

Taiwanese Cantillation Prosody and the Standard Tradition of Regulated Verse

David Prager Branner

American Oriental Society
Western Branch

1 November, 2014
Stanford University

Basic issue

Tradition that Southern dialects are better for representing the sound of traditional poetry of the “Táng sound” (*tángyīn* 唐音) style.

Known problems with the claim

Taking the common Taiwanese *wéndú* 文讀 as an example, there are some sixteen initials heard, whereas medieval phonology requires no fewer than 35 and as many as 41. Taiwanese does not always distinguish historically distinct initials.

Known problems with the claim

Taking the common Taiwanese *wéndú* 文讀 as an example, there are some sixteen initials heard, whereas medieval phonology requires no fewer than 35 and as many as 41. Taiwanese does not always distinguish historically distinct initials.

There are also various places where medieval categories are simply mixed up in Taiwanese — one medieval initial coming out different ways in Taiwanese — mostly among voiced initials.

Examples of Taiwanese wéndú failing to represent a medieval initial in a single form:

Examples of Taiwanese wéndú failing to represent a medieval initial in a single form:

Initial	字	Medieval phonology	Taiwanese
並母	湓	{ben-1}	phûn
	抱	{bauQ-1}	phāu
	浮	{bou-3b}	hû
	服	{buk-3b}	hók
	被	{biQ-3bx}	pī
	病	{beingH-3a}	pēng

Examples of Taiwanese wéndú failing to represent a medieval initial in a single form:

Initial	字	Medieval phonology	Taiwanese
明母	每	{ meiQ-1a }	muí ⁿ
	買	{ meiQ-2a }	mái ⁿ
	蟆	{ ma-2 }	mâ ⁿ
	馬	{ maQ-2 }	má ⁿ
	眉	{ mi-3cx }	bî
	未	{ miH-3a }	bī
	無	{ muo-3c }	bû
	暮	{ muoH-1 }	bō

Examples of Taiwanese wéndú failing to represent a medieval initial in a single form:

Initial	字	Medieval phonology	Taiwanese
定母	笛	{ deik-4 }	ték
	弟	{ deiQ-4 }	tē
	停	{ deing-4 }	thēng
	頭	{ dou-1 }	thiû
	茶	{ dra-2 }	chhâ
	宅	{ dreik-2a }	thék
	纏	{ dran-3b }	tiân
	沉	{ drem-3 }	tîm

Examples of Taiwanese wéndú failing to represent a medieval initial in a single form:

Initial	字	Medieval phonology	Taiwanese
來母	羅	{le-1}	lô
	老	{lauQ-1}	nó ⁿ
日母	人	{nyen-3b}	lîn
	耳	{nyiQ-3d}	ní ⁿ

Of course, it could certainly be that our understanding of medieval phonology is incomplete.

Of course, it could certainly be that our understanding of medieval phonology is incomplete.

In any case, comparing lists of initials only allows us to take a static view of both phonologies.

Of course, it could certainly be that our understanding of medieval phonology is incomplete.

In any case, comparing lists of initials only allows us to take a static view of both phonologies. Since we are really talking about performance issues, we should try to use more dynamic evidence.

Of course, it could certainly be that our understanding of medieval phonology is incomplete.

In any case, comparing lists of initials only allows us to take a static view of both phonologies. Since we are really talking about performance issues, we should try to use more dynamic evidence.

Today I am reporting instead on the prosodic behavior observed in Taiwanese “cantillation” of Táng-era literature.

Of course, it could certainly be that our understanding of medieval phonology is incomplete.

In any case, comparing lists of initials only allows us to take a static view of both phonologies. Since we are really talking about performance issues, we should try to use more dynamic evidence.

Today I am reporting instead on the prosodic behavior observed in Taiwanese “cantillation” of Táng-era literature. This is long-term work in progress —

Of course, it could certainly be that our understanding of medieval phonology is incomplete.

In any case, comparing lists of initials only allows us to take a static view of both phonologies. Since we are really talking about performance issues, we should try to use more dynamic evidence.

Today I am reporting instead on the prosodic behavior observed in Taiwanese “cantillation” of Táng-era literature. This is long-term work in progress — I put it aside in the Fall of 2001, frustrated with technical problems, but have taken it up again this summer, now that my programming skills can be put to service here.

Term “cantillation”

Term “cantillation”

- *yínsòng* 吟誦 — melodic expression of literature

Term “cantillation”

- *yínsòng* 吟誦 — melodic expression of literature
- Usually rendered “chanting”

Term “cantillation”

- *yínsòng* 吟誦 — melodic expression of literature
- Usually rendered “chanting”, poor translation because English suggests monotony

Term “cantillation”

- *yínsòng* 吟誦 — melodic expression of literature
- Usually rendered “chanting”, poor translation because English suggests monotony; technically, also used of plainsong.

Term “cantillation”

- *yínsòng* 吟誦 — melodic expression of literature
- Usually rendered “chanting”, poor translation because English suggests monotony; technically, also used of plainsong.
- “Cantillation” is not technically more correct, but is used for the florid melodic ornamentation of liturgical Hebrew.

Term “cantillation”

- *yínsòng* 吟誦 — melodic expression of literature
- Usually rendered “chanting”, poor translation because English suggests monotony; technically, also used of plainsong.
- “Cantillation” is not technically more correct, but is used for the florid melodic ornamentation of liturgical Hebrew.
- Chinese traditional *yínsòng* 吟誦 is highly ornamented.

