

Diachrony of Coda /ŋ/ in Suzhou, Wu Chinese: Generational Change and Differing Readings

Yuhong Zhu

The Ohio State University



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Overview – Sound Change

- The Neogrammarian view: Sound change is regular
(Osthoff and Brugmann 1878)
- Restoration or “Gaps” in regular changes are deemed “analogical”, incomplete changes are called “lexical diffusion”
(Labov 1981, 1994)
- Generational difference in an apparent time language survey often reflects diachronic change in progress
(Bailey et al. 1991)

Overview – Sound Change

- Research Question:
 1. How would a regular sound change react to the pressure of the standard dialect (Mandarin Chinese), looking at Suzhou dialect of Wu Chinese?
 2. What models of change could be used to account for the distributional patterns under this context?

Suzhou Dialect of Wu Chinese

- Three-way laryngeal contrast (“滂” /p^hã/, “幫” /pã/ and “朋” /bã/))
- Labiodental fricative /v/
- Fully contrastive palatal obstruents (“七” /ts^hiə?/ vs. “乞” /tɕ^hiə?/)
- Complex tones and sandhi rules

Topic of presentation

- Tendency in “younger” generations: /ŋ/ > [Ũ]

Differing Literary and Colloquial Readings (“文白異讀”)

- Literary resembles the standard dialect while Colloquial reflects the native pronunciation (Wang, 1955)

Character	Gloss	Mandarin	Literary		Colloquial	
大	big	[ta:]	[ta:]	大學 “university”	[tu:]	大人 “adult”
生	alive, raw	[ʂən]	[sən]	生物 “biology”	[san]	生活 “life”
人	people	[zən]	[zən]	人民 “people”	[nin]	小人 “child”

Table 1. Differing Literary and Colloquial Readings in Shanghai. Tones are omitted.

The Data

- Adapted from the fieldwork of Qian (1992)
- Difference in onset is omitted, length contrast also omitted
- Prenucleus glides are treated as secondary articulations
(Duanmu 2007)
- *Guangyun* rhyme groups are further divided into subgroups according to different distributional patterns

Mandarin		Guangyun		L-Old	L-Mid	L-New	C-Old	C-Mid	C-New
恆	/heŋ/	登I	*-əŋ	[əŋ]	[əŋ]	[əŋ]	[əŋ]	[əŋ]	[əŋ]
朋	/pʰəŋ/	登II	*bəŋ	[əŋ]	[ã]	[Ã] or [ã]	[ã]	[ã]	[Ã] or [ã]
爭	/tʂəŋ/	庚I	*-aŋ	[əŋ]	[əŋ]	[əŋ]	[ã]	[ã]	[Ã] or [ã]
孟	/məŋ/	庚II	*baŋ	[əŋ]	[ã]	[Ã] or [ã]	[ã]	[ã]	[Ã] or [ã]
橫	/həŋ/	庚III	*haŋ	[ã]	[ã]	[Ã] or [ã]	[ã]	[ã]	[Ã] or [ã]
命	/miəŋ/	庚IV	*C ⁱ əŋ	[ɪŋ]	[ɪŋ]	[ɪŋ]	[ɪŋ]	[ɪŋ]	[ɪŋ]
嘗	/tʂʰaŋ/	陽I	*-ɔŋ	[õŋ]	[õ]	[Ã] or [õ]	[õŋ]	[õ]	[Ã] or [õ]
雙	/ʂuaŋ/			[õŋ]	[õ]	[Ã] or [õ]	[õŋ]	[õ]	[Ã] or [õ]
讓	/zaŋ/	陽II	*C ⁱ ɔŋ	[ã]	[ã]	[Ã] or [ã]	[ã]	[ã]	[Ã] or [ã]
兩	/liaŋ/			[ã]	[ã]	[Ã] or [ã]	[ã]	[ã]	[Ã] or [ã]
江	/tsiaŋ/	江	*-ɔŋ	[õŋ]	[õ]	[Ã] or [õ]	[õŋ]	[õ]	[Ã] or [õ]
絨	/zəŋ/	東	*-oŋ	[oŋ]	[oŋ]	[oŋ]	[oŋ]	[oŋ]	[oŋ]
兄	/sioŋ/	庚V	*C ⁱ ɔŋ	[oŋ]	[oŋ]	[oŋ]	[oŋ]	[oŋ]	[oŋ]

Table 2. Main data of the study. L: Literary; C: Colloquial.

