

# **Taiwanese Cantillation Prosody and the Standard Tradition of Regulated Verse**

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## 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.

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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.

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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 <sup>n</sup>
	買	{ meiQ-2a }	mái <sup>n</sup>
	蟆	{ ma-2 }	mâ <sup>n</sup>
	馬	{ maQ-2 }	má <sup>n</sup>
	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 <sup>n</sup>
日母	人	{nyen-3b}	lîn
	耳	{nyiQ-3d}	ní <sup>n</sup>

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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”**



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- 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’).



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The “Pípá xíng” 琵琶行 of Bái Jūyì.

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The “Pípá xíng” 琵琶行 of Bái Jūyì.

Sung by Hsü I-t'ing 許禕廷 to 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-má<sup>n</sup> khek chāi-sôan

The host dismounted;  
at boatside was the guest —

9



chú - lîn \_\_\_\_\_ hā - má<sup>n</sup> 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



piát-sî bông-bông kang chím-gòat

piát-sî bông-bông kang chìm-gòat

21



piát - sî      bōng - bōng      kang chīm - goat

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  
忽 聞

suí - siōng pî - pâ - seng  
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

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



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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		
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**\*數 sò' => sù**

**度 tō' => tū**

**故 kò' => kù**

# **Tone in rhyming**

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*Yīnqù* tone (-ū)

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## When did people start doing that?

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This shows us that the 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.

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

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. Bái must have had to accommodate it, just as Taiwanese cantillators do.

# Tonal prosody

## **Tonal prosody**

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

## **Tonal prosody** ( ♩ = 1.0)

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

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1.0	1.4	0.9	1.1	1.0	0.9	1.7

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## Tonal prosody ( ♪ = 1.0)

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

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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
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<i>tone</i>	<i>avg. duration</i>
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<b><i>yángpíng</i></b>	<b>1.3</b>
●	1.0
<i>yīnshǎng</i>	1.0
<i>yīnqù</i>	1.0
<i>yángqù</i>	1.0
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Distinct tendency to prolong *píng* syllables overall, and particularly the *yángpíng*.

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<b><i>yángpíng</i></b>	<b>1.3</b>
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<i>yīnshǎng</i>	1.0
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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	<b>1.8</b>
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Final syllable, regardless of tone, tends to be prolonged.

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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	<b>1.7</b>	1.0	<b>1.4</b>	1.0	1.0	<b>1.8</b>
<i>yīnpíng</i>	1.0	<b>1.6</b>	1.0	<b>1.2</b>	1.0	1.1	<b>1.9</b>
<i>yángpíng</i>	1.1	<b>1.7</b>	1.0	<b>1.6</b>	1.0	0.9	<b>1.8</b>
●	1.0	0.9	0.9	0.8	0.9	0.8	<b>1.6</b>
<i>yīnshǎng</i>	1.0	1.3	0.9	0.8	1.0	0.9	<b>1.5</b>
<i>yīnqù</i>	1.0	0.6	0.9	0.6	0.9	0.9	<b>1.6</b>
<i>yángqù</i>	1.0	0.8	0.8	0.8	1.1	0.8	<b>1.8</b>
<i>yīnrù</i>	1.0	0.6	0.8	0.8	0.8	0.8	<b>1.7</b>
<i>yánggrù</i>	1.2	0.8	0.9	0.8	0.8	0.7	<b>1.5</b>

## Average duration by place and tone ( ♩ = 1.0)

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

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	<b>1.2</b>	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	<b>1.3</b>	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	<b>1.3</b>	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?

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<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
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<i>yīnshǎng</i>	1.0	<b>1.3</b>	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
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Some prolongation in position-2 *yīnshǎng*, too.

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

# **Percentages of melismatic and non-melismatic syllables**

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<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	
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*Yángpíng* has strongest tendency to melisma.

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	<i>fall</i>	<i>rise</i>	
<i>yīnpíng</i>	26.4	1.4	72.2
<i>yángpíng</i>	5.1	<b>52.6</b>	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
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*Yángpíng* has strongest tendency to melisma.

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



## Percentages of melismatic and non-melismatic syllables

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

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- 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.

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- 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.

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

# Workflow

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- Transcribe recording.

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- Export to “extensible markup language for music” format (MusicXML).
- Analyze with scripting language (Python 3).

**End**