Term “cantillation”

- *yínsòng* 吟誦 — melodic expression of literature
- Usually rendered “chanting”, poor translation because English suggests monotony; technically, also used of plainsong.
- “Cantillation” is not technically more correct, but is used for the florid melodic ornamentation of liturgical Hebrew.
- Chinese traditional *yínsòng* 吟誦 is highly ornamented.
- Intrinsic syllable-tones are elaborated into melody

Term “cantillation”

- *yínsòng* 吟誦 — melodic expression of literature
- Usually rendered “chanting”, poor translation because English suggests monotony; technically, also used of plainsong.
- “Cantillation” is not technically more correct, but is used for the florid melodic ornamentation of liturgical Hebrew.
- Chinese traditional *yínsòng* 吟誦 is highly ornamented.
- Intrinsic syllable-tones are elaborated into melody; the principle bears a likeness to the embellishment of written characters into *shūfǎ* 書法 (‘calligraphy’).

Term “cantillation”

There are traditions of cantillation all over the Chinese-speaking world, dating back to long before the May Fourth Movement.

Term “cantillation”

There are traditions of cantillation all over the Chinese-speaking world, dating back to long before the May Fourth Movement.

In much of continental China this tradition was lost through lack of practice.

Term “cantillation”

There are traditions of cantillation all over the Chinese-speaking world, dating back to long before the May Fourth Movement.

In much of continental China this tradition was lost through lack of practice.

The “Two Fours”

Term “cantillation”

There are traditions of cantillation all over the Chinese-speaking world, dating back to long before the May Fourth Movement.

In much of continental China this tradition was lost through lack of practice.

The “Two Fours”

- The May Fourth Movement

Term “cantillation”

There are traditions of cantillation all over the Chinese-speaking world, dating back to long before the May Fourth Movement.

In much of continental China this tradition was lost through lack of practice.

The “Two Fours”

- The May Fourth Movement
- The Movement to Smash the Four Old Things

Term “cantillation”

There are traditions of cantillation all over the Chinese-speaking world, dating back to long before the May Fourth Movement.

In much of continental China this tradition was lost through lack of practice.

The “Two Fours”

- The May Fourth Movement
- The Movement to Smash the Four Old Things

Taiwan experienced neither of these upheavals.

Term “cantillation”

There are traditions of cantillation all over the Chinese-speaking world, dating back to long before the May Fourth Movement.

In much of continental China this tradition was lost through lack of practice.

The “Two Fours”

- The May Fourth Movement
- The Movement to Smash the Four Old Things

Taiwan experienced neither of these upheavals. Literati cantillation (*wénrén diào* 文人調) has survived in a number of traditions, with recordings attested at least from the 1960s and 70s.

Term “cantillation”

There are traditions of cantillation all over the Chinese-speaking world, dating back to long before the May Fourth Movement.

In much of continental China this tradition was lost through lack of practice.

The “Two Fours”

- The May Fourth Movement
- The Movement to Smash the Four Old Things

Taiwan experienced neither of these upheavals. Literati cantillation (*wénrén diào* 文人調) has survived in a number of traditions, with recordings attested at least from the 1960s and 70s. In part it was associated with *geisha* culture.

(Recorded example.)

(Recorded example.)

The “Pípá xíng” 琵琶行 of Bái Jūyì.

(Recorded example.)

The “Pípá xíng” 琵琶行 of Bái Jūyì.

Sung by Hsü I-t‘ing 許禕廷 in a setting transmitted by Hóng Zénán 洪澤南.

潯陽江頭夜送客

sîm-iông-kang-thiû iā-sòng-khek

Seeing off a guest by night
at Sîmiông River's edge —

♩ = 84

sîm - iông kang - thiû iā - sòng - khék
潯 陽 江 頭 夜 送 客

楓葉荻花秋瑟瑟

hong-iáp tèk-hoa chhiu sek-sek

‘Seksek’ in the autumn air
went sweetgum leaves,
went silver-grass blossoms —

5

hong - iáp — tèk hoa — chhiu sek - sek —

楓 葉 荻 花 秋 瑟 瑟

主人下馬客在船

chú-lîn hā-máⁿ khek chāi-sôan

The host dismounted;
at boatside was the guest —

9

chú - lîn hā - máⁿ khek chāi - sôan

主 人 下 馬 客 在 船

舉酒欲飲無管弦

kú-chiú iòk-ím bù-kóan-hiân

They raised their wine to drink;
no flutes or strings there were —

13



kú - chiú iòk ím bù - kóan - hiân
舉 酒 欲 飲 無 管 弦

醉不成歡慘將別

chui put-sêng-hoan chhám chiong-piàt

Drunk, but not to the point of happiness —
miserable at parting —

17



chui put - sêng - hoan chhám chiong - piàt

醉 不 成 歡 慘 將 別

別時茫茫江浸月

piát-sî bōng-bōng kang chīm-gòat

Vast it seemed, at parting —
river drenched moon —

21

The musical notation is written on a single staff with a treble clef. It begins with a 3/4 time signature, followed by a 6/8 time signature, then a 2/4 time signature, and ends with a 3/4 time signature. The melody consists of several notes, including a dotted quarter note, an eighth note, a half note, and a quarter note, with various rests and phrasing slurs. The lyrics are written below the staff, aligned with the notes.

piát - sî bōng - bōng kang chīm - gòat

別 時 茫 茫 江 浸 月

忽聞水上琵琶聲

hut-bûn suí-siōng pî-pâ-seng

Suddenly was heard
the sound of a lute on the waters —

25

hut - bûn suí - siōng pî - pâ - seng

忽 聞 水 上 琵 琶 聲

主人忘歸客不發

chú-lîn bông-kui khek put-hoat

The host forgot about going back;
the guest did not set off —

29

chú - lîn bông - kui khek put - hoat
主 人 忘 歸 客 不 發

Segmentals

Segmentals (Roman-letter portion of transcribed language)

Segmentals (Roman-letter portion of transcribed language)

Note in passing that the inconsistencies in *wéndú* initials have no relevance in the case of the present poem, which is not regulated.