The Data

- Type A: Literary — [əŋ] > [əŋ] > [əŋ]; Colloquial — [əŋ] > [əŋ] > [əŋ] (登I)
- Type B: Literary — [əŋ] > [əŋ] > [əŋ]; Colloquial — [ã] > [ã] > [ã] or [ã] (庚I)
- Type C: Literary — [əŋ] > [ã] > [ã] or [ã]; Colloquial — [ã] > [ã] > [ã] or [ã] (登II, 庚II)
- Type D: Literary — [ã] > [ã] > [ã] or [ã]; Colloquial — [ã] > [ã] > [ã] or [ã] (庚III, 陽II)
- Type E: Literary — [ɪŋ] > [ɪŋ] > [ɪŋ]; Colloquial — [ɪŋ] > [ɪŋ] > [ɪŋ] (庚IV)
- Type F: Literary — [õŋ] > [õ] > [ã] or [õ]; Colloquial — [õŋ] > [õ] > [ã] or [õ] (陽I, 江)
- Type G: Literary — [oŋ] > [oŋ] > [oŋ]; Colloquial — [oŋ] > [oŋ] > [oŋ] (東, 庚V)
 - Each type corresponds to a distinct chain of behaviors
 - Rhyme-subgroup and type labels are arbitrary

The Analysis

- *Guangyun* reconstruction forms are drawn from literature on Old and Middle Chinese
(Wang 1955, Wang 2000, Zheng-Zhang 2003, Baxter and Sagart 2014)
- Derivations can be formalized in Optimality Theoretical constraint grammars
(Prince and Smolensky 1993)

The Analysis – Phonological Contrast

- I will be using privative phonological features instead of traditional $[\pm\alpha]$ distinctive features

(Steriade 1987, Dresher et al. 1994)

- The relevant backness features would be [front], [back] and unspecified $[\emptyset]$

Phoneme	Feature
/n/	$[\emptyset]$
/ə/	$[\emptyset]$
/a/	$[\emptyset]$
/ŋ/	[back]
/o/	[back]
/ɔ/	[back]

The Analysis – Type A

Mandarin		<i>Guangyun</i>		L-Old	L-Mid	L-New	C-Old	C-Mid	C-New
恆	/heŋ/	登I	*-əŋ	[ən]	[ən]	[ən]	[ən]	[ən]	[ən]

- Mostly consists of words of 登 rhyme – *əŋ
- *əŋ > ən across the board
Suzhou disallows a mid vowel followed by a [back] /ŋ/ coda, while Mandarin tolerates it
- **Proposal:** /ŋ/ coda can only precede back vowels in Suzhou, but non-front vowels in Mandarin

The Analysis – Type A

Combination	Suzhou	Mandarin
oŋ [back] [back]	✓	✓
əŋ/aŋ [∅] [back]	×	✓
æŋ [front] [back]	×	×

- An asymmetry in surface distribution
- Suzhou has stricter phonotactics regarding agreeing [back] features – both have to be [back]; even [back] with unspecified nucleus would be excluded
- On the other hand, Mandarin only disallows **opposite** backness features, i.e. [back] and [front] co-occurring

The Analysis – Type A

- Speaker-induced change: *Ease of Articulation*
(Hockett 1958, Lindblom 1990)
- [ən] is easier to pronounce than [əŋ] since it does not include a tongue backing gesture
- Suzhou pays more attention to articulatory ease, while Mandarin preserves the underlying form /əŋ/ with a less strict phonotactics

The Analysis – Type B

Mandarin		<i>Guangyun</i>		L-Old	L-Mid	L-New	C-Old	C-Mid	C-New
爭	/tʂəŋ/	庚I	*-aŋ	[əŋ]	[əŋ]	[əŋ]	[ã]	[ã]	[Ã] or [ã]

