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The morphologization of verb suffixes in Northern Chinese* 

CHRISTINE LAMARRE

1. Introduction

In 1958, a short description of “Verbal inflection marking perfective aspect in the Shāngxiàn dialect” was published in the Chinese linguistic review Zhōngguó Yǔwén (Chinese Language). The Shāngxiàn 商縣 (now rebaptized Shāngzhōu 商州) dialect is a Northwest Mandarin dialect spoken near Xīān 西安 in Shaanxi. The term “verbal inflection” (in Chinese 内部屈折 nèibù qūzhé) went against the widely shared opinion that Chinese is an analytic language with no morphology. Until recent years, we had no idea of the exact nature of the phenomenon described by Zhang Chengcai in 1958. More than 50 years later, recent descriptions of similar phenomena in other northern dialects, as well as our own fieldwork, provide enough data for us to claim that in some areas of Northern China, verbs have developed what can be called “inflected forms”.

The common opinion is that Chinese, as an isolating language, ignores the last stages of morphologization, which leads to grammatical formatives suffixed on, or even fused into the verb stem. This opinion was developed for instance by Wu Fuxiang, a leading specialist of Chinese diachronic syntax and grammaticalization (Wu: 2005a:25, our translation except for the quote from Traugott and Heine 1991):

Why don’t the evolution patterns of Chinese grammatical words or clitics follow the general grammaticalization cline sketched by Hopper and Traugott 1993? The reason is that typologically speaking Chinese is an analytic-isolating language, and that in such languages, “grammaticalization is unlikely to lead to the development of inflectional morphology” (Traugott and Heine, 1991:8). Therefore, the main reason why grammatical words or clitics undergo lexicalization but do not undergo morphologization lies in Chinese morphology’s typological characteristics: Chinese is an analytic language that lacks inflectional morphology.

The data discussed here to illustrate the morphologization of verb suffixes contradict these views. On the other hand, such phenomena in northwestern Mandarin also raise the question of whether they may be triggered by language contact, i.e. contact between “typical” analytic varieties of Sinitic and one or several non-Sinitic languages spoken at the Northwestern margin of the Sinitic speaking world that are known for their developed morphology, be they Tibetic, Mongolic or Turkic. This paper aims to discuss these two issues.
Considering that there is up to now no common framework in Chinese dialectology to describe and analyze these verb forms, we will first give an outline of the various phenomena of morphologization of verbal suffixes known in Northern Chinese, including cases of partial or total coalescence of the suffix with the verb stem. In section 2, we provide a preliminary typology of these fusion phenomena, and a sketch of their geographical distribution. In section 3, we investigate the morphosyntactic function of what we call “inflected forms”. We give in the discussion (section 4) a more nuanced appreciation of what previous studies call “typological constraints on grammaticalization” in Chinese, and a tentative answer to the following questions on Northwest Chinese: to what extent can we consider that we are dealing with a contact-triggered phenomenon? Does the distribution we observe point at language changes specific to Northwest Sinitic?

2. Inflected verb forms in Northern Sinitic: a first outline

2.1 Nominal suffixation and verbal suffixation

Since Chinese research on dialectology was reactivated in the 1980’s, several studies have mentioned or described various types of suffix coalescence and syllabic fusion. However, no common framework is available to fieldworkers that would provide a list of the basic features to be identified, and a preliminary typology. This is especially true for phenomena related to verbal categories. More research has been conducted on the phenomena of syllabic fusion related to nominal morphology, for instance to diminutive or derivative suffix coalescence with nominal stems (see Li Rong 1978 on the Wēnlǐng 溫嶺 dialect of Zhejiang, or Tsao 2006 on the grammaticalization cycle exhibited by diminutives). Actually, some of the morphophonemic mechanisms involved in suffix coalescence are very similar with those discussed here for verbal stems, and we found many cues in the typology proposed by Wang Futang (1999) and Wang Hongjun (2008/1999).

There are several reasons for the scarce number of works describing, analyzing and classifying the morphological and phonetic characteristics of coalesced verbal suffixes, and identifying the syntactic patterns where they occur. A proper description of coalesced verbal suffixes requires investigating full utterances, not only word lists, i.e. grammar, not only lexicon. On the other hand, a full training in dialectology is needed to account for tone sandhi patterns and various phonetic adaptation phenomena, which often differ according to the rime (which means investigation on the phonological system and the whole lexicon of the dialect, to grasp phonetic changes and sandhi rules). Eventually, one also needs to overcome the bias of character writing (one syllable = one character) and the widespread dogma that Chinese has no morphology.
In this section, we provide a preliminary typology based on direct observation conducted during the last 15 years in Hebei and Shaanxi, and on a survey of second-hand descriptions, completed when possible by discussion with fellow researchers working on northern Mandarin. Mainly based on the type of morphological modification undergone by the stem, it develops the typology proposed in Lamarre (2009) for goal markers.

2.2 Fusion of verb suffixes into the stem: types and distribution

This section describes the five types A-E we identified, and shows what we know about their geographical distribution. Standard Chinese verb suffixes usually exhibit a loss of phonetic substance (neutralisation of tone distinction, shorter syllables, vocalic reduction etc.). Types A-D display further phonetic erosion, including the loss of the phonetic segments that characterize the whole syllable (loss of syllabic onset, main vowel, and coda). In type C some syllable length remains, but we observe a drastic loss of phonetic autonomy, and a through adaptation to adjacent phonetic units. In the case of type A, B and D, we observe a loss of the whole syllable.

A: ○ [Rime alternation]. This pattern is mainly found in northern Henan, in Central plain dialects, and also in some Jin dialects spoken in neighboring areas (not in the core Jin-speaking area).

B: △ [Tone alternation]. Its origin can usually be traced to a tone sandhi undergone by the verb stem before an atonal suffix, in dialects where verb suffixes may suffer total syllable loss.

C: ◊ [Rime lengthening + tone contraction]. This complex pattern is often combined with tone sandhi on the syllable of the verb stem). The pattern observed in western Shaanxi (Lamarre’s fieldwork) is strikingly similar with that described for dialects spoken in Hebei and Shandong.

D: ★ [Rhoticization]. This pattern, where the rime of the stem verb undergoes rhoticization, is described for several eastern Shandong dialects.

E: □ is a cover category that includes unclear cases (for instance when the available description is incomplete or contradictory) and mixed types (the specific phonetic modification depends on the rime of the verb stem etc.).

In the next sections (2.3 to 2.7), we introduce each type and provide a short description, together with some examples. In order to simplify the presentation of the data, we give these various types of morphological modification a unified gloss INFL (i.e. “inflection”). Map 1 shows how various types are distributed in the Mandarin-speaking area.
2.3 Type A: rime alternation

This type is sometimes called D biànyùn (D 變韻, D stands for dòngcí ‘verb’, and biànyùn means “rime modification”), which also refers to rime modifications triggered by nominal suffixation (with a diminutive and nominalizing function). The first detailed description of such phenomena was provided by He Wei for the Huòjiā 獲嘉 and the Jiyuán 济源 dialects (He 1965, He 1989, He 1981), located in Northwestern Henan in a Jin-speaking area close to Shanxi, then by Wang Sen for Xìngyáng 濟陽, near Zhèngzhōu 鄭州 (Wang 1998), and by Xin Yongfen for Xùnxìàn 浚縣 (Xin 2006a, Xin 2006b), also located in northern Henan (see also Zhao 1998 for Chánggě 長葛). We give below an illustration of Xùnxìàn morphophonemic alternations that affect verbal stems, based on Xin (2006b:57). Rimes of inflected forms appear on the right of the > symbol, and are in smaller number than uninflected forms. Some rimes do not undergo any phonetic change and keep their original shape. This reminds us that allomorphy “arises mainly from morphological coalescence” (Lehmann 2002:134).
Table 1: Rime change in Xùnxiàn (adapted from Xin 2006b:57)

<table>
<thead>
<tr>
<th>Rime</th>
<th>Standard Mandarin</th>
<th>Uninflected</th>
<th>Inflected</th>
</tr>
</thead>
<tbody>
<tr>
<td>ɣ &gt; ɤ</td>
<td>ai ei an &gt; e</td>
<td>an &gt; æ</td>
<td>æn &gt; æn</td>
</tr>
<tr>
<td>ɣ &gt; ɤ</td>
<td>i in &gt; ie</td>
<td>ian &gt; iæ</td>
<td>iæn &gt; iæn</td>
</tr>
<tr>
<td>u &gt; u</td>
<td>uai uei uan &gt; uæ</td>
<td>uan &gt; uæ</td>
<td>uæn &gt; uæn</td>
</tr>
<tr>
<td>ū &gt; ŭ</td>
<td>y yæn &gt; ye</td>
<td>yan &gt; yæ</td>
<td>yæn &gt; yo</td>
</tr>
</tbody>
</table>

Rime alternation is compulsory in a set of specific environments. We provide here four minimal pairs, to illustrate the way these inflected forms of the verb work in Xùnxiàn. For each of these four cases we provide the corresponding form in Standard Mandarin, [V-X], to show the suffix X that would occur after the verb to produce a similar meaning.

a) The inflected form corresponds to a verb suffixed by 了 -le in Standard Mandarin. It may be followed by an object ([V-le O]), often quantized and preceded by a numeral and a classifier. Example (1) shows the alternation of rime [ai] (uninflected form) vs. rime [æ] (inflected form) in the verb ‘buy’:

(1) 買一斤鹽 买一斤盐  
mai24 tʰæŋ42  
buy one pound salt
‘[I] bought one pound of salt.’

