

Consonant alternations in Fuzhou Chinese

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This paper aims to investigate consonant alternations in Fuzhou, a *Min* dialect of Chinese spoken in the northeast Fujian province of China. The consonants in this dialect exhibits three kinds of phonological processes. Firstly, voiceless labials and alveolars become corresponding voiced fricatives or laterals intervocalically. This process is categorized as spirantization and illustrated in (1)-(3) below. All data in this paper are from Chen (1998).

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|-----|------------------|------------------------|---|------------------------|---------------------------------|
| (1) | 菜包 | ts ^h ai.pau | → | ts ^h ai.βau | p, p ^h → β/V — V |
| | 大炮 | tuai.p ^h au | → | tuai.βau | |
| (2) | 粗紙 _{草紙} | ts ^h u.tsai | → | ts ^h u.zai | ts, ts ^h → z/V — V |
| | 花彩 | xua.ts ^h ai | → | hua.zai | |
| (3) | 花店 | xua.taiŋ | → | xua.laiŋ | t, t ^h , s → l/V — V |
| | 砂糖 | sa.t ^h ouŋ | → | sa.louŋ | |
| | 雨傘 | y.saŋ | → | y.laŋ | |

Secondly, an obstruent becomes a corresponding nasal stop after a nasal. This process is typically referred as progressive nasal assimilation and is demonstrated in (4)-(6) below.

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|-----|------------------|------------------------|---|------------------------|-------------------------------|
| (4) | 糖包 | t ^h ouŋ.pau | → | t ^h ouŋ.mau | p, p ^h → m/ŋ — |
| | 船票 | suŋ.p ^h iu | → | suŋ.miu | |
| (5) | 餅店 | piaŋ.taiŋ | → | piaŋ.naiŋ | t, t ^h , s → n/ŋ — |
| | 紅糖 | øyŋ.t ^h ouŋ | → | øyŋ.nouŋ | |
| | 洋傘 | yoŋ.saŋ | → | yoŋ.naŋ | |
| (6) | 同居 _{鄰居} | tuŋ.ky | → | tuŋ.ŋy | k, k ^h → ŋ/ŋ — |
| | 鋼琴 | kaŋ.k ^h iŋ | → | kouŋ.ŋiŋ | |

Thirdly, velars and glottal stops are deleted. The former takes place between two vowels, while the latter is conditioned by a following consonant, shown as in (7) and (8) below.

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|-----|----|--|---|------------------------|---------------------------------|
| (7) | 西瓜 | sɛ.kua | → | sɛ.ua | k, k ^h , x → Ø/V — V |
| | 布扣 | puo.k ^h au | → | puo.au | |
| | 珠蚌 | tsuo.xaŋ | → | tsuo.aŋ | |
| (8) | 石板 | suoʔ.peiŋ | → | suo.βeiŋ | ʔ → Ø/ — C |
| | 曲尺 | k ^h uoʔ.ts ^h uoʔ | → | k ^h uo.zuoʔ | |
| | 伯公 | paʔ.kuŋ | → | pa.uŋ | |

There are three questions raised by the above alternation patterns: (i) why do velars and glottals behave differently from labials and alveolars in that former undergoes deletion while latter undergoes spirantization? (ii) why do alveolar stops and fricatives pattern together in (3), differing from alveolar affricates in (2)? (iii) is there any principle governing all the different alternation patterns? If there is, what is it?

To answer these questions, I propose that all consonant alternations in Fuzhou Chinese are indeed triggered by a single function, that is, reducing articulatory effort. Following Kirchner (1998), I further propose that the three different phonological processes can be accounted for by ranking the same sets of effort-based constraints and faithfulness constraints.