Segmentals (Roman-letter portion of transcribed language)

Note in passing that the inconsistencies in *wéndú* initials have no relevance in the case of the present poem, which is not regulated.

What about rhyming?

Rhyming

Rhyming

Shānshè words (medieval {-an}/{-at}) rhyme imperfectly

Rhyming

Shānshè words (medieval {-an}/{-at}) rhyme imperfectly

船

sôan

弦

hiân

Rhyming

Shānshè words (medieval {-an}/{-at}) rhyme imperfectly

船

sôan

chuán

弦

hiân

xián

Just as in Mandarin.

Rhyming

Shānshè words (medieval {-an}/{-at}) rhyme imperfectly

船	sôan	chuán
---	------	-------

弦	hiân	xián
---	------	------

別	piat	
---	------	--

月	gòat	
---	------	--

聲	seng	
---	------	--

發	hoat	
---	------	--

Just as in Mandarin.

Rhyming

Shānshè words (medieval {-an}/{-at}) rhyme imperfectly

船	sōan	chuán
---	------	-------

弦	hiân	xián
---	------	------

別	piat	bié
---	------	-----

月	gòat	yuè
---	------	-----

聲	seng	shēng
---	------	-------

發	hoat	fā
---	------	----

Just as in Mandarin.

Rhyming

Shānshè words (medieval {-an}/{-at}) rhyme imperfectly

船	sôan	chuán
---	------	-------

弦	hiân	xián
---	------	------

別	piát	bié
---	------	-----

月	gòat	yuè
---	------	-----

聲	seng	shēng
---	------	-------

發	hoat	fā
---	------	----

絕	chòat	
---	-------	--

歇	hiat	
---	------	--

Just as in Mandarin.

Rhyming

Shānshè words (medieval {-an}/{-at}) rhyme imperfectly

船	sôan	chuán
弦	hiân	xián
別	piát	bié
月	gòat	yuè
聲	seng	shēng
發	hoat	fā
絕	chòat	jué
歇	hiat	xiē

Just as in Mandarin.

Rhyming

Shānshè words (medieval {-an}/{-at}) rhyme imperfectly

船	sôan	chuán
弦	hiân	xián
別	piát	bié
月	gòat	yuè
聲	seng	shēng
發	hoat	fā
絕	chòat	jué
歇	hiat	xiē

Just as in Mandarin. (In fact Mandarin does better on *jué/xiē*.)

“Accommodated” rhyming (*xiéyùn* 叶韻)

“Accommodated” rhyming (*xiéyùn* 叶韻) — force it to rhyme.

“Accommodated” rhyming (*xiéyùn* 叶韻) — force it to rhyme.

自言本是京城女	lú	今年歡笑復明年	liân
家在蝦蟆陵下住	chū	秋月春風等閒度	tū
十三學得琵琶成	sêng	弟走從軍阿姨死	sú
名屬教坊第一部	pū	暮去朝來顏色故	kù
曲罷曾教善才服	hòk	門前冷落車馬稀	hi
妝成每被秋娘妒	tù	老大嫁作商人婦	hū
五陵年少爭纏頭	thiû	商人重利輕別離	lí
一曲紅綃不知數	sù	前月浮梁買茶去	khù
鈿頭雲篦擊節碎	sui		
血色羅裙翻酒污	ù		

“Accommodated” rhyming (*xiéyùn* 叶韻) — force it to rhyme.

自言本是京城女	lú	今年歡笑復明年	liân
家在蝦蟆陵下住	chū	秋月春風等閒度	tū
十三學得琵琶成	sêng	弟走從軍阿姨死	sú
名屬教坊第一部	pū	暮去朝來顏色故	kù
曲罷曾教善才服	hòk	門前冷落車馬稀	hi
妝成每被秋娘妒	tù	老大嫁作商人婦	hū
五陵年少爭纏頭	thiû	商人重利輕別離	lî
一曲紅綃不知數	sù	前月浮梁買茶去	khù
鈿頭雲篦擊節碎	sui		
血色羅裙翻酒污	ù		

“Accommodated” rhyming (*xiéyùn* 叶韻) — force it to rhyme.

自言本是京城女	lú	今年歡笑復明年	liân
家在蝦蟆陵下住	chū	秋月春風等閒度	tū *
十三學得琵琶成	sêng	弟走從軍阿姨死	sú
名屬教坊第一部	pū	暮去朝來顏色故	kù *
曲罷曾教善才服	hók	門前冷落車馬稀	hi
妝成每被秋娘妒	tù	老大嫁作商人婦	hū
五陵年少爭纏頭	thiû	商人重利輕別離	lî
一曲紅綃不知數	sù *	前月浮梁買茶去	khù
鈿頭雲篦擊節碎	sui		
血色羅裙翻酒污	ù		

“Accommodated” rhyming (*xiéyùn* 叶韻) – force it to rhyme.

自言本是京城女	lú	今年歡笑復明年	liân
家在蝦蟆陵下住	chū	秋月春風等閒度	tū *
十三學得琵琶成	sêng	弟走從軍阿姨死	sú
名屬教坊第一部	pū	暮去朝來顏色故	kù *
曲罷曾教善才服	hòk	門前冷落車馬稀	hi
妝成每被秋娘妒	tù	老大嫁作商人婦	hū
五陵年少爭纏頭	thiû	商人重利輕別離	lî
一曲紅綃不知數	sù *	前月浮梁買茶去	khù
鈿頭雲篦擊節碎	sui		
血色羅裙翻酒污	ù		

***數 sò' => sù**

度 tō' => tū

故 kò' => kù

Tone in rhyming

Tone in rhyming — look again at just the rhyme words:

Tone in rhyming — look again at just the rhyme words:

住	部	妒	數	污	度	故	婦	去
chū	pū	tù	sù	ù	tū	kù	hū	khù

Tone in rhyming — look again at just the rhyme words:

住	部	妒	數	污	度	故	婦	去
chū	pū	tù	sù	ù	tū	kù	hū	khù

Yángqù tone (-ū)

Tone in rhyming — look again at just the rhyme words:

住	部	妒	數	污	度	故	婦	去
chū	pū				tū		hū	
		tù	sù	ù		kù		khù

Yángqù tone (-ū) rhymes with *yīnqù* (-ù).

