

# A Diachronic Perspective on Left-dominant and Right-dominant Tone Sandhi in Northern Wu Chinese: Evidence from Xiangshan

## When Two Opposing Tone Sandhi Systems Meet:

Xiangshan Chinese shows both *left-dominant* (initial-tone spreading) and *right-dominant* (final-tone preservation) sandhi patterns within the same syntactic structure, challenging structure- and stress-based accounts, and pointing to a diachronic explanation.

### Introduction

#### 1. Tone sandhi system in Northern Wu

- Left-dominant sandhi (LDS):**
  - rightward tone extension of the initial tone
  - common in *lexical compounds*
  - e.g., in Shanghai, 53 + T → 55 + 31<sup>[1]</sup>
- Right-dominant sandhi (RDS):**
  - preservation of the final tone
  - common in *Verb-Object phrases*
  - e.g., in Shanghai, 53 + T → 55 + 31<sup>[1]</sup>

#### 2. Xiangshan (Northern Wu)



#### 3. Tone inventory in Xiangshan <sup>[2]</sup>

	<i>ping</i>	<i>shang</i>	<i>qu</i>	<i>ru</i>
<i>yin</i>	HH		HL	Hq
<i>yang</i>	LHL		LH	LHq
Non-checked			checked	

### Results

#### Overall tone sandhi patterns in Adjective-Noun structure:

- In general, left-dominant sandhi (LDS)**
  - Historical tonal category* of the initial tone dominates
  - Each initial historical tone category has unique sandhi
  - Choice between two sandhi outputs is *speaker-specific*
- Right-dominant sandhi (RDS) also exists**
  - yangping-initial* tokens exhibit sandhi patterns conditioned by non-initial tones

$\sigma_2$	HH <i>yinping</i>	HL <i>yinqu</i>	LHL <i>yangping</i>	LH <i>yangqu</i>
$\sigma_1$				
HH <i>yinping</i>	HMML MMMh			
HH <i>yinshang</i>	MHHL HHHH			
LHL <i>yangping</i>	LLHH	LLHL	LLLH	
LHL <i>yangshang</i>	LLHH LLHL			

### Methodology

#### 1. Participants & Materials

- 8 Xiangshan speakers (4 female; age: 47-53)
- 287 disyllabic *Adjective-Noun compounds and phrases*
- Examples below

$\sigma_2$	HH <i>yinping</i>	HL <i>yinqu</i>	LHL <i>yangping</i>	LH <i>yangqu</i>
$\sigma_1$				
HH <i>yinping</i>	书包 <i>backpack</i>	青菜 <i>a variety of cabbage</i>	书房 <i>study (N.)</i>	青豆 <i>green soya bean</i>
HH <i>yinshang</i>	手机 <i>mobile phone</i>	海带 <i>kelp</i>	手链 <i>bracelet</i>	扁豆 <i>haricot bean</i>
LHL <i>yangping</i>	黄瓜 <i>cucumber</i>	油菜 <i>rape (plant)</i>	杨梅 <i>a local variety of berries</i>	黄豆 <i>soybean</i>
LHL <i>yangshang</i>	老车 <i>old car</i>	老店 <i>old shop</i>	老房 <i>old house</i>	老路 <i>old road</i>

#### 2. F0 extraction and normalisation:

- F0 at 10 equidistant points in each syllable
- Z-scores of log-transformed f0

#### 3. Tone sandhi pattern categorisation:

- Independent auditory categorisation
- k-means clustering using *kml* package<sup>[3]</sup> in R

### Discussion

#### Diachronic account 1: Left-dominance-originated tone sandhi. -

- Lexical tone sandhi began with *rightward tone spreading*
- Created distinct sandhi sets for *ping- and shang-initial* tokens
- Monosyllabic tones merged, while disyllabic sandhi fossilised

**Problem:** cannot explain **right-dominant features** in *yangping-initial* tokens → non-initial tones should have been fully neutralised under this account

#### Diachronic account 2: Change from Right-dominance to Left-dominance.

- Right-dominant sandhi* came first, driven by *final lengthening*
- RDS developed with monosyllabic system, preserving up-to-date citation tones
- Left-dominant sandhi (LDS) emerged later as *disyllabification* spread as a *compound marker*

Xiangshan's **yangping-initial sandhi** may reflect **residual RDS**

Aligns with broader Wu data: tone sandhi often mixes LDS and RDS; Matches Qian's proposed **four-stage LDS development**: partial connection → differentiation → simplification → spreading<sup>[4]</sup>