- Mostly consists of words of 庚/耕 rhyme – *aŋ
- A clear split between Literary and Colloquial
- **Proposal:** Literary comes from Mandarin loan; *aŋ > ã(Ã) is caused by another listener-induced change model, *Misperception & Reconstruction*

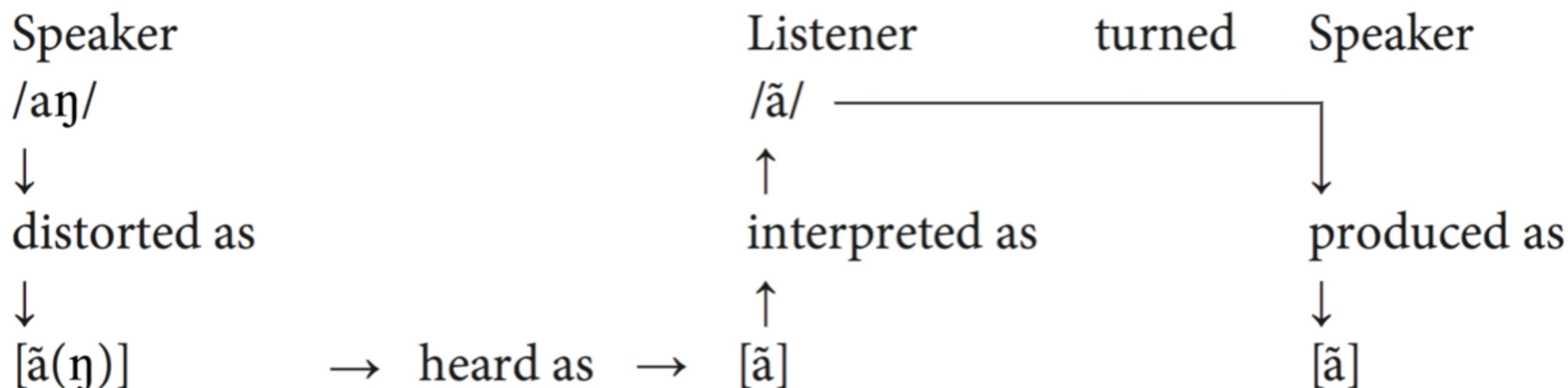
(Ohala 1981)

The Analysis – Type B

- Derivation of [ən] in Literary

Mandarin phonology → [ən] → /ən/ as loanword input → [ən] in Suzhou

- Derivation of [ã] in Colloquial



- Still in line with the phonotactics of Suzhou, as /aŋ/ ([∅] [back]) **never surfaces** in the synchronic grammar

The Analysis – Type C

Mandarin		<i>Guangyun</i>		L-Old	L-Mid	L-New	C-Old	C-Mid	C-New
朋	/p ^h əŋ/	登II	*bəŋ	[əŋ]	[ã]	[Ã] or [ã]	[ã]	[ã]	[Ã] or [ã]
孟	/mən/	庚II	*baŋ	[əŋ]	[ã]	[Ã] or [ã]	[ã]	[ã]	[Ã] or [ã]

- 登/庚/耕 rhyme words with a bilabial onset (b/p/m)
- Outliers to the analysis, since 登 (*əŋ) and 庚 (*aŋ) have different reconstructed form
- Brief Mandarin influence, then collapsed into one unified category

登II *-əŋ → [bəŋ] ↘

(confused as “being both from 庚 rhyme”) → Type C

庚II *-aŋ → [baŋ] ↗

The Analysis – Type D

Mandarin		<i>Guangyun</i>		L-Old	L-Mid	L-New	C-Old	C-Mid	C-New
橫	/həŋ/	庚III	*haŋ	[ã]	[ã]	[Ã] or [ã]	[ã]	[ã]	[Ã] or [ã]
讓	/zaŋ/	陽II	*C ⁱ ɔŋ	[ã]	[ã]	[Ã] or [ã]	[ã]	[ã]	[Ã] or [ã]
兩	/liaŋ/			[ã]	[ã]	[Ã] or [ã]	[ã]	[ã]	[Ã] or [ã]