(1’) 買五金  
mae24 tʰæŋ42  
buy-INF one pound salt
‘[I’ll] buy one pound of salt.’

b) The inflected form corresponds to a verb suffixed by 著 -zhe in Standard Mandarin, with a resulting state meaning. Such verb forms usually appear in sentences ended by particle [le], which corresponds to Standard Mandarin clause-final continuative particle ne 呢. Example (2) shows an alternation of rime [tʰæŋ] (uninflected form) vs. [tʰæŋ] (inflected form). The corresponding Standard Mandarin sentence is given in (3).

(2) 躺一會兒吧  
štʰæŋ55 .i.xur42 .ba  
lie a.moment HOR
‘Please lie down for a while!’

(2’) 躺在床上  
ke21 ŋ.ši42 tʰæŋ55 .le  
lie-INF CONT
‘is lying on the bed’

1 Data presented in (1)-(5) are taken from Xin 2006a and 2006b (p. 58), minimal pairs were checked with Prof. Xin Yongfen during two recording sessions, first in Kaifeng (Henan) in March 2009 then in Japan in December 2009. In order to represent modified stems in examples transcribed in Chinese characters, we use a circle ‘Ø’ after the character that represents the verb stem. Italic is used for Pinyin transcription to represent Standard Chinese morphemes, [ ] for API transcription. A dot before the API transcription notes an atonal syllable.
(3) 在床上躺著呢
   zài chuáng-shang tǎng-zhe ne
   at bed-on lie-STAT CONT
   ‘is lying on the bed’

c) The inflected form corresponds to the verb followed by a goal marker such as Standard Mandarin dào 到 ‘to’ that introduces the goal of motion, a locative noun phrase (the whole pattern is [V + goal marker + NPLoc ]). Rime change is compulsory when the verb is followed by a goal NP.

(4) 躺在床上
   tʰæŋ⁴² tʂʰuaŋ⁴²-sañg
   lie-INFL bed-on
   ‘lie onto the bed’

d) The inflected form is compulsory before a deictic directional. It corresponds to an obsolete Mandarin pattern where a dummy resultative complement is inserted between the verb and the deictic directional. In some northern dialects spoken in the neighboring Hebei province, this dummy complement is homophonous with perfective suffix 了 le (see Lamarre and Liu 2001, Lamarre 2002), therefore we represent this environment as [Verb + 了 le + 来 lai]. There is no possible minimal pair in this case. The uninflected form 搬 [pan²⁴] can be found for instance in the V-O compound 搬家 [pan²⁴tɕia¹⁴²] ‘to move’.

(5) 嘛時搬來
   ʂᵃ⁵⁵ şʅ⁴² pæ⁴⁴ le⁴
   when move-INFL-come
   ‘when does [she] move in?’

Rime alternation phenomena described in Xíngyáng (Wang 1998) and Huòjiā (He 1989) are similar with Xùnxì as for their phonetic patterns and their distribution. We will come back in section 3 to the latter issue, i.e. the distribution of inflected forms and the morphosyntactic category they encode.

2.4 Type B: [Tone alternation]

Meng Zimin (Meng 2000) described a ‘grammatical tone sandhi’ (語法變調 yǔfǎ biàndiào) that he claimed to be the most usual device to express perfective aspect in the Píngyì 平邑 dialect of Shandong, a Central plain dialect with some features of a Ji-Lǔ 吉-魯 subgroup of Mandarin Dialects (Jílǔ guānhuà 冀魯官話) refers to the dialects spoken in most of Hebei (Jì 冀) and in western Shandong (Lǔ 魯). The Central Plain subgroup (Zhōngyuán guānhuá 中原官話) refers to dialects spoken in the Henan and Shaanxi area.
a goal NP. When the verb is followed by a quantized patient NP, the inflected form encodes a completed event, whereas the uninflected form encodes a non-past event. Example (6) shows a minimal pair taken from Meng (2000:16), where the noun phrase may be interpreted either as the place of the cup where one takes it (uninflected form), or as the goal when one takes something to one’s ear to listen (inflected form). Following the usual notation adopted in Chinese dialectology, the modified contour is given after the basic tone contour, after a hyphen.

(6) 拿耳朵間 vs. (6’) 拿耳朵間

na$^{53}$ l$b^{44-214}$ t$^-$ t$^-$ t$^-$ ci$^-$

take ear-near ‘take it near the handle’

na$^{53-44}$ l$b^{44-214}$ t$^-$ t$^-$ t$^-$ ci$^-$

take-INFL ear-near ‘take (it) to one’s ear’ (to listen)

The verb ‘take’ is normally pronounced with a yángpíng, rising tone contour 53, whereas the inflected form is pronounced with a modified tone contour 214. Actually, tone alternation in Píngyì is but a manifestation of a widespread sandhi phenomenon known in Northern Mandarin as ‘tone change before toneless syllables’ (輕聲字前變調 qīngshēngzì qián biàndiào, see Qian et al 2001: 107-115 for an overview of this type of tone sandhi in Shandong dialects). Suffixes are typical cases of unstressed syllables, and in many Northern Mandarin dialects this triggers a tone sandhi in the preceding syllable (i.e. the verb stem). Therefore, even after the loss of the suffix as a syllable, it leaves this suprasegmental ‘trace’ on the verb. We observed a similar phenomenon before goal NPs for some verbs in the Jìzhōu dialect (Hebei, see Lamarre 2003), where the goal marker shows various stages of syllable coalescence, according to speakers and to the rime of the verb stems. In Píngyì, the prevalent way to mark perfective aspect on the verb is tone change (total loss of the suffix).

This analysis is convincingly supported by the fact that sandhi patterns are dialect-specific, regular, and apply to a large part of the lexicon of a given dialect, which leaves no space for coincidence. Table 2 shows tone sandhi patterns observed for Jìzhōu and Píngyì verbs followed by weakened verbal suffixes.

Table 2: Tone sandhi patterns in Jìzhōu and Píngyì

<table>
<thead>
<tr>
<th>tone category and tone contour of the verb stem</th>
<th>yīnpíng</th>
<th>yángpíng</th>
<th>shǎngshēng</th>
<th>qūshēng</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jìzhōu (Hebei)</td>
<td>213</td>
<td>53</td>
<td>55</td>
<td>31</td>
</tr>
<tr>
<td>Píngyì (Shandong)</td>
<td>214</td>
<td>44</td>
<td>412</td>
<td>53</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>when followed by an atonal suffix changes to:</th>
<th>qūshēng</th>
<th>shǎngshēng</th>
<th>yīnpíng</th>
<th>yángpíng</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jìzhōu (Hebei)</td>
<td>&gt; 21</td>
<td>&gt; 55</td>
<td>&gt; 213</td>
<td>&gt; 53</td>
</tr>
<tr>
<td>Píngyì (Shandong)</td>
<td>&gt; 412</td>
<td>&gt; 44</td>
<td>&gt; 214</td>
<td>&gt; 53</td>
</tr>
</tbody>
</table>
These patterns correspond in both dialects to those observed in the first syllable of dissyllabic words when the second syllable is atonal (based on Lamarre 2009 and Meng 2000). Both dialects have the same tone categories as Standard Mandarin (yīnpíng 阴平, yángpíng 阳平, shǎngshēng 上声, qùshēng 去声).

Let us look now at a minimal pair provided by Zhang Shuzheng (2004) for the Línlìng dialect (Shandong). In Línlìng, both stages of phonetic weakening coexist: atonal syllabic suffixes, for instance perfective [.tsʰ] (which corresponds to Standard Mandarin le 了), and suffix loss, that leaves a trace (tone change 323>44) on the preceding verb stem, as in (7') and (7''). This contrasts with the uninflected form of the verb, where the tone sandhi follows the regular sandhi pattern 323>34 observed before a qùshēng tone syllable such as [fɛ̃31] 'rice', as in (7).

(7) 吃飯 vs. (7')吃了飯 or (7'') 吃飯

\[
\begin{array}{c}
\text{tsʰ}_3^{323-34} fɛ̃^{31}
\text{ ‘to eat’} \\
\text{tsʰ}_3^{323-44} lɔ^{31}
\text{ ‘ate’}
\end{array}
\]

This distinguishes the uninflected form of the verb (tone contour 44) from the uninflected form in the verb compound ‘to eat’, and of course from the basic form of the verb pronounced in isolation (tone contour 323). Such tone sandhi patterns before atonal syllable are unknown both in Standard Mandarin and in the Běijīng dialect: in the corresponding SM verb phrases 吃飯 chī fàn and 吃了飯 chī-le fàn, the verb chī is pronounced with the contour 55 (yīnpíng tone), no matter the tone of the following syllable.