Tone in rhyming — look again at just the rhyme words:

住	部	妒	數	污	度	故	婦	去
chū	pū				tū		hū	
		tù	sù	ù		kù		khù

Yángqù tone (-ū) rhymes with *yīnqù* (-ù).

In the early Táng, these words were all in the same tone: *qùshēng*.

Tone in rhyming — look again at just the rhyme words:

住	部	妒	數	污	度	故	婦	去
chū	pū				tū		hū	
		tù	sù	ù		kù		khù

Yángqù tone (-ū) rhymes with *yīnqù* (-ù).

In the early Táng, these words were all in the same tone: *qùshēng*.

But at some point each early-Táng tone divided into two, and they no longer sounded alike.

Tone in rhyming — look again at just the rhyme words:

住	部	妒	數	污	度	故	婦	去
chū	pū				tū		hū	
		tù	sù	ù		kù		khù

Yángqù tone (-ū) rhymes with *yīnqù* (-ù).

In the early Táng, these words were all in the same tone: *qùshēng*.

But at some point each early-Táng tone divided into two, and they no longer sounded alike.

Yet readers have continued to accept them as a single category for poetic purposes

Tone in rhyming — look again at just the rhyme words:

住	部	妒	數	污	度	故	婦	去
chū	pū				tū		hū	
		tù	sù	ù		kù		khù

Yángqù tone (-ū) rhymes with *yīnqù* (-ù).

In the early Táng, these words were all in the same tone: *qùshēng*.

But at some point each early-Táng tone divided into two, and they no longer sounded alike.

Yet readers have continued to accept them as a single category for poetic purposes, as have poets

Tone in rhyming — look again at just the rhyme words:

住	部	妒	數	污	度	故	婦	去
chū	pū				tū		hū	
		tù	sù	ù		kù		khù

Yángqù tone (-ū) rhymes with *yīnqù* (-ù).

In the early Táng, these words were all in the same tone: *qùshēng*.

But at some point each early-Táng tone divided into two, and they no longer sounded alike.

Yet readers have continued to accept them as a single category for poetic purposes, as have poets, even though they sound different.

When did people start doing that?

住	部	妒	數	污	度	故	婦	去
chū	pū	tù	sù	ù	tū	kù	hū	khù

When did people start doing that?

住	部	妒	數	污	度	故	婦	去
chū	pū	tù	sù	ù	tū	kù	hū	khù

Probably by Bái Jūyì's own time!

When did people start doing that?

住	部	妒	數	污	度	故	婦	去
chū	pū	tù	sù	ù	tū	kù	hū	khù
去聲		去聲	去聲	去聲	去聲	去聲		去聲

Probably by Bái Jūyì's own time!

When did people start doing that?

住	部	妒	數	污	度	故	婦	去
chū	pū	tù	sù	ù	tū	kù	hū	khù
去聲	上聲	去聲	去聲	去聲	去聲	去聲	上聲	去聲

Probably by Bái Jūyì's own time!

Bái himself rhymes two *shǎngshēng* words into a *qùshēng* rhyming block — both are examples of words that have moved between tone categories as a result of the tone split that gave us -ù and -ū.

When did people start doing that?

住	部	妒	數	污	度	故	婦	去
chū	pū	tù	sù	ù	tū	kù	hū	khù
去聲	上聲	去聲	去聲	去聲	去聲	去聲	上聲	去聲

Probably by Bái Jūyì's own time!

Bái himself rhymes two *shǎngshēng* words into a *qùshēng* rhyming block — both are examples of words that have moved between tone categories as a result of the tone split that gave us -ù and -ū.

This shows us that the *kind of* tone-split we see in Taiwanese was already present in Bái's language — like modern poets, he rhymed in an accent whose tones were different from the way he spoke.

The point is not whether Bái was or was not speaking Taiwanese or anything like it.

The point is not whether Bái was or was not speaking Taiwanese or anything like it.

The point is that imperfect tonal behavior, of the same kind that we can observe today in Taiwanese (and Mandarin), was part of Táng tradition, at least by Bái's time.

The point is not whether Bái was or was not speaking Taiwanese or anything like it.

The point is that imperfect tonal behavior, of the same kind that we can observe today in Taiwanese (and Mandarin), was part of Táng tradition, at least by Bái's time. The *yīn-yáng* tone split was in existence by then

The point is not whether Bái was or was not speaking Taiwanese or anything like it.

The point is that imperfect tonal behavior, of the same kind that we can observe today in Taiwanese (and Mandarin), was part of Táng tradition, at least by Bái's time. The *yīn-yáng* tone split was in existence by then — the traditional four tones were no longer articulated with their original integrity.

The point is not whether Bái was or was not speaking Taiwanese or anything like it.

The point is that imperfect tonal behavior, of the same kind that we can observe today in Taiwanese (and Mandarin), was part of Táng tradition, at least by Bái's time. The *yīn-yáng* tone split was in existence by then — the traditional four tones were no longer articulated with their original integrity. Bái must have had to accommodate the tone-split, just as Taiwanese cantillators do.

Tonal prosody

Tonal prosody

In this seven-syllable poem, not all syllable-positions are the same length on average.