- 庚 (*aŋ) words with /h, ɦ/ onset, 陽 words with onset palatalization (Division-III, “三等”) (*Cⁱɔŋ)
- Most resilient to Mandarin influence – change is truly “regular”
- *ɔŋ > (aŋ >) ã in 陽II because of onset palatalization

The Analysis – Type E

Mandarin		<i>Guangyun</i>		L-Old	L-Mid	L-New	C-Old	C-Mid	C-New
命	/miəŋ/	庚IV	*C ⁱ əŋ	[ɪŋ]	[ɪŋ]	[ɪŋ]	[ɪŋ]	[ɪŋ]	[ɪŋ]

- Consists of 庚/耕 words with onset palatalization (*Cⁱəŋ)
- Here again, Suzhou prohibits /ŋ/ preceded by any non-back nuclei
- Plus, both the nucleus and the coda change to non-[back] in Suzhou – [ɪŋ]

The Analysis – Type F

Mandarin		Guangyun		L-Old	L-Mid	L-New	C-Old	C-Mid	C-New
嘗	/tʂʰaŋ/	陽I	*-ŋ	[õŋ]	[õ]	[Ä] or [õ]	[õŋ]	[õ]	[Ä] or [õ]
雙	/ʃuaŋ/			[õŋ]	[õ]	[Ä] or [õ]	[õŋ]	[õ]	[Ä] or [õ]
江	/tsiaŋ/	江	*-ŋ	[õŋ]	[õ]	[Ä] or [õ]	[õŋ]	[õ]	[Ä] or [õ]

- Consists of 陽/唐/江 rhyme words **without** onset palatalization (*ŋ)
- /ŋ/ surfaces faithfully in Suzhou because /ɒ/ is [back]
- *Misperception & Reconstruction* change model is again active in this case: *ŋ > õŋ > õ

The Analysis – Type G

Mandarin		<i>Guangyun</i>		L-Old	L-Mid	L-New	C-Old	C-Mid	C-New
絨	/zɔŋ/	東	*-oŋ	[oŋ]	[oŋ]	[oŋ]	[oŋ]	[oŋ]	[oŋ]
兄	/sioŋ/	庚V	*Cioŋ	[oŋ]	[oŋ]	[oŋ]	[oŋ]	[oŋ]	[oŋ]

- Consists of 庚 rhyme words with onset palatalization and a rounded nucleus (Division-III Close, “三等合口”)(*Cioŋ) and 東(*-oŋ) rhyme words
- A merger of 庚V rhyme into 東 (Qian 1992)
- Stable across the board because of agreeing [back]

The Analysis – A recap

Mechanisms/change models in play:

- *Ease of Articulation*: Suzhou only allows [Vŋ] with a [back] vowel and obeys this rule by fronting /ŋ/ or the vowel when applicable – [əŋ] without tongue backing is easier to pronounce
- *Misperception & Reconstruction*: listener-induced change model; compatible with non-existence of [aŋ];
*Vŋ > ˜Vŋ > ˜V
- Mandarin influence: loans only seen in Literary form

Conclusion

- Compared to Mandarin, Suzhou has a more rigid phonotactic system: conforming [back] features is a necessity

Combination	Suzhou	Mandarin
oŋ [back] [back]	√	√
əŋ/aŋ [∅] [back]	×	√
æŋ [front] [back]	×	×

Conclusion

What is regular and what is analogical?