The last example proposed here to illustrate type B is that of the Níngjīn dialect of Shandong, which belongs to the Ji-Lù Mandarin group (see Cao Yanjie 2002:242-243). Goal markers show various weakened shapes such as [.ta] or [.ts]. In case of total attrition, the verb stem undergoes tone sandhi, following the pattern induced by a following atonal syllable (Cao 2002:63-64). Examples (8') and (8'') show that the verb ‘to run’ 跑 [pʰ44] (shǎngshēng tone) undergoes a tone sandhi (44 > 324) before atonal goal marker [.ta]. The same tone sandhi occurs in utterances where the goal marker has totally disappeared as a syllable. The Standard Mandarin sentence that corresponds is given in (8):

(8) 跑到城裡去了

\[
\begin{array}{c}
pǎo-dào chénglǐ qu le.
\text{‘ran to the town.’}
\end{array}
\]

(8') 跑的 + locative NP = (8'') 跑 + locative NP

\[
\begin{array}{c}
[pʰ_44^{44-324}.tə] + \text{locative NP}
\text{‘ran to’ followed by a goal NP in Níngjīn}
\end{array}
\]

\[
\begin{array}{c}
[pʰ_5^{44-324}] + \text{locative NP}
\end{array}
\]
Note that a similar phenomenon has been described for the Běijīng dialect to account for a tone sandhi triggered by the attrition of the generic classifier ge (see Dong Xiufang 2003, Liu Xiangbo 2004, Chirkova 2004). The only trace left by the disappeared classifier is the pronunciation of numeral yī — as a yángpíng (rising 35) tone. Numeral yī in its count function is normally pronounced with rising tone contour yī 35 before a qūshēng tone (falling tone contour 51), but with a falling qūshēng tone contour when followed by a classifier pronounced with one of the other tones (55, 213 or 35, ex. 一天 yī tiān, 一年 yī nián or 一點兒 yìdiǎnr). Classifier ge, which was originally pronounced gè with a contour tone 51 before it became unstressed, triggers a sandhi to a rising tone contour 35 in numeral yī, as in yī ge rén 一個人, yī ge péngyou 一個朋友. In the Běijīng 北京 colloquial, classifier ge sometimes undergoes further attrition, and totally disappears, but for the trace left on the preceding numeral yī by a tone sandhi from 53 to 35, for instance in yī péngyou 一個朋友 ‘a friend’ (= neutral style yī ge péngyou), yī rénr 一人兒 ‘someone’ (lit. ‘one person’, = neutral style yī ge rén).

Lehmann (2002:150) remarked that alternations may not be direct continuations of segmental formatives. He pointed that “Germanic umlaut is an indirect reflex, since it does not continue a former plural morpheme, but was triggered by one.” This is in our view how Type B works: the suffix totally disappears, leaving but a trace left on the verb stem, i.e. the tone sandhi caused by a former atonal syllable. Here, tone sandhi is neither the direct continuation of the segmental formative, nor the result of a fusion. The same sandhi occurs when the suffix is present in its phonetic integrity (a full syllable with onset and rime but toneless, as in examples 7 and 8). Triggered by the atonal suffix, it remains even after this formative has disappeared as a segment. However the opposition, i.e. the alternation between an inflected stem and an uninflected stem is meaningful.

2.5 Type C: Rime-lengthening and tone contraction

This type is the most complex. The suffix has lost both its onset and its rime, and has totally coalesced with the verb stem, but some of its syllabic length remains. The inflected form is significantly longer than an average syllable. Its tone contour corresponds to the contour of the two coalesced syllables (the verb stem and the suffix), i.e. to the contraction of the tone contour of the verb stem and that of the atonal suffix. As far as we know there are two subtypes: in some dialects such as Wēixià in Hebei, Fèngxiáng in Shaanxi, or Jǔxiàn in Shandong, the verb stem undergoes tone sandhi before atonal syllables, and the final output of coalescence associates the modified tone contour of the verb to that of an atonal syllable, in a contracted pattern (increase of syllabic length is often mentioned). In other dialects, the verb does not undergo tone sandhi (Hebei Zhàoxiàn).
We found the first type of morphologization at work for verb suffixes during fieldwork in western Shaanxi in 2008-2010. It took us some time to unravel, but then we realized that a similar morphological modification had been documented for nominalizing suffixes (兒化 erhuà and 子變 zìbiàn), and had been analyzed by Wang Futang (1999) and Wang Hongjun (2008, chapter 9) for some southern Shanxi dialects. Wang Futang (1999:138-139, 176-177) describes the tone contour of the fused syllable as “the addition and fusion of the tone values of the two morphemes”. He considers that in such cases the tone contour of the suffixed word actually represents the coalescence of the modified tone contour (after the sandhi) of the first syllable and of the atonal second syllable. Interestingly, this pattern is also reported in Hebei, and at the other end of the Northern Mandarin area, in Shandong.

Let us first look at what happens in the Wēixià 威縣 dialect, a Ji-Lù Mandarin dialect spoken in the Xíngtái 邢台 area, in southeastern Hebei. Cao Muchun (Cao 2007) uses the term ‘rime change’ (D biànyùn), the same term used by He Wei (1989) for the rime alternation type in Huòjiā (our type A). However, Cao explicitly links this fusion pattern to a tone sandhi that occurs before toneless syllables. Whereas in Huòjiā or in Xùnxiàn the verb stem does not undergo any tone change, in Wēixiàn, the inflected verb form is characterized by a lengthening of the main vowel of the verb stem, and a tone sandhi (noted here by > ). This new tone actually corresponds to the modified tone of a verb stem σ1 when followed by an atonal syllable, plus the tone contour of that atonal syllable σ2, whose rime has vanished (but for the lengthening effect on the rime of the verb stem). The pattern which produces the tone contour of the coalesced verb form can be represented as in Table 3 below.

Table 3: Suffix coalescence with the verb stem in Wēixiàn (Hebei)

<table>
<thead>
<tr>
<th>tone category and tone contour of the verb stem σ1 before coalescence:</th>
<th>tone sandhi undergone by the verb stem σ1 before atonal syllable (verb suffix) σ2:</th>
<th>inflected form VÒ: σ1+σ2 contract into:</th>
</tr>
</thead>
<tbody>
<tr>
<td>yīnpíng 35</td>
<td>&gt; 21 (qùshēng) + σ2</td>
<td>&gt; 214</td>
</tr>
<tr>
<td>yángpíng 51</td>
<td>&gt; 55 (shǎngshēng) + σ2</td>
<td>&gt; 552</td>
</tr>
<tr>
<td>shǎngshēng 55</td>
<td>&gt; 35 (yīnpíng) + σ2</td>
<td>&gt; 353</td>
</tr>
<tr>
<td>qùshēng 21</td>
<td>&gt; 51 (yángpíng) + σ2</td>
<td>&gt; 511</td>
</tr>
</tbody>
</table>

The last part of the tone contour evokes the pronunciation of atonal syllables in Standard Mandarin: higher than the preceding syllable when following a low tone (such as SM 3rd tone), lower than the preceding syllable when following a high rising tone (such as SM 2nd tone) etc. Besides, a glance at Table 2 above will
suffice to show the striking similarity in the sandhi patterns of these three dialects. In Píngyì (Shandong), perfective aspect is generally marked by tone change of the verb stem rather than by a perfective suffix with a full syllabic shape. In Jìzhōu (Hebei), we observed various types of marking according to speakers and verb rimes. Cao (2007) notes that in the Wèixiàn dialect the coalesced forms are the usual forms in normal speech, but that when the suffixed verb occurs at the end of a sentence, or when the speaker speaks particularly slowly and spells each syllable separately, the suffix recovers its syllabic shape. For instance Standard Mandarin stativized form tǎng-že 躺著 ‘be lying’ is usually pronounced as [tʰǎŋ³⁵³] but may recover its full form [tʰǎŋ⁵³⁵.lèi] if it is located at the end of an utterance. Similarly, the perfective suffix may be realized as [.lau], and complementizer at [.l.ei] in some specific environments.

Li & Ai (2008, 2009) described a similar phenomenon in the Jǔxiàn 茌縣 dialect of Shandong, that they called ‘syllable contraction with tone sandhi’ (hēyǐn biàndiào 合音變調), the term used by Wang Futang for nominal suffixation (1999:176-177, see above). For instance, the verb [tì³¹] 掉 ‘to fall’ has low falling default contour tone 31. Before an atonal syllable, it undergoes tone sandhi according to the rules governing tone sandhi before unstressed syllables, and changes to a high level tone 55. For instance before goal markers [.tɔ] or [.lɔ] (two variants), ‘fall to’ becomes 掉到 [tì³¹-5⁵-3⁵] or 掉了 [tì³¹-5⁵-5⁵] before a locative noun phrase. When the suffix disappears, its former tone contour leaves a trace in the tone contour of the inflected form, which becomes 551. Example (9) gives the Standard Mandarin sentence and the corresponding Jǔxiàn forms in (9’) and (9’’).