Tonal prosody (♪ = 1.0)

In this seven-syllable poem, not all syllable-positions are the same length on average.

1	2	3	4	5	6	7
1.0	1.4	0.9	1.1	1.0	0.9	1.7

Tonal prosody (♪ = 1.0)

In this seven-syllable poem, not all syllable-positions are the same length on average.

1	2	3	4	5	6	7
1.0	1.4	0.9	1.1	1.0	0.9	1.7

Syllables in positions 2 and 7 are appreciably longer than the others, on average.

Tonal prosody (♪ = 1.0)

In this seven-syllable poem, not all syllable-positions are the same length on average.

1	2	3	4	5	6	7
1.0	1.4	0.9	1.1	1.0	0.9	1.7

Syllables in positions 2 and 7 are appreciably longer than the others, on average.

Syllables in different tones are also not the same duration.

Average duration by tone (♪ = 1.0)

Average duration by tone (♩ = 1.0)

<i>tone</i>	<i>avg. duration</i>
○	1.3
●	1.0

Average duration by tone (♩ = 1.0)

<i>tone</i>	<i>avg. duration</i>
○	1.3
<i>yīnpíng</i>	1.2
<i>yángpíng</i>	1.3
●	1.0
<i>yīnshǎng</i>	1.0
<i>yīnqù</i>	1.0
<i>yángqù</i>	1.0
<i>yánggrù</i>	1.0
<i>yīnrù</i>	1.0

Average duration by tone (♩ = 1.0)

<i>tone</i>	<i>avg. duration</i>
○	1.3
<i>yīnpíng</i>	1.2
<i>yángpíng</i>	1.3
●	1.0
<i>yīnshǎng</i>	1.0
<i>yīnqù</i>	1.0
<i>yángqù</i>	1.0
<i>yánggrù</i>	1.0
<i>yīnrù</i>	1.0

Distinct tendency to prolong *píng* syllables overall, and particularly the *yángpíng*.

Average duration by tone (♩ = 1.0)

<i>tone</i>	<i>avg. duration</i>
○	1.3
<i>yīnpíng</i>	1.2
<i>yángpíng</i>	1.3
●	1.0
<i>yīnshǎng</i>	1.0
<i>yīnqù</i>	1.0
<i>yángqù</i>	1.0
<i>yánggrù</i>	1.0
<i>yīnrù</i>	1.0

Distinct tendency to prolong *píng* syllables overall, and particularly the *yángpíng*.

How does that relate to the relative length of different positions?

Average duration by place and tone (♩ = 1.0)

Average duration by place and tone (♩ = 1.0)

place:	1	2	3	4	5	6	7
○	1.0	1.7	1.0	1.4	1.0	1.0	1.8
●	1.0	0.9	0.9	0.8	0.9	0.8	1.6

Average duration by place and tone (♩ = 1.0)

place:	1	2	3	4	5	6	7
○	1.0	1.7	1.0	1.4	1.0	1.0	1.8
●	1.0	0.9	0.9	0.8	0.9	0.8	1.6

Average duration by place and tone (♩ = 1.0)

place:	1	2	3	4	5	6	7
○	1.0	1.7	1.0	1.4	1.0	1.0	1.8
●	1.0	0.9	0.9	0.8	0.9	0.8	1.6

Final syllable, regardless of tone, tends to be prolonged.

Average duration by place and tone (♩ = 1.0)

place:	1	2	3	4	5	6	7
○	1.0	1.7	1.0	1.4	1.0	1.0	1.8
●	1.0	0.9	0.9	0.8	0.9	0.8	1.6

Final syllable, regardless of tone, tends to be prolonged.

Average duration by place and tone (♩ = 1.0)

place:	1	2	3	4	5	6	7
○	1.0	1.7	1.0	1.4	1.0	1.0	1.8
●	1.0	0.9	0.9	0.8	0.9	0.8	1.6

Final syllable, regardless of tone, tends to be prolonged.
Caesura-positions 2 & 4 are longer in *píng* tones.

Average duration by place and tone (♩ = 1.0)

place:	1	2	3	4	5	6	7
○	1.0	1.7	1.0	1.4	1.0	1.0	1.8
●	1.0	0.9	0.9	0.8	0.9	0.8	1.6

Final syllable, regardless of tone, tends to be prolonged.
Caesura-positions 2 & 4 are longer in *píng* tones.

Average duration by place and tone (♩ = 1.0)

place:	1	2	3	4	5	6	7
○	1.0	1.7	1.0	1.4	1.0	1.0	1.8
●	1.0	0.9	0.9	0.8	0.9	0.8	1.6

Final syllable tends to be prolonged.

Caesura-positions 2 & 4 are longer in *píng* tones.

Inner (positions 2-6) *zè* tones are all slightly shorter on average.

Average duration by place and tone (♩ = 1.0)

place:	1	2	3	4	5	6	7
○	1.0	1.7	1.0	1.4	1.0	1.0	1.8
<i>yīnpíng</i>	1.0	1.6	1.0	1.2	1.0	1.1	1.9
<i>yángpíng</i>	1.1	1.7	1.0	1.6	1.0	0.9	1.8
●	1.0	0.9	0.9	0.8	0.9	0.8	1.6
<i>yīnshǎng</i>	1.0	1.3	0.9	0.8	1.0	0.9	1.5
<i>yīnqù</i>	1.0	0.6	0.9	0.6	0.9	0.9	1.6
<i>yángqù</i>	1.0	0.8	0.8	0.8	1.1	0.8	1.8
<i>yīnrù</i>	1.0	0.6	0.8	0.8	0.8	0.8	1.7
<i>yánggrù</i>	1.2	0.8	0.9	0.8	0.8	0.7	1.5

