A: For ease of discussion, the sandhi tone for each phrase is represented as LL/one in this paper.
B: For ease of discussion, Shang Tone is represented as LL/one in this paper.
C: For more details, see Condit (1968).

The data in (2) represent this fact.

In the other positions in phrases, they change from the L/Lone to the sandhi tone, that is, a

in they appear as single words or the last words of phrases. On the other hand, when they

Approximately speaking, Shang Tone words preserve the base low-mid rising tone L/M.

Base Tone and Sandhi Tone

SHANG TONE SANDHI PHENOMENON

Phonemes not discussed in the present paper.

This paper is restricted in the Shang Tone sandhi phonemisation and the Yin/n Tone sandhi.

In the seven tones, Shang Tone and Yin/n Tone display Tone Sandhi phonemisation. The focus

<table>
<thead>
<tr>
<th>Tone</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>MN</td>
<td>fish, white</td>
</tr>
<tr>
<td>NH</td>
<td>in, read</td>
</tr>
<tr>
<td>HH</td>
<td>ham, sweet</td>
</tr>
<tr>
<td>H</td>
<td>pack, floor</td>
</tr>
<tr>
<td>LL</td>
<td>sin, letter</td>
</tr>
<tr>
<td>LM</td>
<td>chow, grass</td>
</tr>
<tr>
<td>HM</td>
<td>ko, fall</td>
</tr>
</tbody>
</table>

Represented Tone Value

The Seven Tone in Hai-Liu Hakka?

Since the seven tones are presented as below in (1),

In China, i.e., Hai-Liu and Lu-Tone. Hai-Liu Hakka is a tone language with seven one

Vowels and Lu-Tone. Hai-Liu Hakka is a tone language with seven one

It is called so because it is the main dialect of the two Hakka counties of Canton

Hai-Liu Hakka, a dialect of Hakka language, is spoken in most of the towns in Hsin-chu in

INTRODUCTION

Hai-Liu Hakka Shang Tone Sandhi in Optimality Theory Framework
(2) **Example** | **Meaning** | **Base Tone** | **Sandhi Tone**
---|---|---|---
(a) *ciu kui* | 'a tippler' | LM LM | LL LM
(b) *fu kua* | 'a balsam pear' | LM HM | LL HM
(c) *chian sui ciang* | 'a shallow well' | LM LM LM | LL LL LM
(d) *fai fu kua* | 'a bad balsam pear' | LM LM HM | LL LL HM
(e) *da lo fu* | 'to hit the tiger' | LM LM LM | LL LL LM
(f) *mai shui ko* | 'to buy fruit' | HM LM LM | HM LL LM

2.2 Derivational Rule Description

From the data in (2) above, the general rule that describes Shang Tone sandhi phenomenon can be characterized as below in (3).

(3) **Shang Tone Sandhi Rule:**

\[ LM \rightarrow LL/\_T \]  \hspace{1cm} (LM = base tone; LL = sandhi tone; T = any tones)

However, this rule wrongly predicts that the tone of the Shang Tone words in (4) and (5) will change to the sandhi tone LL.

(4) **Wrongly Predicted Shang Tone Words (in interphrasal or sentential level)**

| **Example** | **Meaning** | **Base Tone** | **Predicted Tone** | **Correct Tone** |
---|---|---|---|---
(a) *fo thai* | 'very angry' | LM MM | *LL MM | LM MM
(b) *sui kun* | 'the water boils' | LM LM HM | *LL LL HM | LM LM HM
(c) *siu chien* | 'the hands are kittenish' | LM MM | *LL MM | LM MM

(5) **Wrongly Predicted Shang Tone Words (with numerals and classifiers)**

| **Example** | **Meaning** | **Base Tone** | **Predicted Tone** | **Correct Tone** |
---|---|---|---|---
(a) *liiong thung sui* | 'two buckets of water' | LM LM LM | *LL LL LM | LM LM LM
(b) *kiu von phon* | 'nine bowls of rice' | LM LM MM | *LL LL MM | LM LM MM
(c) *mai pun su* | 'to buy one book' | HM LM HH | *HM LL HH | HM LM HH
(d) *shau thung cio* | 'to lack a bucket of wine' | LM LM LM | *LL LL LM | LL LM LM

Although phrases in (4) are often used as adjectives in Hai-lu Hakka, they can be considered as whole sentences. Phrases in (4) are constructed by a subject noun and a predicate, thus, they are not like the phrases in (2) and (5). There are boundaries between the subjects and the predicates, so the Shang Tone words in (4) do not alter their tone. The derivational rule must be restricted in the domain of a single XP, in other words, there is a tone sandhi domain boundary at the right edge of every XP. The rewritten rule is shown in (6) below.