(9) 被子掉到楼下去了
bèizi diào-dào lóu-xià qu le
‘the quilt fell down onto the ground’

(9’) 掉了 + locative NP = (9’’) 掉 Q + locative NP
[tì³¹-5⁵-3⁵] + locative NP = [tì³⁵] + locative NP
run-to + locative NP run-INF+ + locative NP
‘ran to’ followed by a goal NP in Juxian

The last case chosen here to illustrate type C is taken from our own fieldwork data on the Qǐshān 岐山 and the Fèngxiāng 凤翔 dialects (western Shaanxi). Phonetic modification of the verb stem was reported for several Shaanxi dialects: it was termed “verbal inflection” by Zhang Chengcai (1958) for Shǎngxiàn (now Shǎngzhōu), more recently it was described as “partial reduplication” (jíbù chóngdìé 局部重叠) for Qǐshān (see Han 2006), and “rime change” (D biányùn
變韻) of the verb stem was reported for Fèngxiáng (see Wang Junhu 2012), as well as for Xī'ān 西安 (Lan Binhan 2011: 239-241). However, no exhaustive description of these phonetic changes was ever provided, and there is no agreement on the nature of the morphophonemic phenomena involved. Wang Junhu (2012) mentions that rime change can in Fèngxiáng freely replace stativizing suffix (SM -zhe), complementizer (SM -de) that introduces degree complements, goal markers, and also some achievement resultatives (SM -shàng).

According to our fieldwork observations in western Shaanxi, the perfective suffix [lia] 了 is not usually morphologized in Fèngxiáng, it keeps its syllabic shape (an atonal syllable). Similarly, in most of the cases we investigated, the nominal suffix [tsɿ] 子 keeps its syllabic integrity. For other verbal suffixes, however, we could observe the loss of both the onset and the rime of the suffix, and its total fusion into the verb stem, leading to a longer syllable. Stativizing suffix [tɿ] and complementizer [ti] are systematically realized as inflection on the verb. Inflected forms are also the default way of realizing the goal marker before a goal locative NP. Inflection that corresponds to a dummy resultative inserted between the verb and the directional is also attested (see below).

Through a systematic investigation of various verb stems showing a wide array of tones and rimes, we could find evidence that the tone contour of the inflected stem was produced by the contraction of the tone of the verb stem (σ1) after it underwent tone sandhi, and of the tone contour of the unstressed syllable (σ2). The parallelism of tone patterns is particularly conspicuous for the tone sandhi that occurs on yángpíng syllables 24, which triggers a “heavy”, stressed realization of the “atonal” suffix as 53 (this phenomenon is mentioned in Xing 2010: 387-388). These specific tone sandhi patterns, together with their distinctive tone contours, allowed us to trace and identify the mechanism that leads to the tone contour of inflected forms of the verbs without any doubt.

Table 4 shows for the Fèngxiáng dialect (Shaanxi) the parallelism between the tone contours of syllables σ1+σ2 in a disyllabic word with an unstressed second syllable and the tone contour of an inflected verb form after syllable coalescence and tone contraction.

---

3 Field data were mainly collected in March 2008 in Qíshān 岐山縣 (Púcūnzhèn 蒲村鎮) and in August 2010 in Fèngxiáng 凤翔縣 (Guówángzhèn 虢王镇) in Shaanxi 陕西. In Guówángzhèn, our language consultants were Mr. Hou Shengke (68) and Mr. Zhang Wenke (67), while Prof. Itsuku Ota (太田齋, Kobe University of Foreign Studies) was in charge with the description of tone sandhi patterns. We consulted the handout of the talk delivered by Prof. Wang Junhu at the Conference on Mandarin dialects held in Ānkāng 安康 (Shaanxi) in October 2007 (Wang 2012).
The following example illustrates one of the morpho-syntactic environments where verbal inflection is compulsory: between a verb and a deictic directional, to produce a resultative, causative meaning. In example (10), the inflected, longer form 端 [tuæ̃ˈpʰiŋ] ‘carry with both hands’ may be uttered for instance in the kitchen, to order the hearer to carry a dish to the guests who are waiting in the main room, and corresponds to directional compounds duānguōqu 端過去 or duānqu 端去 in Standard Mandarin. In (10), the uninflected form of the verb fails to produce a resultative construction, and the deictic motion verb after the verb can only take a purposive reading: the speaker is in the main room and orders the hearer to ‘go (to the kitchen) in order to fetch the dish’. Note that in the latter case, the andative directional is also unstressed, and triggers tone sandhi on the preceding verb 端 [tuæ̃ˈ] ‘to carry with both hands’, which becomes [tuæ̃ˈ].

<table>
<thead>
<tr>
<th>Basic tone value of the nominal (N) or verbal (V) stem σ1</th>
<th>σ1 (Nominal stem) undergoes tone sandhi before an atonal syllable σ2 (nominal suffixation, reduplication, etc., no syllabic coalescence)</th>
<th>tone of the inflected form VQ = σ1 after syllabic coalescence with suffix and tone contraction</th>
</tr>
</thead>
<tbody>
<tr>
<td>yīnpīng 21</td>
<td>21 + atonal σ &gt; 53 + 21</td>
<td>532 (σ1+σ2)</td>
</tr>
<tr>
<td>N 辣 lãt21, 刀 tšt21</td>
<td>辣子 lãt21-53 tšt21 ‘chilli’ 刀刀 tšt21-53 tšt21 ‘knife’</td>
<td>端 tuæ̃ˈpʰiŋ, 搬 pʰiŋ</td>
</tr>
<tr>
<td>V 端 tuæ̃ˈ ‘carry’ V 搬 pʰiŋ ‘move’</td>
<td></td>
<td></td>
</tr>
<tr>
<td>yāngpīng 24</td>
<td>24 + atonal σ &gt; 21 + 53</td>
<td>153 (σ1+σ2)</td>
</tr>
<tr>
<td>N 黃 xuâj24, 瓶 pʰiŋ53</td>
<td>黃瓜 xuâj24-53 kuã53 ‘cucumber’ 瓶瓶 pʰiŋ53-21 pʰiŋ53 ‘small bottle’</td>
<td>藏 tsʰâŋ53, 拿 na53</td>
</tr>
<tr>
<td>V 拿 na24 ‘take’ V 藏 tsʰâŋ ‘hide’</td>
<td></td>
<td></td>
</tr>
<tr>
<td>shāngshēng 53</td>
<td>53 + atonal σ &gt; 44 + 21</td>
<td>442 (σ1+σ2)</td>
</tr>
<tr>
<td>N 眼 jiẽ53, 管 kuël53</td>
<td>眼睛 jiẽ53-44 tšj5321 ‘eye’ 管管 kuël53-44 kuël21 ‘tube’</td>
<td>躲 tuœ44, 躲 tuœ44</td>
</tr>
<tr>
<td>V 躲 tšj53 ‘lie’ V 躲 tuœ53 ‘avoid’</td>
<td></td>
<td></td>
</tr>
<tr>
<td>qūshēng 44</td>
<td>44 + atonal σ &gt; 45 + 32</td>
<td>453 (σ1+σ2)</td>
</tr>
<tr>
<td>N 肚 tu44, 袋 te44</td>
<td>肚子 tu44-45 tšj 32 ‘belly’ 袋袋 te44-45 te32 ‘bag’</td>
<td>放 fâŋ45</td>
</tr>
<tr>
<td>V 放 fâŋ44 ‘put’</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The example illustrates one of the morpho-syntactic environments where verbal inflection is compulsory: between a verb and a deictic directional, to produce a resultative, causative meaning. In example (10), the inflected, longer form 端 [tuæ̃ˈpʰiŋ] ‘carry with both hands’ may be uttered for instance in the kitchen, to order the hearer to carry a dish to the guests who are waiting in the main room, and corresponds to directional compounds duānguōqu 端過去 or duānqu 端去 in Standard Mandarin. In (10), the uninflected form of the verb fails to produce a resultative construction, and the deictic motion verb after the verb can only take a purposive reading: the speaker is in the main room and orders the hearer to ‘go (to the kitchen) in order to fetch the dish’. Note that in the latter case, the andative directional is also unstressed, and triggers tone sandhi on the preceding verb 端 [tuæ̃ˈ] ‘to carry with both hands’, which becomes [tuæ̃ˈ].
(10) 端去 tuæː⁵⁵ ʐə⁴⁴ ʂə²¹ \( vs. \) (10') 端去 tuæ²¹ ʂə⁴⁴ ʂə²¹

\textit{take-INFL-go} \hspace{1cm} \textit{take go}

\textit{‘take it (the dish) to the guests’} \hspace{1cm} \textit{‘go and fetch it’ (the dish)}

The subtype “without tone sandhi” was described by Li Qiaolan (Li 2013) for another Hebei dialect, Zhàoxiàn 趙縣. Although Zhàoxiàn is not located very far from Weixian, it differs from the latter in that the syllable of the verb stem does not undergo any tone sandhi. As in Wēixiàn, the suffix vanishes as an autonomous segment, looses both its onset and rime. The segmental part of the coalesced syllable corresponds to that of the verb stem (with for some rimes minor vocalic changes) with conspicuous lengthening. Its tonal contour corresponds to the contour of the verb stem followed by the contour of a mid-low atonal syllable 33 or 22. For instance, [faŋ⁵¹] ‘put’ changes to the inflected form [faŋ⁵¹] when followed by a goal locative NP.