Average duration by place and tone (♩ = 1.0)

place:	1	2	3	4	5	6	7
○	1.0	1.7	1.0	1.4	1.0	1.0	1.8
<i>yīnpíng</i>	1.0	1.6	1.0	1.2	1.0	1.1	1.9
<i>yángpíng</i>	1.1	1.7	1.0	1.6	1.0	0.9	1.8
●	1.0	0.9	0.9	0.8	0.9	0.8	1.6
<i>yīnshǎng</i>	1.0	1.3	0.9	0.8	1.0	0.9	1.5
<i>yīnqù</i>	1.0	0.6	0.9	0.6	0.9	0.9	1.6
<i>yángqù</i>	1.0	0.8	0.8	0.8	1.1	0.8	1.8
<i>yīnrù</i>	1.0	0.6	0.8	0.8	0.8	0.8	1.7
<i>yánggrù</i>	1.2	0.8	0.9	0.8	0.8	0.7	1.5

Average duration by place and tone (♩ = 1.0)

place:	1	2	3	4	5	6	7
○	1.0	1.7	1.0	1.4	1.0	1.0	1.8
<i>yīnpíng</i>	1.0	1.6	1.0	1.2	1.0	1.1	1.9
<i>yángpíng</i>	1.1	1.7	1.0	1.6	1.0	0.9	1.8
●	1.0	0.9	0.9	0.8	0.9	0.8	1.6
<i>yīnshǎng</i>	1.0	1.3	0.9	0.8	1.0	0.9	1.5
<i>yīnqù</i>	1.0	0.6	0.9	0.6	0.9	0.9	1.6
<i>yángqù</i>	1.0	0.8	0.8	0.8	1.1	0.8	1.8
<i>yīnrù</i>	1.0	0.6	0.8	0.8	0.8	0.8	1.7
<i>yánggrù</i>	1.2	0.8	0.9	0.8	0.8	0.7	1.5

These generalizations hold for most individual tones

Average duration by place and tone (♩ = 1.0)

place:	1	2	3	4	5	6	7
○	1.0	1.7	1.0	1.4	1.0	1.0	1.8
<i>yīnpíng</i>	1.0	1.6	1.0	1.2	1.0	1.1	1.9
<i>yángpíng</i>	1.1	1.7	1.0	1.6	1.0	0.9	1.8
●	1.0	0.9	0.9	0.8	0.9	0.8	1.6
<i>yīnshǎng</i>	1.0	1.3	0.9	0.8	1.0	0.9	1.5
<i>yīnqù</i>	1.0	0.6	0.9	0.6	0.9	0.9	1.6
<i>yángqù</i>	1.0	0.8	0.8	0.8	1.1	0.8	1.8
<i>yīnrù</i>	1.0	0.6	0.8	0.8	0.8	0.8	1.7
<i>yánggrù</i>	1.2	0.8	0.9	0.8	0.8	0.7	1.5

These generalizations hold for most individual tones, though position-4 *yīnpíng* looks doubtful here. (More data needed.)

Average duration by place and tone (♩ = 1.0)

place:	1	2	3	4	5	6	7
○	1.0	1.7	1.0	1.4	1.0	1.0	1.8
<i>yīnpíng</i>	1.0	1.6	1.0	1.2	1.0	1.1	1.9
<i>yángpíng</i>	1.1	1.7	1.0	1.6	1.0	0.9	1.8
●	1.0	0.9	0.9	0.8	0.9	0.8	1.6
<i>yīnshǎng</i>	1.0	1.3	0.9	0.8	1.0	0.9	1.5
<i>yīnqù</i>	1.0	0.6	0.9	0.6	0.9	0.9	1.6
<i>yángqù</i>	1.0	0.8	0.8	0.8	1.1	0.8	1.8
<i>yīnrù</i>	1.0	0.6	0.8	0.8	0.8	0.8	1.7
<i>yánggrù</i>	1.2	0.8	0.9	0.8	0.8	0.7	1.5

Some prolongation in position-2 *yīnshǎng*, too.

Average duration by place and tone (♩ = 1.0)

place:	1	2	3	4	5	6	7
○	1.0	1.7	1.0	1.4	1.0	1.0	1.8
<i>yīnpíng</i>	1.0	1.6	1.0	1.2	1.0	1.1	1.9
<i>yángpíng</i>	1.1	1.7	1.0	1.6	1.0	0.9	1.8
●	1.0	0.9	0.9	0.8	0.9	0.8	1.6
<i>yīnshǎng</i>	1.0	1.3	0.9	0.8	1.0	0.9	1.5
<i>yīnqù</i>	1.0	0.6	0.9	0.6	0.9	0.9	1.6
<i>yángqù</i>	1.0	0.8	0.8	0.8	1.1	0.8	1.8
<i>yīnrù</i>	1.0	0.6	0.8	0.8	0.8	0.8	1.7
<i>yánggrù</i>	1.2	0.8	0.9	0.8	0.8	0.7	1.5

Some prolongation in position-2 *yīnshǎng*, too.

Are all cases of prolongation basically the same?

Average duration by place and tone (♩ = 1.0)

place:	1	2	3	4	5	6	7
○	1.0	1.7	1.0	1.4	1.0	1.0	1.8
<i>yīnpíng</i>	1.0	1.6	1.0	1.2	1.0	1.1	1.9
<i>yángpíng</i>	1.1	1.7	1.0	1.6	1.0	0.9	1.8
●	1.0	0.9	0.9	0.8	0.9	0.8	1.6
<i>yīnshǎng</i>	1.0	1.3	0.9	0.8	1.0	0.9	1.5
<i>yīnqù</i>	1.0	0.6	0.9	0.6	0.9	0.9	1.6
<i>yángqù</i>	1.0	0.8	0.8	0.8	1.1	0.8	1.8
<i>yīnrù</i>	1.0	0.6	0.8	0.8	0.8	0.8	1.7
<i>yánggrù</i>	1.2	0.8	0.9	0.8	0.8	0.7	1.5

Some prolongation in position-2 *yīnshǎng*, too.