(6) **Shang Tone Sandhi Rule:** **(applied in single XP domain)**
For example, the word in (9) posse, stands for a person's name is pronounced as the sandhi tone LL.

and words of their local phrase;

6. The sandhi rule is not applied here because both the sandhi tone words, fire and hall, are

not local because the words of fire and hall, that is, the sandhi tone words with their base tone individually.

5. NA stands for the situation in which the rule is not applied. The sandhi tone rule is not applied here in

Declarational Steps of Shang Tone Numerals

(9) ILM / IT / "LMM = base tone, LLL = sandhi tone, L = any tones

(8) ILM / LMM = sandhi rule, ILM = base tone, LLL = sandhi tone

Shang Tone sandhi Rule (applied in single XP domain and not applied to numerals)

applied as below in (8).

The sandhi rule with the additional condition can be

accounted for this fact, an additional condition must be added to the

sandhi rule. However, if they do not have the syntactic identity as numerals, they are subject to

Derived Tone. If Shang Tone words surface as numerals, they do not display Tone Sandhi

in the Phrase. If Shang Tone sandhi rule is not applicable to account for the Shang Tone numerals.

In contrast, sandhi rule can be applied in. This fact will be discussed later in part 5. However, the

rules of sandhi are such that pure Shang Tone numerals and classifiers can be regarded as in XP, that is, a domain within

which:

I strongly suggest that Shang Tone numerals and classifiers appearing in (5) do not change their base

output of second level

second (phraseal) level

output of first level

word (level)

Tone sandhi Rule

NA

Tone sandhi Rule

[LM]#TLM

Tone sandhi Rule

[NA]

Tone sandhi Rule

Tone sandhi Rule

Base Tone

very angry

Declarational Steps of Shang Tone Words

The rule in (9) can successfully predict the correct tone of the Shang Tone words in (7).
lioni thung sui 'two buckets of water'

Base Tone LM LM LM
Tone Sandhi Rule NA first (word) level

Tone Sandhi Rule [LM LM]# LM# output of first level
Tone Sandhi Rule NA² second (phrasal) level
[LM LM LM] output of second level

The Shang Tone Sandhi rule with the additional conditions above can predict the sandhi tone for the Shang Tone words in phrases in several steps. In the next section, an Optimality approach will be introduced.

3. DIFFERENT SYNTACTIC IDENTITIES OF MONOSYLLABIC ADJECTIVES

Shih (1986), Hong (1987) and Hsiao (2000 a) observe that in Mandarin and Taiwanese, monosyllabic adjectives appearing in front of nouns as modifiers are likely to become subject to lexicalization; therefore, they can only be treated as syntactic categories, i.e., As, rather than maximal projections, i.e., APs. This observation also holds true for Hai- lu Hakka monosyllabic adjectives. The data in (10) show the Tone Sandhi phenomenon of Shang Tone monosyllabic adjectives.

(10) Example  Meaning  Base Tone  Sandhi Tone
(a)fu ciu 'bitter liquor' LM LM LL LM
(b)ka fa 'an artificial flower' LM HM LL HM
(c)si lo su 'a dead rat' LM LM LM LL LL LM
(d)fai sip kuan 'a bad habit' LM M LL LL M LL

However, if the monosyllabic adjectives are appearing with an adjacent suffix -kai⁹, they do not change their base tone. In other words, they are not subject to lexicalization when they are added with a suffix -kai, and this situation is shown in (11) below.

(11) Example  Meaning  Base Tone  Sandhi Tone
(a)fu kai ciu 'bitter liquor' LM LL LM no sandhi
(b)ka kai fa 'an artificial flower' LM LL HM no sandhi

8. The Shang Tone sandhi rule is not applied here because the word thung 'bucket' is the final word of the classifier phrase lioni thung 'two buckets of', and the word lioni 'two' is a numeral.
9. In Hai-lu Hakka, the suffix -kai represents associative and nominalized relations as the suffix -de in Mandarin. The suffix -kai has an allomorph -ai.

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