2.6 Type D [rhoticization]

This type is well documented for dialects spoken in the eastern part of Shandong (belonging to the Jiāo-Liáo 膠遼 Mandarin subgroup) and the northern part of Hebei. Liu Cuixiang (2007a/b) gives a detailed account for Qīxiá 漁霞, Qian et al. (2001: 261, 290) mentions rhoticization replacing the perfected suffix and the goal marker for a dozen of eastern Shandong dialects, including Mùpíng 牟平, Wēihǎi 威海, Lái yáng 萊陽, Yántái 烟台, Róngchéng 榮成 etc. An early mention of rhoticization as a variant of verb suffixes [.tsa], [.liou] and [.ti] (which respectively correspond to stativizing -\textit{zhe}, perfected -\textit{le} and goal marker –\textit{dao}) is found for Chānglì 昌黎 in the \textit{Monograph of the Changli dialect} (Hebei 1960: 26-28). In (11), the rhotic coda corresponds to a weakened goal marker, whereas example (11') uses the syllabic form of goal marker [.ti] (Hebei 1960:145).

(11) 掉兒地下咧 tiou⁵⁵ ti²⁴ .cie .lie \( = \) (11') 掉得地下咧 tiou⁵⁵ ti²⁴ .cie .lie

\textit{fall-INFL} \hspace{1cm} \textit{fall-to}

\textit{ground-bottom CRS} \hspace{1cm} \textit{ground-bottom CRS}

\textit{‘fell to the ground’}

Again, this type of weakening is not unknown in the Bēijīng dialect. For instance, as a rule, the second syllable of a three-syllable word is not stressed. When this mid-word syllable has a retroflex onset (\( r- [z], sh- [ʂ], zh- [tʂ], ch- [tʂʰ] \)), it may weaken and be realized as the rhoticized coda of the first syllable. These variants can be transcribed in pinyin as \textit{bùzhīdāo > bùzhīdāo > bùrđāo} ‘don’t know’, \textit{tūshūguăn > tūshūguăn > tūrguăn} ‘library’, or 顺治门 \textit{Shūnzhimén} > \textit{Shūnzhimén} > \textit{Shùnrémén} ‘Shunzhimen (Place name)’ (see for instance Fang 2007).
2.7 Type E [Unclear or mixed types]
We attributed a separate symbol on the map to keep trace of phenomena which were clearly related to some type of morphologization, but for which we only had unclear, incomplete or sometimes contradictory reports, or which seemed to belong to a mixed type (according to the rime). For instance the exact tonal features of inflected forms are unclear in descriptions of western Shandong dialects such as Línqīng 臨清, which seems to involve lengthening too (Zhang Hongkui 1990:165), Dézhōu 德州 (Cao Yanjie 2000), and Láiyáng 萊陽 (Gong and Luan 2010). Bóshān 博山 (also located in Shandong) has been described in several studies with slightly contradictory data (Qian 1993, Chen Ning 2006, Li & Ai 2009). This is why, although Bóshān dialect has become a “classical” case of syllable coalescence widely discussed in works on grammaticalization (see for instance Jiang Lansheng 2000, who considers it as a case of phonetic attrition leading to a zero form), we do not discuss it in detail. Similarly, Zhang Chengcai’s description of the Shāngzhōu dialect (Zhang 1958) is actually unclear as for tonal modification, and is therefore put here in type E.

2.8 Summary
To summarize our findings, in Mandarin dialects, tone sandhi tends to occur on the first syllable of a disyllabic word or compound (Xing 2010:369-389). This factor probably accounts for some of the phonetic characteristics of the morphologization types B and C discussed above. Xing (2010: 388-389) pointed that in Mandarin dialects, we often find specific patterns of tone sandhi before atonal syllable. Qian et al. (2001: 107-115) provided a comprehensive overview of tone sandhi before atonal syllables for the Shandong area, but we have no complete picture of the frequency and the distribution of these phenomena. We illustrate in Table 5 the various phenomena described in section 2 above.

Table 5: Morphophonemic manifestation of verbal inflection

<table>
<thead>
<tr>
<th>Type</th>
<th>D</th>
<th>C</th>
<th>B</th>
<th>A</th>
<th>C</th>
<th>C</th>
<th>C</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Changli</td>
<td>Juxian</td>
<td>Pingyi</td>
<td>Xunxian</td>
<td>Chaoxian</td>
<td>Fexiang</td>
<td></td>
</tr>
<tr>
<td>V</td>
<td>tiau</td>
<td>tiau</td>
<td>na</td>
<td>na</td>
<td>faŋ</td>
<td>faŋ</td>
<td>faŋ</td>
</tr>
<tr>
<td>VØ</td>
<td>tiau</td>
<td>tiau</td>
<td>na</td>
<td>na</td>
<td>faŋ</td>
<td>faŋ</td>
<td>faŋ</td>
</tr>
</tbody>
</table>

3. Patterns requiring an inflected form of the verb
3.1 Inflected form of the verb used in specific morphosyntactic patterns
Present accounts of the morphologization of verb suffixes remain rather vague about its exact morphosyntactic functions. He Wei (1989:51-79) distinguishes 27 patterns where rime change occurs in Huòjiā, and this list is discussed in Zhao Rixin (2007) and Chen Weiheng (2011), in an attempt to identify a more comprehensive meaning. Chen Weiheng (Chen 2011:195-199) hypothesizes that rime alternation may encode $\{\pm$ realization $\}$ (wèirán 未然 vs. yǐrán 已然). Although this holds for cases where the inflected form corresponds to the verb suffixed by a perfective marker and followed by a quantized NP, Lamarre (2002, 2003, 2009), and Lamarre & Liu (2001) showed that this view does not fit with hortative sentences that were clearly irrealis, frequently found for patterns related with the deictic directional and the goal marker. Li Qiaolan (2013) also argued that there was no correlation between the inflected form and tense features.

The data presented above show that we have enough ground to consider verb forms where the suffix has coalesced into the verb stem as a kind of ”inflected form” of the verb. Inflected forms can be analyzed as ”bounded” or ”perfective” forms. The verb suffixes dealt with here are a kind of ”bounders”, i.e. they have a bounding effect on the verb phrase (or developed from phase complements).

In order to illustrate the consistent and systematic pattern followed by inflected forms, we selected 5 core morphosyntactic patterns where inflected forms are attested or compulsory. They are listed below together with corresponding Standard Mandarin patterns.

1) Inflection replaces perfective suffix -le 了 in sentences where the verb takes an object (for instance in pattern [V-le + Numeral + CL+ Object]), see example (1) which reflects the Xunxian dialect (Henan).

2) Inflection replaces stativizing suffix -zhe 著 in locative constructions such as [在 zài + NPLOC + V 着呢 zhene] like the Standard Mandarin sentence in (12):

$$\text{(12) 在椅子上坐着呢}$$
$$\text{zài yǐzi-shang zuò-zhe-ne}$$
$$\text{at chair-on sit-STAT-CONT}$$
$$\text{‘is sitting on the chair’}$$

Mandarin suffixes involved in 1) and 2) are often thought to belong to the same paradigm of aspectual suffixes, and to mark perfective and imperfective aspect, respectively. In the northern dialects involved here, progressive aspect mainly relies on adverbs such as zhèng 正 and on clause-final particles marking continuative aspect, such as Standard Mandarin ne 呢 (pronounced as [ŋə / ɳə / ɻi / ɻə] etc.). This means that -zhe 著 and -le 了 would not occur in the same environment, and explains why they may both morphologize the same way. The stativizing suffix encodes resulting state after posture and placement verbs, or a
background activity in specific patterns. Clause-final continuative particles tend to be compulsory in independent imperfective clauses.

3) Inflection replaces a goal marker (introduces the goal, like Standard Mandarin \([V \text{ to } dao + \text{goal NP}]\):

\[
(13) \quad \text{放到桌子上} \\
\text{fàng-dao zhuōzi-shang} \\
\text{‘put it onto the table’}
\]

Note that in the Běijīng colloquial, total phonetic attrition of the goal marker is frequent in this environment. Sentence 13 is correct without –dao (see Chirkova and Lamarre 2005). The position of the locative NP is sufficient to convey the goal meaning. This is not the case of all varieties of Mandarin, which often require overt (syllabic) goal-marking, or in case of syllabic fusion, the inflected form of the verb. In a comprehensive account of goal marking in Sinitic languages, Lamarre (2009) addressed the issue of coalescence of the goal marker into the verb stem (see also Lamarre 2003, Lamarre 2007).