Are all cases of prolongation basically the same? (no)

Percentages of melismatic and non-melismatic syllables

Percentages of melismatic and non-melismatic syllables

(“melisma”: more than one note to a syllable)

Percentages of melismatic and non-melismatic syllables

(“melisma”: more than one note to a syllable)

<i>tone</i>	<i>melismatic</i>		<i>non-melismatic</i>
	<i>fall</i>	<i>rise</i>	
<i>yīnpíng</i>	26.4	1.4	
<i>yángpíng</i>	5.1	52.6	
<i>yīnshǎng</i>	44.7	6.6	
<i>yīnqù</i>	30.4	0.0	
<i>yángqù</i>	25.8	0.0	
<i>yīnrù</i>	43.8	1.4	
<i>yánggrù</i>	27.5	0.0	

Percentages of melismatic and non-melismatic syllables

(“melisma”: more than one note to a syllable)

<i>tone</i>	<i>melismatic</i>		<i>non-melismatic</i>
	<i>fall</i>	<i>rise</i>	
<i>yīnpíng</i>	26.4	1.4	
<i>yángpíng</i>	5.1	52.6	
<i>yīnshǎng</i>	44.7	6.6	
<i>yīnqù</i>	30.4	0.0	
<i>yángqù</i>	25.8	0.0	
<i>yīnrù</i>	43.8	1.4	
<i>yánggrù</i>	27.5	0.0	

Yángpíng has strongest tendency to melisma.

Percentages of melismatic and non-melismatic syllables

(“melisma”: more than one note to a syllable)

<i>tone</i>	<i>melismatic</i>		<i>non-melismatic</i>
	<i>fall</i>	<i>rise</i>	
<i>yīnpíng</i>	26.4	1.4	72.2
<i>yángpíng</i>	5.1	52.6	42.3
<i>yīnshǎng</i>	44.7	6.6	48.7
<i>yīnqù</i>	30.4	0.0	69.6
<i>yángqù</i>	25.8	0.0	74.2
<i>yīnrù</i>	43.8	1.4	54.8
<i>yánggrù</i>	27.5	0.0	72.5

Yángpíng has strongest tendency to melisma.

Percentages of melismatic and non-melismatic syllables

(“melisma”: more than one note to a syllable)

<i>tone</i>	<i>melismatic</i>		<i>non-melismatic</i>
	<i>fall</i>	<i>rise</i>	
<i>yīnpíng</i>	26.4	1.4	72.2
<i>yángpíng</i>	5.1	52.6	42.3
<i>yīnshǎng</i>	44.7	6.6	48.7
<i>yīnqù</i>	30.4	0.0	69.6
<i>yángqù</i>	25.8	0.0	74.2
<i>yīnrù</i>	43.8	1.4	54.8
<i>yánggrù</i>	27.5	0.0	72.5

Yángpíng has strongest tendency to melisma.

Other tones, if melismatic, normally fall; *yángpíng* rises.

Percentages of melismatic and non-melismatic syllables

(“melisma”: more than one note to a syllable)

<i>tone</i>	<i>melismatic</i>		<i>non-melismatic</i>
	<i>fall</i>	<i>rise</i>	
<i>yīnpíng</i>	26.4	1.4	72.2
<i>yángpíng</i>	5.1	52.6	42.3
<i>yīnshǎng</i>	44.7	6.6	48.7
<i>yīnqù</i>	30.4	0.0	69.6
<i>yángqù</i>	25.8	0.0	74.2
<i>yīnrù</i>	43.8	1.4	54.8
<i>yánggrù</i>	27.5	0.0	72.5

Percentages of melismatic and non-melismatic syllables

(“melisma”: more than one note to a syllable)

<i>tone</i>	<i>melismatic</i>		<i>non-melismatic</i>
	<i>fall</i>	<i>rise</i>	
<i>yīnpíng</i>	26.4	1.4	72.2
<i>yángpíng</i>	5.1	52.6	42.3
<i>yīnshǎng</i>	44.7	6.6	48.7
<i>yīnqù</i>	30.4	0.0	69.6
<i>yángqù</i>	25.8	0.0	74.2
<i>yīnrù</i>	43.8	1.4	54.8
<i>yánggrù</i>	27.5	0.0	72.5

Are *yīnshǎng* and *yīnrù* melisma significant? (More data needed.)

Conclusions

Conclusions

- In segments (Roman-letter representation), Taiwanese *wéndú* is a poor match for medieval phonology. Much is lost or confused.

Conclusions

- In segments (Roman-letter representation), Taiwanese *wéndú* is a poor match for medieval phonology. Much is lost or confused.
- Taiwanese cantillators employ strategies used in earlier times to improve the sound of poetry: accommodated rhyming, overlooking the tone-split.

Conclusions

- In segments (Roman-letter representation), Taiwanese *wéndú* is a poor match for medieval phonology. Much is lost or confused.
- Taiwanese cantillators employ strategies used in earlier times to improve the sound of poetry: accommodated rhyming, overlooking the tone-split.
- Even in a non-regulated poem, the *píng-zè* distinction is expressed as a length-distinction — especially at the caesura but also in general.

Conclusions

- In segments (Roman-letter representation), Taiwanese *wéndú* is a poor match for medieval phonology. Much is lost or confused.
- Taiwanese cantillators employ strategies used in earlier times to improve the sound of poetry: accommodated rhyming, overlooking the tone-split.
- Even in a non-regulated poem, the *píng-zè* distinction is expressed as a length-distinction — especially at the caesura but also in general.
- *Yángpíng* tends to be melismatic and has a distinctive rising contour, unlike the other tones, which tend to fall in melisma.

