural with or without *yi* ‘one’.
- Roughly speaking, two kinds of analyses have been proposed in the literature: (i) CL-NPs and *yi*-CL-NPs are underlyingly different (Cheng & Sybesma 1999; Li & Bisang 2012); (ii) CL-NPs are *yi*-CL-NPs, with *yi* being deleted at PF (Jiang 2012; Li & Feng 2015; Li & Wei 2019; Wang 2019; 2020).
- The second type of analysis is illustrated in (22):

(22) *yi* =>  $\emptyset$  (contexts defined in low-level phonological & stylistic terms; see below)  
 e.g., [DP [CLP *yi-ben* [NP *shu*]]] =delete *yi* at PF=> [DP [CLP *ben* [NP *shu*]]]

- I will argue that (22) is the correct analysis for PTH one-drop. Arguments in favor of the former line of research are empirically incorrect.
- It has sometimes been claimed that *yi*-CL-NPs can be either specific or nonspecific, while CL-NPs receive only the nonspecific interpretation, so they must be underlyingly different. However, Jiang 2012 points out that this observation does not hold under careful scrutiny:

(23) *ruguo ni neng dai (yi-)ge nüsheng lai wo-de party dehua,* [PTH]  
 if 2P can bring one-CL girl come 1P-POSS party if  
*ni he duoshao wo dou mai-dan*  
 2P drink how.much 1P DOU pay-bill

‘if you can bring one girl to my girl, no matter how much you drink I will pay for it’  
 [[*(yi)*-CL-NP] > if] or [if > [*(yi)*-CL-NP]] (regardless of the presence/absence of *yi*) (Jiang 2012)

(24) *mei-ge xuesheng dou bei (yi-)ge pianzi pian=le liang-qian kuai* [PTH]  
 every-CL student DOU PASS one-CL con.man con=PERF two-thousand yuan  
 ‘every student got conned out of two thousands Yuan by a con man’  
 [[*(yi)*-CL-NP] > every] or [every > [*(yi)*-CL-NP]]

(regardless of the presence/absence of *yi*) (Jiang 2012)

- In (23) & (24), the DPs in border can be either specific or nonspecific, with or without *yi*.

- Li & Feng 2015: *one*-drop in PTH is the result of destressing *yi* ‘one’, making *yi* lose its tone and its vowel weakened. Additionally, there must be a stressed syllable following *yi*, creating a weak-strong contrast. Deletion applies only with certain types of classifiers.

- (25) a. *ta kai-le* ??(yi)-shan chuanghu [PTH]  
 3P open-PERF one-CL window  
 ‘she opened a window’
- b. *ta kai-le* (yi)-ge chuanghu [PTH]  
 3P open-PERF one-CL window  
 ‘she opened a window’ (Li & Wei 2019)

- Of course, PTH *yi* ‘one’ cannot be deleted if it is focalized and stressed:

- (26) a. *jiaoshi-li zhi you* \*(YI)-ge ren [PTH]  
 classroom-inside only have one-CL person  
 ‘there is only one person in the classroom’ (Li & Wei 2019)
- b. *jiaosi-tou zi you* GO ren [SWM]  
 classroom-inside only have CL person

- I thus follow Li & Feng 2015: *one*-drop in PTH is the result of phonological deletion, subject to a number of factors, including phonological and stylistic ones. PTH *yi* shows none of the peculiarities attested in SWM shown in Section II.

### 3.2. From PTH to SWM

- I further suggest that the PTH case reflects an earlier stage of SWM.
  - Early Mandarin and most modern varieties of Chinese seem to behave like PTH regarding *one*-drop.
  - Though PTH and SWM are shown to be very different regarding *yi* ‘one’, on the surface they demonstrate a great similarity: *yi* ‘one’ is just often absent when it is expected to be present (1), repeated here as (27). It is this surface similarity that makes the PTH-to-SWM change possible.

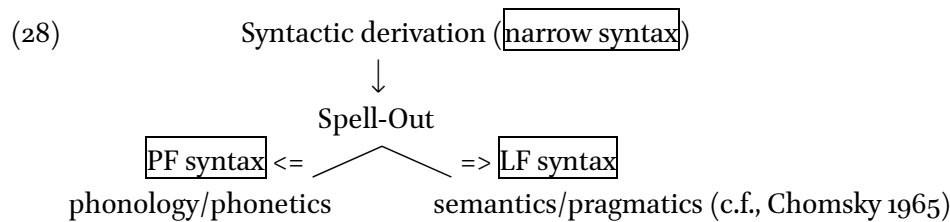
- (27) a. *wo xiang mai* ben shu (*yi*-deletion at PF; (22)) [PTH]  
 1P want buy CL book  
 ‘I want to buy a book’
- b. *ngo xiang mai* ben su (ONE-impoverishment in PF syntax; (11)) [SWM]  
 1P want buy CL book

- Although SWM ONE-impoverishment (11) involves some complexity and ‘unnaturalness’, one cannot simply say that the more innovative SWM system is more complex than the PTH system, because the latter also has an extra optional PF rule (22) that does not seem to exist in SWM.
- We now examine this change in more detail in the next section.