4) Inflected form replaces a dummy complement inserted between the verb and a deictic directional (such as 来 -lai ‘hither’ or 去 -qu ‘thither’, and also in some areas 走 -zou ‘away’). In 18th and 19th century novels (\(\text{Hóng Lóu Mèng 紅樓夢, Ėrnǚ Yīngxióng Zhuàn 兒女英雄傳 etc.}\) that reflect Northern Mandarin, this slot was often filled by -le 了. This type of directional compounds is still found in mainstream Chinese up to the 20th century, but has become obsolete in Standard Mandarin, where deictic directionals may directly follow the verb, as in 拿来 ‘bring’ (toward the speaker). Sentence (14) is taken from Xiǎo Ė 小額, an early 20th century novel reflecting the Běijīng colloquial (see Lamarre 2002), example (15) is taken from Lao She’s novel \(\text{Four generations under the same roof 四世同堂, considered to reflect the Beijing colloquial of mid-twentieth century.}\)

\[
(14) \quad \text{兩個人早把青皮連給拉了走啦。} \\
\text{liǎng ge rén bǎ Qīngpílián gěi lā-le-zōu la (= SM gěi lāzōu le)} \\
\text{‘They had taken Qingpilian away a long time ago’}
\]

\[
(15) \quad \text{假若他搬了來…} \\
\text{jǐàruò tā bān-le-lai,…} \\
\text{‘If he moved to their place…’}
\]

In contemporary Standard Mandarin, 拉了走啦 拉走了 and 搬了来 搬來 would become 拉了走 la 拉走了 and 搬了来 搬來, respectively. Lamarre and Liu
(2001) described this morpho-syntactic pattern with [lao] 了 in a central Hebei dialect (Jizhou). In earlier stages of Chinese, this slot was filled by jiāng 将 or dé 得. These etymons are still attested in more conservative dialects (Jin and Wu dialects), where they are compulsory. Note that the inflected form (the rhoticized form) is compulsory in Qixia (Shandong, type D, see Liu Cuixiang 2007b). Lamarre (Lamarre 2002, Lamarre & Liu 2001) and Wei (2011) analyzed these various forms as a kind of dummy resultative complement⁴. This shows that in order to understand what links inflected forms in environments 1 to 3, we have to look into early vernacular texts and non-standard varieties of Northern Mandarin (and Jin), rather than into Standard Mandarin.

5) Inflection replaces complementizer -de 得 to introduce a manner or an extent complement (like Standard Mandarin [V 得 de + Adjective Phrase], as in hǎo-de-hěn 好得很 ‘very good’). Although from a synchronic point of view, complementizer -de 得 is less obviously related with perfectivization, it is thought to have evolved from an achievement marker (see Yang Ping 1990). In other Sinitic languages we also find etymons that developed form achievement markers or directionals (Lamarre 2001a/b). Besides, complementizer -de 得 has in Mandarin a default realis value (as opposed to complementizer -ge 個 for instance), and verbs suffixed by -de are incompatible with perfective suffix -le 了 or stativizing suffix -zhe 著. The following example is taken from field data in Qīshān and Fēngxiāng, with the verb 說 [ʂʅə 21] ‘to say’, both sentences are natural.

\[
\text{(16) 說○好 } \quad \text{[ʂʅə 21-532-xɔ 53]} \\
\text{say-INF-good} \\
\text{‘Well said!’} \\
\]

\[
\text{(17) 說得好 } \quad \text{[ʂʅə 21-53-ti 21-xɔ 53]} \\
\text{say-CPL-good} \\
\text{‘Well said!’} \\
\]

Table 6 shows whether inflected forms were reported for the five morphosyntactic environments presented above. Symbol √ is used when the use of an inflected form was documented (please note that the descriptions vary and that a blank cell just means that we found no data). The set of northern Mandarin dialects selected here is in no way exhaustive. The Standard Mandarin equivalent is also provided in the line “SM suffix”.

⁴ Prof. Wang Sen (personal communication, 2007) approved of Lamarre & Liu’s analysis of the Xingyang data he presented in Wang (1998), that show a compulsory rime change when the verb is followed by a deictic directional (including -zou ‘away’). Actually the reason why we were able to provide an accurate analysis of Xingyang’s data lies in their similarity with Jizhou data (central Hebei). In Jizhou, some speakers use a weakened form of [lao] on the verge of coalescence. In both Jizhou and Xingyang, verbal marking is compulsory in this pattern.
Table 6: The morphosyntactic environments of the inflected form of the verb

<table>
<thead>
<tr>
<th>morphosyntactic patterns:</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>type of morphophonemic modification of V</th>
</tr>
</thead>
<tbody>
<tr>
<td>replaces SM suffix</td>
<td>le</td>
<td>zhe</td>
<td>dao</td>
<td>le</td>
<td>de</td>
<td>C: lengthening, tone change</td>
</tr>
<tr>
<td>Shànghǎi 上海</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>D: rhoticization or C</td>
</tr>
<tr>
<td>Jǔxiàn 诸县</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td></td>
<td>E: schwa [ə] or C</td>
</tr>
<tr>
<td>Láiyáng 莱阳</td>
<td>D</td>
<td>C</td>
<td>D</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Qǐxià 棋霞</td>
<td></td>
<td>√</td>
<td>√</td>
<td>√</td>
<td></td>
<td>D: rhoticization</td>
</tr>
<tr>
<td>Bōshān 博山</td>
<td>√</td>
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<td>√</td>
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<td></td>
</tr>
<tr>
<td>Pingyì 平邑</td>
<td>√</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>replaces SM suffix</td>
<td>le</td>
<td>zhe</td>
<td>dao</td>
<td>le</td>
<td>de</td>
<td></td>
</tr>
<tr>
<td>Héběi 河北</td>
<td></td>
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</tr>
<tr>
<td>Chānglí 昌黎</td>
<td>√</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>D: rhoticization</td>
</tr>
<tr>
<td>Wēixiàn 威县</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td></td>
<td>√</td>
<td>C: lengthening, tone change</td>
</tr>
<tr>
<td>Zhàoxiàn 趙县</td>
<td>√</td>
<td></td>
<td>√</td>
<td></td>
<td></td>
<td>C: lengthening, tone contraction</td>
</tr>
<tr>
<td>Hénán 河南</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Xùnxian 浚县</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td></td>
<td></td>
<td>A: rime change</td>
</tr>
<tr>
<td>Xíngyáng 漢陽</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td></td>
<td>A: rime change</td>
</tr>
<tr>
<td>Huòjiā 獲嘉</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td></td>
<td>√</td>
<td>A: rime change</td>
</tr>
<tr>
<td>Shānxī 陕西</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Fèngxiàng 凤翔</td>
<td>√</td>
<td>√</td>
<td>√</td>
<td></td>
<td></td>
<td>C: lengthening, tone change</td>
</tr>
<tr>
<td>Qíshān 岐山</td>
<td>√</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>C: lengthening, tone change</td>
</tr>
</tbody>
</table>

In some cases, both the inflected form and the uninflected form are possible (pattern 1), which may produce an opposition between past and non past in independent clauses, see example (1), or perfective vs. non perfective (in a subordinate clause). Some morpho-syntactic patterns will require the inflected form of the verb. This is the case for pattern 3 (before goal NP), pattern 4 (before deictic directionals), pattern 5 (before manner and degree complements).

In pattern 2, inflected forms derive verb forms that a denote resulting state from a verbal stem that denotes a change of posture or a change of location, as in English for ‘is sitting’ vs. ‘sit’, or in French for ‘être assis’ vs. ‘s’asseoir’, but also for ‘hold in one’s hand’ vs. ‘take in one’s hand’. In this case, verbal inflection plays a key-role in structuring the lexicon. Thus, the specific function and meaning of the inflected form relies on the morpho-syntactic pattern where it occurs.

Let us now look at a case of “utter morphologization” observed in potential forms of patterns 3 (goal markers) and 4 (dummy resultative).
3.2 Cases of utter morphologization: No way back to segmental autonomy

In these cases, there is no way back from coalescence for the suffix: morphologization blocks the recovering of a full syllabic shape, even in morphosyntactic patterns where the weakened suffix should recover its full shape and be dissociated from the verb stem, i.e. in potential forms. Such phenomena were reported in Henan, Xingyang (type A) and Shandong Qixia (type D).

The following examples show that once the goal marker has coalesced into the verb, it may not find its way back to autonomy, and gets stuck in the inflected form, even when it should recover its full form, in the potential form. In Northern Mandarin, suffix-like resultatives and directionals usually undergo phonetic weakening (are toneless). In potential forms, however, where the negation bu separates the verb stem and the resultative, they recover their full phonetic shape:

(17) 踢進去了 > potential form (17’)踢不進去

<table>
<thead>
<tr>
<th>踢</th>
<th>進</th>
<th>去</th>
<th>le</th>
</tr>
</thead>
<tbody>
<tr>
<td>kick</td>
<td>enter</td>
<td>go</td>
<td>CRS</td>
</tr>
</tbody>
</table>

Potential forms are highly productive, and the same rule applies to goal markers. (18) shows in Standard Mandarin a sentence with the verb ‘put’ followed by a goal marker (usually atonal) and an goal NP, (18’) shows the corresponding potential form, which can be represented by the formula [V-NEG-to + NP_LOC].