Conclusions

- In segments (Roman-letter representation), Taiwanese *wéndú* is a poor match for medieval phonology. Much is lost or confused.
- Taiwanese cantillators employ strategies used in earlier times to improve the sound of poetry: accommodated rhyming, overlooking the tone-split.
- Even in a non-regulated poem, the *píng-zè* distinction is expressed as a length-distinction — especially at the caesura but also in general.
- *Yángpíng* tends to be melismatic and has a distinctive rising contour, unlike the other tones, which tend to fall in melisma.
- Other matters

Conclusions

- In segments (Roman-letter representation), Taiwanese *wéndú* is a poor match for medieval phonology. Much is lost or confused.
- Taiwanese cantillators employ strategies used in earlier times to improve the sound of poetry: accommodated rhyming, overlooking the tone-split.
- Even in a non-regulated poem, the *píng-zè* distinction is expressed as a length-distinction — especially at the caesura but also in general.
- *Yángpíng* tends to be melismatic and has a distinctive rising contour, unlike the other tones, which tend to fall in melisma.
- Other matters, requiring further data

Conclusions

- In segments (Roman-letter representation), Taiwanese *wéndú* is a poor match for medieval phonology. Much is lost or confused.
- Taiwanese cantillators employ strategies used in earlier times to improve the sound of poetry: accommodated rhyming, overlooking the tone-split.
- Even in a non-regulated poem, the *píng-zè* distinction is expressed as a length-distinction — especially at the caesura but also in general.
- *Yángpíng* tends to be melismatic and has a distinctive rising contour, unlike the other tones, which tend to fall in melisma.
- Other matters, requiring further data and historicity unknown:

Conclusions

- In segments (Roman-letter representation), Taiwanese *wéndú* is a poor match for medieval phonology. Much is lost or confused.
- Taiwanese cantillators employ strategies used in earlier times to improve the sound of poetry: accommodated rhyming, overlooking the tone-split.
- Even in a non-regulated poem, the *píng-zè* distinction is expressed as a length-distinction — especially at the caesura but also in general.
- *Yángpíng* tends to be melismatic and has a distinctive rising contour, unlike the other tones, which tend to fall in melisma.
- Other matters, requiring further data and historicity unknown:
 - Line-feet tend to be quite prolonged, regardless of tone.

Conclusions

- In segments (Roman-letter representation), Taiwanese *wéndú* is a poor match for medieval phonology. Much is lost or confused.
- Taiwanese cantillators employ strategies used in earlier times to improve the sound of poetry: accommodated rhyming, overlooking the tone-split.
- Even in a non-regulated poem, the *píng-zè* distinction is expressed as a length-distinction — especially at the caesura but also in general.
- *Yángpíng* tends to be melismatic and has a distinctive rising contour, unlike the other tones, which tend to fall in melisma.
- Other matters, requiring further data and historicity unknown:
 - Line-feet tend to be quite prolonged, regardless of tone.
 - Initial syllable is not shortened in *zè*-tones.

Conclusions

- In segments (Roman-letter representation), Taiwanese *wéndú* is a poor match for medieval phonology. Much is lost or confused.
- Taiwanese cantillators employ strategies used in earlier times to improve the sound of poetry: accommodated rhyming, overlooking the tone-split.
- Even in a non-regulated poem, the *píng-zè* distinction is expressed as a length-distinction — especially at the caesura but also in general.
- *Yángpíng* tends to be melismatic and has a distinctive rising contour, unlike the other tones, which tend to fall in melisma.
- Other matters, requiring further data and historicity unknown:
 - Line-feet tend to be quite prolonged, regardless of tone.
 - Initial syllable is not shortened in *zè*-tones.
 - *Shǎngshēng* in position 2 appears somewhat prolonged.

Conclusions, 2

Conclusions, 2

Broadly speaking, the Taiwanese cantillation tradition pays attention to traditional large tonal categories

Conclusions, 2

Broadly speaking, the Taiwanese cantillation tradition pays attention to traditional large tonal categories and their ornamentation

Conclusions, 2

Broadly speaking, the Taiwanese cantillation tradition pays attention to traditional large tonal categories and their ornamentation, and to the integrity of traditional rhyming groups

Conclusions, 2

Broadly speaking, the Taiwanese cantillation tradition pays attention to traditional large tonal categories and their ornamentation, and to the integrity of traditional rhyming groups, without being true to the phonetics on which finer-grained prosodic rules rested.

Conclusions, 2

Broadly speaking, the Taiwanese cantillation tradition pays attention to traditional large tonal categories and their ornamentation, and to the integrity of traditional rhyming groups, without being true to the phonetics on which finer-grained prosodic rules rested.

Tonal ornamentation is the primary expression of prosody, and is imposed even on compositions entirely outside of regulated praxis.

Workflow

Workflow

- Transcribe recording.

Workflow

- Transcribe recording. Initial automated transcription difficult because of tremolo and reverberation.

Workflow

- Transcribe recording. Initial automated transcription difficult because of tremolo and reverberation. Eventually turned to open-source application MusicScore for manual transcription.

Workflow

- Transcribe recording. Initial automated transcription difficult because of tremolo and reverberation. Eventually turned to open-source application MusicScore for manual transcription.
- Export to “extensible markup language for music” format (MusicXML).

Workflow

- Transcribe recording. Initial automated transcription difficult because of tremolo and reverberation. Eventually turned to open-source application MusicScore for manual transcription.
- Export to “extensible markup language for music” format (MusicXML).
- Analyze with scripting language (Python 3).

End