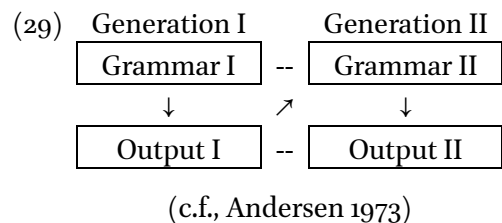
## 4. Discussion

### 4.1. Acquisition, economy, and language change

- It has long been recognized that acquisition plays a crucial role in language change (Lightfoot 1979, 1991; Roberts 1993; Ringe & Eska 2013; Stanford 2015, inter alia). A child during acquisition selects a grammar that is compatible with the primary linguistic data (Chomsky 1965).
  - A change happens if that grammar selected is different from the grammar of the old generation.
- Diachronically, a linguistic structure tends to be reanalyzed as a more economical one (Campbell 1998; van Gelderen 2004, inter alia; though the definition of economy differs).
  - This of course does not mean that economy will drive an overall simplification of the grammar, e.g., no one would argue that French grammar is overall ‘simpler’ than Latin grammar, since the economization of one part may cause complexity of another part of the grammar.
  - But apparently, this denial of overall simplification/global economization makes the role that economy plays in language change rather opaque.
- In any case, we need to look at the mechanisms of language change more carefully:



- It seems natural to say that children do not see the grammar directly. What they see is a finite set of form-meaning pairs (i.e., the interfaces), based on which they build their own phonology and semantics (which already involve certain levels of abstraction), based on which they further build their morphosyntax (= narrow syntax + PF syntax (morphology in a DM sense) + LF/covert syntax), which is totally abstract.
- That is, the innovative grammar (Grammar II in (29)) and the older grammar (Grammar I in (29)) are not connected directly.
- Grammar I and Grammar II are in most cases similar, since (i) Grammar I produces Output I and Grammar II is a ‘best’ explanation of it, and (ii) Output II and Output I need to be mutually intelligible.
- But Grammar I and Grammar II are not necessarily exactly the same (they in fact never are, assuming that each individual grammar is unique in the strictest sense). It is not even logically necessary for them to be similar.
- A (step of a) historical ‘change’ of a language (here, understood as a self-contained, self-regulating semiotic system, in a traditional structuralist view) is any of the differences observed between Grammar I and Grammar II.



- This implies that syntactic changes do not happen independently. They should be viewed as the result of the ‘reanalysis’ of form-meaning pairs. A phonological/semantic change would lead to a syntactic change, but not vice versa, since the former in a sense happens *before* the latter (though I am not arguing that a syntactic change should always *follow from* an interface change).

#### 4.2. The genesis of SWM ONE-impoverishment

- Now, the PTH-to-SWM change supports the conceptual discussion above.
- What a PTH (or Old SWM) child observes in the primary linguistic data includes a lot of form-meaning pairs in the shape of (30) (*go* stands for the phonological features of a classifier (I assume that the Num-CL construction as a whole contributes to the cardinal meaning; see Krifka 1995):

- (30) {*go*, [1]} <= (narrow, PF-, LF-) syntax (the child asks: ‘what’s hidden in the border?’)
- For the older generation, the pairs are generated by *one-drop* which deletes *yi* at PF, *after* vocabulary insertion, but the child does not directly see this, and must independently seek the ‘best’ (i.e., most economical) explanation for the pairs.
  - Now, if *one-drop* becomes so prominent that the child does not have enough clues to recover *yi*, they may simply conclude that no phonological rules are ever involved => PHONOLOGICAL economy.
  - However, (30) is still a genuine case of form-meaning mismatch, which calls for an account: the child then introduces the impoverishment rule (11) to resolve the paradox => a MORPHO-SYNTACTIC change, which is secondary.

- (31) a. narrow syntax =Spell-Out=> PF syntax/morphology => PF [Grammar I]  
*yi*-deletion  
{*yi-go*, [1]}
- b. narrow syntax =Spell-Out=> PF syntax/morphology => PF [Grammar II]  
ONE => ∅ {*go*, [1]}

#### 5. Conclusion

- If we compare the complexity of the two grammars (SWM vs. PTH), the innovative SWM grammar is ‘better’ in phonology (since an optional PF-deletion rule is reduced), but ‘worse’ in morphosyntax (since the morphological rule (11) and a number of peculiarities are created).
  - But if we take phonological changes to be primary and morphosyntactic changes to be often secondary, everything is expected: the ‘best’ phonology is first chosen, only after which the child seeks the ‘best’ morphosyntax that fits the previous choice.
- I conclude that morphosyntactic changes are secondary to phonological changes (or more generally, interface changes).

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