(18) 放到頂上了 > potential form (18’)放不到頂上

<table>
<thead>
<tr>
<th>放</th>
<th>到</th>
<th>頂</th>
<th>上</th>
<th>le</th>
</tr>
</thead>
<tbody>
<tr>
<td>put</td>
<td>to</td>
<td>roof</td>
<td>on</td>
<td>CRS</td>
</tr>
<tr>
<td>[V-to + NP_LOC].</td>
<td>[V-NEG-to + NP_LOC].</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In Xingyang, the normal pattern [V-NEG-to + NP_LOC] becomes [V-INFL + NEG + NP_LOC], where the verb takes its inflected form 放 |[f khá]| instead of the uninflected form 放 |[f khá]|, and the negation is directly followed by a locative NP (Wang Sen 1998: 279). The same phenomenon occurs for pattern 3: the potential form of [VQ+lai] ‘walk over here’ is [VQ-NEG-lai] ‘cannot walk over here’ (because of aching feet) instead of the “normal” pattern found in Jizhou for instance: [V-NEG-liao-lai].

A similar mechanism produces the “weird” pattern [V-INFL + NEG + NP_LOC] in the Qixia dialect (Shandong, type D, Liu Cuixiang 2007a). The verb keeps its rhoticized form, i.e. the goal marker stays coalesced with the verb. Example (19) gives the Standard Mandarin sentence, example (19’) the Qixia pattern where the goal marker corresponding to ‘to’ is still marked on the verb, as a rhotic coda. Note that the respective order of the constituents [V-INFL + NEG + NP_LOC] is
totally abnormal from the point of view of Mandarin syntax. It thus provides evidence for an analysis of this potential form as working at the word domain rather than at the phrasal domain.

(19) 老人年纪太大，一个人都走不到门口。

Lǎoren niánjì tài dà, yīgerén dōu zǒu-bu-dào ménkǒu.
old.person age too big, alone even walk-NEG-to door

(19’)老人年纪太大，一个人都走不了门口。

old.person age too big, alone even walk-NEG-door

The following sentence is given by Xin Yongfen (Xùnxìàn, Henan, Xin 2006a:52) for the verb [kuan¹²³ yɔ²⁴] 灌药 ‘drink, take a medicine’. In the potential form, goal marking stays on the inflected form of the verb (the rime is [uæ], vs. [uan] for the uninflected form).

(20) 藥灌口不嘴

yɔ²⁴ kua³⁰⁴-pu-tsuei⁵⁵ -liou
medicine pour-INFL-NEG-mouth-in

cannot take his medicine’ (lit. ‘I am unable to put it into my mouth’, because of old age, illness, etc.)

We still need many more data and discussions before we can get a full picture of these phenomena of morphologization, their distribution, their types. Let’s mention one issue that could not be properly addressed here: many descriptions give scarce information on the relative frequency of the full-syllable form and the coalesced form when both are attested. Obviously, dialects such as Xùnxìàn where there is no “syllabic” variant to encode perfective aspect or goal-marking on the verb compell us to address complete morphologization of verb suffixes as one type of marking attested in Northern Mandarin. But in some cases, it is quite difficult to rule out the possibility that the degree of morphologization just may depend on speech flow, or on a distinction between formal and informal speech.

4. Discussion

Now we have introduced the main patterns of suffix fusion into the verb stem attested in Northern Mandarin, and the suffixes that are likely to undergo morphologization, we discuss two related issues:

5 Liu (2007a) does not provide any phonetic transcription for this sentence.
6 Prof. Xin kindly recorded and elicited the sentence and similar examples in a working session in Kaifeng in March 2009. Here [.liou] is the fused form of dissyllabic locative litou 裡頭 ‘inside’.
1) To what extent does this morphologization process question the prevalent view on Chinese, i.e. Chinese, as an analytic-isolating language, cannot go further up the grammaticalization cline?

2) To what extent can we link these morphological phenomena to language contact, and more precisely to language contact specific to Northwestern Mandarin?

4.1 Chinese and the “language-internal constraints” on grammaticalization

Bybee, Perkins and Pagliuca (1994: 118) reflected the common view on Chinese when they stated in their chapter on the correlation between phonetic weakening and grammaticalization that:

In particular, isolating languages do not carry grammaticization as far as fusional or agglutinating languages do. Not only do they not affix, they also do not have grams with meaning as abstract and generalized as synthetic languages do. The stability of certain isolating languages, such as Chinese, over time further attests to typological constraints on grammaticalization...

Bisang (1996:520) agreed with this point of view, adding other comments:

The main typological characteristic of the languages of East and mainland South East Asia seems to be the high degree of indeterminatedness of their nouns and verbs. This appears to be the main reason why even highly grammaticalized items tend to preserve their phonological shape. Thus, there seem to be only a few examples of phonological and semantic coevolution of grammaticalization as postulated by Bybee, Perkins & Pagliuca (1994).

Ansaldo and Lim (2004:345) completed the picture and made a generalization on isolating tonal languages (ITL). They claimed that “In Sinitic languages, where syllable boundaries and phonotactic constraints rule out reduced syllables of the kind observed elsewhere, the material available for reduction is not easily found at the morphological level”. However, Comrie (2003:255), in an article discussing the process leading to the creation of morphophonemic alternations, warned us on the importance of prosodic features:

…note that even in the case of isolating languages like the Chinese languages that lack or virtually lack segmental morphonemic alternations, there are nonetheless often quite complex phenomena of tone sandhi, i.e. morphonemic alternations involving tone and therefore at the prosodic level.

To what extent do the dialect data presented here question these common views on Sinitic languages? We chose the term “morphologization” to qualify what happens in the dialects described here because it can be seen as a phase of the grammaticalization process which reduces an analytic construction to a synthetic one (Lehmann 2002:12), with an increase of boundedness between the function
word and the verb stem. Lehmann (2002: 131-145) proposes various grammatical tests to determine the morphological status (degree of boundedness) of a grammaticalized item as: (a) a free, stressable morpheme, (b) a clitic morpheme, (c) an agglutinative affix, (d) a fusional affix, (e) an amalgamated in a flexional affix, (f) an inflex or symbolic alternation. According to Lehmann’s definition, in Standard Mandarin, aspect markers would be considered as clitics rather than suffixes: their pronunciation depends on the tone of the verb stem, but the verb stem may appear without any suffix. However, in the dialects discussed here, suffixes become “an integral part of another morpheme”, i.e. reach the “fusion” stage, discussed by Lehmann (2002:138).

Another phenomenon of extreme fusion is what has traditionally been termed (by Humboldt and Sapir among others) symbolism or symbolic expression. This means that a grammatical category does not have a morpheme or segment reserved for its expression, but that it is embodied in the formal relation between two alternative forms of a stem.

Lehmann mentions vowel alternation such as the English verb forms ‘sing’ vs. ‘sang’, but also processes such as vowel lengthening (quantative apophony), consonant mutation, accent shift and tone change as representative examples of a high degree of fusion. From the data presented above in section 2, types A, B, C and D obviously show a loss of morpheme boundaries, and fall into what Lehmann (2002:146) described in terms of “coalescence”, i.e. “Item is affix or even phonological feature of carrier”. This is undoubtedly a kind of morphologization, that should be taken into account when discussing grammaticalization in Sinitic languages.

These data also challenge another claim by Bisang (2008, 2009) and Wu Fuxiang (2005b), i.e. that many categories (among which aspect) are not obligatory in Chinese. We suggest that this is not necessarily true in non-standard varieties of Sinitic. This issue needs to be further discussed in a separate work.

4.2 The language contact factor

The Shāngzhōu dialect we mentioned in the introduction is a Central Plain Mandarin (中原官話) dialect, according to Norman’s classification (1988: 191), it belongs to Northwest Mandarin. When we decided to investigate the Qishān dialect (in 2008) and the Féngxiāng dialect (in 2010), both located in the western part of Shaanxi, we considered the possibility that the various rime changes reported by Zhang Chengcai (1958), Han Baoyu (2006), or Wang Junhu (2012), could be contact-induced and specific to Northwest Mandarin. After a careful investigation of the geographical distribution of these phenomena, and comparison with similar syllable coalescence patterns observed central and eastern Mandarin-speaking areas (Jīzhōu, Cāngzhōu in Hebei, etc.), we reached
the conclusion that morphologization of verbal suffixes is rather to be linked with Northern Mandarin as an innovative area. The area where these morphological modifications of the verb stem occur shares a bundle of syntactic features such as the lack of progressive marker 作 in and the prevalent use of clause-final TAM (Tense-Aspect-Mood) particles, the lack of potential construction [V-de-R], and particularly an innovative potential form [V-R-liao] (see Lamarre 1995, 2006).

Northern Mandarin shares many grammatical features with the Jin dialects, which may now also be considered as a subgroup of Mandarin (see for instance Qian 2010:6-8), although they are more conservative. Liu Xunning (1995, 2008) adopts a two-level classification, and keeps the term « Mandarin » for innovative dialects, in order to catch both the “northern” features of Jin dialects and their conservative features (the latter features are not surprising, considering that the Jin dialects are spoken in a mountainous area).