- Coda nasal neutralization and vowel nasalization are regular and language internal
- Influence by analogy from Mandarin is only seen in the Literary Reading, and is rather unstable

Mandarin		<i>Guangyun</i>		L-Old	L-Mid	L-New	C-Old	C-Mid	C-New
恆	/heŋ/	登I	*-eŋ	[eŋ]	[eŋ]	[eŋ]	[eŋ]	[eŋ]	[eŋ]
朋	/p ^h eŋ/	登II	*b ^h eŋ	[eŋ]	[ã]	[ã̃] or [ã]	[ã]	[ã]	[ã̃] or [ã]
爭	/tʂeŋ/	庚I	*-aŋ	[eŋ]	[eŋ]	[eŋ]	[ã]	[ã]	[ã̃] or [ã]
孟	/m ^h eŋ/	庚II	*b ^h aŋ	[eŋ]	[ã]	[ã̃] or [ã]	[ã]	[ã]	[ã̃] or [ã]

Future work

- A closer look at some of the outliers (Type C) in the analysis
- A full survey covering all rhymes with nasal codas and their synchronic status in Suzhou
- Use similar approach to look at neighboring dialects (e.g. Shanghai, Wuxi)

謝謝徕!

[zja˨ zja˨ nɛ˨]

Any Questions?

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More on phonological contrasts

- Alveolar /n/ is believed by many to be universally “unmarked”

(Avery and Rice 1989)

- The minimal contrast for /ŋ/ to be distinctive is [back]

(Steriade 1987, Dresher et al. 1994)

- Suzhou has phonemic /æ/, /a/ and /ɒ/; among low vowels a three-way backness contrast is necessary

/æ/: [front] /a/: [∅] /ɒ/: [back]

- On the other hand, low vowel variants in Mandarin is purely allophonic

(Duanmu 2007)

More on phonological contrasts

Nucleus+Coda	n	ŋ
æ	disallowed and not attested	disallowed and not attested
a	allowed but not attested	disallowed, /aŋ/ > [ã]
ə	[əŋ]	disallowed, /əŋ/ > [əŋ]
ɒ	disallowed and not attested	[õŋ] > [õ]

- Most alternations can be accounted as conforming to the phonotactics
- *Vŋ > Õ change is independent of Mandarin influence

OT Constraint Grammar – Type A

Combination	Suzhou	Mandarin
oŋ [back] [back]	✓	✓
əŋ/aŋ [∅] [back]	×	✓
æŋ [front] [back]	×	×

- Two constraints are needed: BACK-HARMONY and *BACK-DISHARMONY. BACK-HARMONY prevents any pair with **non-agreeing** back features, while *BACK-DISHARMONY is violated when the pair has **opposite** back features
- Both are active (ranked over faithness to [back]) in Suzhou, while only *BACK-DISHARMONY is active in Mandarin

OT Constraint Grammar – Type A

Distinct derivations from the same *əŋ input

Mandarin /əŋ/	*BACK-DISHARMONY	IDENT-NAS[back]	BACK-HARMONY
☞ a. əŋ			*
b. ən		*!	
c. æŋ	*!		*

Suzhou /əŋ/	*BACK-DISHARMONY	BACK-HARMONY	IDENT-NAS[back]
☞ a. ən			*
b. əŋ		*!	
c. æŋ	*!		*

Mandarin: *BACK-DISHARMONY, IDENT-NAS[BACK] >> BACK-HARMONY

Suzhou: *BACK-DISHARMONY, BACK-HARMONY >> IDENT-NAS[BACK]

OT Constraint Grammar – Type E

Distinct derivations from *C^jəŋ

Mandarin /C ^j əŋ/	*BACK-DISHARMONY	IDENT-V[back]	IDENT-NAS[back]	BACK-HARMONY	V-PALATALIZATION
☞ a. -əŋ				*	*
b. -ŋ	*!	*		*	
c. -m		*!	*		
d. -ən			*!		*

Suzhou /C ^j əŋ/	*BACK-DISHARMONY	BACK-HARMONY	V-PALATALIZATION	IDENT-V[back]	IDENT-NAS[back]
☞ a. -m				*	*
b. -ŋ	*!	*		*	
c. -əŋ		*!	*		
d. -ən			*!		*

Mandarin: *BACK-DISHARMONY, IDENT-V[back], IDENT-NAS[BACK] >> BACK-HARMONY, V-PALATALIZATION

Suzhou: *BACK-DISHARMONY, BACK-HARMONY, V-PALATALIZATION >> IDENT-V[back], IDENT-NAS[BACK]