<table>
<thead>
<tr>
<th>Mandarin dialects (include Southwestern Southern Mandarin)</th>
<th>vs.</th>
<th>non-Mandarin dialects (include the Jin dialects)</th>
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</thead>
<tbody>
<tr>
<td>Northern dialects (including Jin dialects)</td>
<td>vs.</td>
<td>Southern Dialects (also includes southern Mandarin)</td>
</tr>
</tbody>
</table>

Shanxi dialects are well described. We suppose the lack of data on suffix coalescence among Shanxi Jin dialects may be reflecting this more conservative feature (the rime change pattern described in the Qixian dialect is quite different, see Wang Ailu 1992). This also links morphologization to innovation.

Although we conclude here that the distribution of suffix morphologization is consistent with the distribution of other innovations that appeared in the same area, we do not rule out the possibility that Northern Sinitic phonetic features as a whole may have been influenced by the contact with Altaic or Tibetic languages. Mantaro Hashimoto remarked years ago (Hashimoto 1978:122-126) that Sinitic languages on the southern extremity of the Chinese continent show a phonotactic organisation quite close to the neighbouring non-sinitic languages, whereas Northern Chinese is dominated by stress, and stress is determined by the structure of the word (Hashimoto 1978:199, quoting a 1930 study by Polivanov, see also Norman 1988: 148-149 on stress in Chinese). This approach is likely to be fruitful to shed light on the morphophonemic phenomena we deal with here. We showed that some of the phenomena triggered by phonetic weakening leading to types B and D were actually close to those observed in Běijīng colloquial. Unstressed syllables have been shown to trigger vowel reduction and consonant reduction.

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7 Hashimoto also noted the diminution of the number of tones, getting closer to an High/Low type of tones on the northern side, and the diminution of the sets of final nasals –m/n/ŋ and obstruents –p/t/k to 1 final nasal and no final obstruent.
Based on descriptions of Standard Mandarin, Schiering (2006: 168-169) classifies Mandarin Chinese as a language where the segmental effect of stress (vowel and consonant reduction, assimilation etc.) is high. His summary of the segmental effects of cliticization in mora-based, syllable-based and stress-based rhythm shows tendencies that fit very well with our non-standard Northern Mandarin varieties (Schiering 2006:260, also pointed by Bisang 2008).

All of the types presented in section 2 can be viewed as phonetic weakening, phonetic reduction, assimilation and sound change related with stress (more precisely to phonetic reduction of a part or of the whole unstressed syllable). To know the exact role played by both prosodic and syntactic factors in the various patterns of suffix coalescence found in Northern Mandarin (toneless syllables, tonal sandhis) we need to compare them with other cases of morphologization attested in southern dialects. Gan Yu’en (2010:20-28) uses the term ‘morphological tone sandhi’ (xíngtài biàndiào 形態變調) for tone sandhi with a derivative function, as in Wu. The use of tonal sandhi instead of a cliticized syllable to mark perfective aspect has been reported for several Yue dialects. The most favored hypothesis is that of a phonetic weakening of aspect suffix [tsɔ́35]: [sik₂² tsɔ́35] > [sik³5] (see Gan 2010, 2012). Future studies will probably enable us to understand the extent of the north-south difference in terms of morphological sandhi and patterns of suffix coalescence.

**Conclusion**

The non-standard data presented above show that we have to nuance some of the statements made on Chinese typological constraints on grammaticalization. Just like nominal and adjectival morphology, Sinitic verbal morphology often manifests itself “locally”. Standard Written Chinese may be the worst variety of Chinese to observe in order to shed light on the various morphological processes at work in Sinitic. The complex morphological patterns we uncovered here are not easily compatible with what is required of a unified, standardized language.⁸ We suggest that the discrepancy between Standard Mandarin and the Northern dialects described in this paper can be ascribed to the widespread tendency for koines to pick up simpler systems and discard marked variants, known as ‘dialect leveling’ (Trudgill 1986, chapter 3). Trudgill also noted a related feature in koineization processes that he called ‘simplification’, i.e. even minority forms may be the ones to survive if they are linguistically simpler, for instance if they show simpler morphophonemics (Trudgill 1986: 103). Last but not least, the loss

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⁸ On the other hand, a recent study (Shan 2013) shows the correlation in Cantonese, a regional koine, between the use of an overt, syllabic suffix and the level of education of the speakers: less educated speakers more often use tone sandhi of the verb stem to mark perfective aspect.
of morpheme boundaries is hard to capture through the Chinese script. A systematic survey and analysis of intermediary stages of coalescence will help to draw a clearer picture of the phonetic mechanisms of rime change. To conclude, one should probably give up generalizations on “Chinese” on this issue, that mix data from Cantonese, Běijīng Mandarin and Ancient Chinese.

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The research leading to this paper received in its first stages funding from the Japan Society for the Promotion of Science (from 2007 to 2009, project number 19520360, Title: ‘Chinese typological characteristics revisited from the point of view of syntax-phonology interface’, Principal investigator: Itsuku Ota 太田齋, Kobe University of Foreign Studies, Japan), which allowed fieldwork in Western Shaanxi and in northern Henan in 2008 and 2009. It also benefited in a second stage from funding from the Agence Nationale de la Recherche (France) for the project: ‘Contacts de langue et changements linguistiques: le cas du chinois et des langues altaïques’ (ANR-07-BLAN-0023, Principal investigator: Redouane Djamouri). The findings published here were first presented at a symposium held in Osaka (Japan) on December 24, 2009. Field data from western in Shaanxi were presented with more detail at the symposium on language contact in Norwest China held in Lanzhou (August 9-12, 2011), in a joint communication with Prof. Ota Itsuku (see Lamarre and Ota 2011). A more comprehensive analysis was presented in a speech delivered at the 7th Conference of the European Association of Chinese Linguistics held in Venezia, Italy (September 13-15, 2011, Title: Chinese morphology is local: morphologization of verb suffixes in Northern China), and at a seminar held in November 2011 in the framework of the ERC project ‘The hybrid syntactic typology of Sinitic languages’ and the research programme of the CRLAO research team ‘Typologie et diachronie des langues sino-tibétaines en Asie orientale’ (title: Fusion of Northern Chinese inflectional formatives: how many categories?). I thank Professors Xing Xiangdong (Shaanxi Normal University, China), and Xin Yongfen (Henan University, China), for their help in organizing fieldwork stays in 2008, 2009, and 2010, and for discussing various dialect data, as well as Mr. Zhang Yongzhe, who supervised our stay in his natal village of Guowangzhen (western Shaanxi) in August 2010. Prof. Meng Zimin kindly provided samples of his mother tongue (Pingyi), and discussed the possible analysis presented here for Type B. Last but not least, Prof. Itsuku Ota’s expertise on tone sandhi was instrumental in investigating Fenxiang’s lexicon.

Abbreviations used in glosses, examples or tables

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Meaning</th>
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<tbody>
<tr>
<td>CL</td>
<td>classifier</td>
</tr>
<tr>
<td>CONT</td>
<td>continuative aspect</td>
</tr>
<tr>
<td>CPL</td>
<td>complementizer (introduces manner and degree complements)</td>
</tr>
<tr>
<td>CRS</td>
<td>current relevant state</td>
</tr>
<tr>
<td>DUM</td>
<td>dummy resultative complement (before a deictic directional)</td>
</tr>
<tr>
<td>HOR</td>
<td>hortative particle</td>
</tr>
<tr>
<td>INFL</td>
<td>inflexion (mark of a suffix coalesced with verb stem)</td>
</tr>
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<td>NEG</td>
<td>negation</td>
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<td>noun phrase</td>
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<td>Standard Mandarin</td>
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<td>V</td>
<td>Verb</td>
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<tr>
<td>σ</td>
<td>syllable</td>
</tr>
<tr>
<td>1, 2, 3</td>
<td>1st, 2nd, 3rd person pronoun</td>
</tr>
</tbody>
</table>
ABSTRACT

The morphologization of verb suffixes in Northern Chinese

北方漢語裏形態化的動詞後綴

Christine LAMARRE / 柯理思
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This paper describes various types of the morphologization of verb suffixes at work in Northern Mandarin, and provides a tentative classification based on fieldwork in Hebei and western Shaanxi, as well as on an extensive survey of second-hand descriptions. What we call the ‘inflected form’ of the verb regularly corresponds in Standard Mandarin to the verb followed by perfective or stativizing suffixes, goal markers, and complementizers. We discuss the following issues: 1) To what extent does this morphologization process question the prevalent view on Chinese, i.e. Chinese, as an analytic-isolating language, cannot go further up the grammaticalization cline? 2) More than half a century after the first study which pointed at “verbal inflection” in a Shaanxi dialect, to what extent can we link these morphologization phenomena to language contact, and more precisely to language contact specific to the Northwest Mandarin area?

Keywords: morphologization, verbal suffixes, inflection, contact-induced change, Northwest Chinese, aspect marking.


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