

MTO 30.1 Examples: Lam, Pentatonic Xuangong 旋宮 Transformations in Chinese Music

(Note: audio, video, and other interactive examples are only available online)

<https://mtosmt.org/issues/mto.24.30.1/mto.24.30.1.lam.html>

Example 1.1. Transpositions between pentatonic structures in “Choiwan jeui yyut” 彩雲追月 (“Colorful Clouds Chasing the Moon”), comparison of the Cantopop variant by Amy Wu 胡美儀 and the original arrangement by Ren Guang 任光 (ornaments omitted)

opening ascent

antecedent

m. 3

D pent.

lower by two pentatonic steps

simplified consequent

m. 7a

D pent.

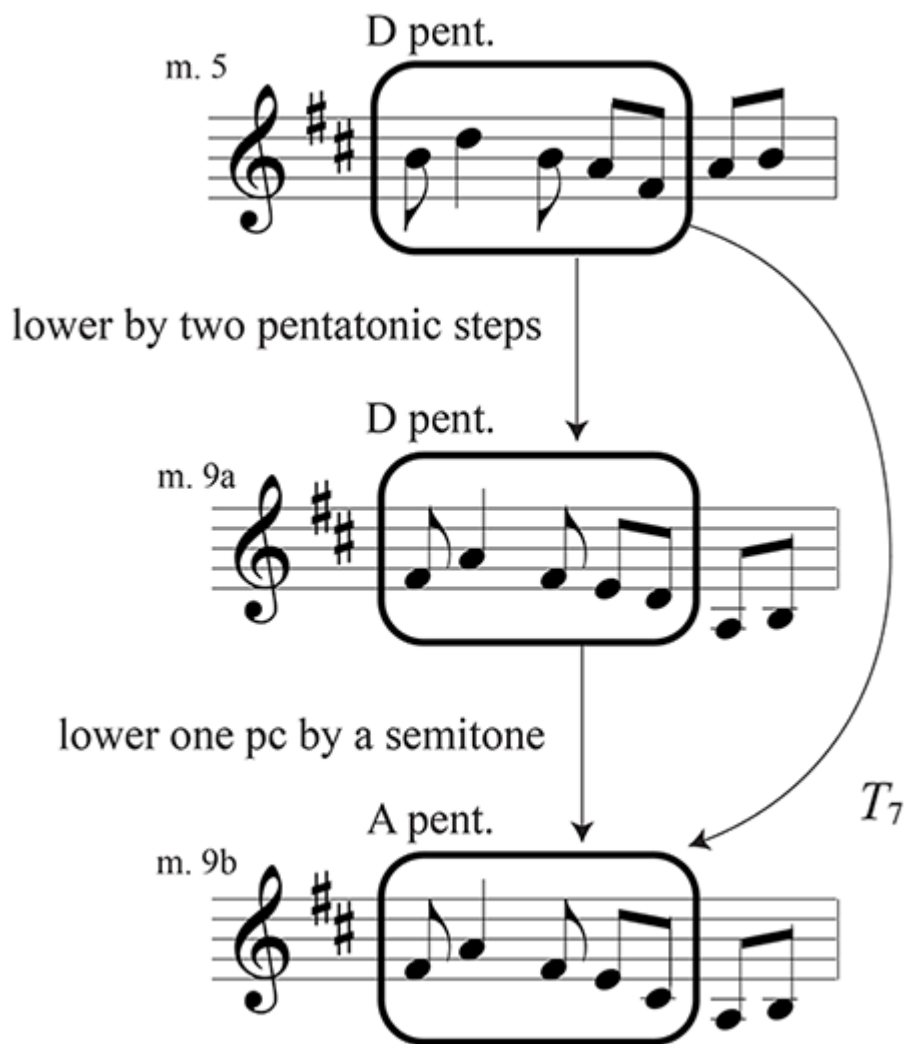
lower one pc by a semitone

original consequent

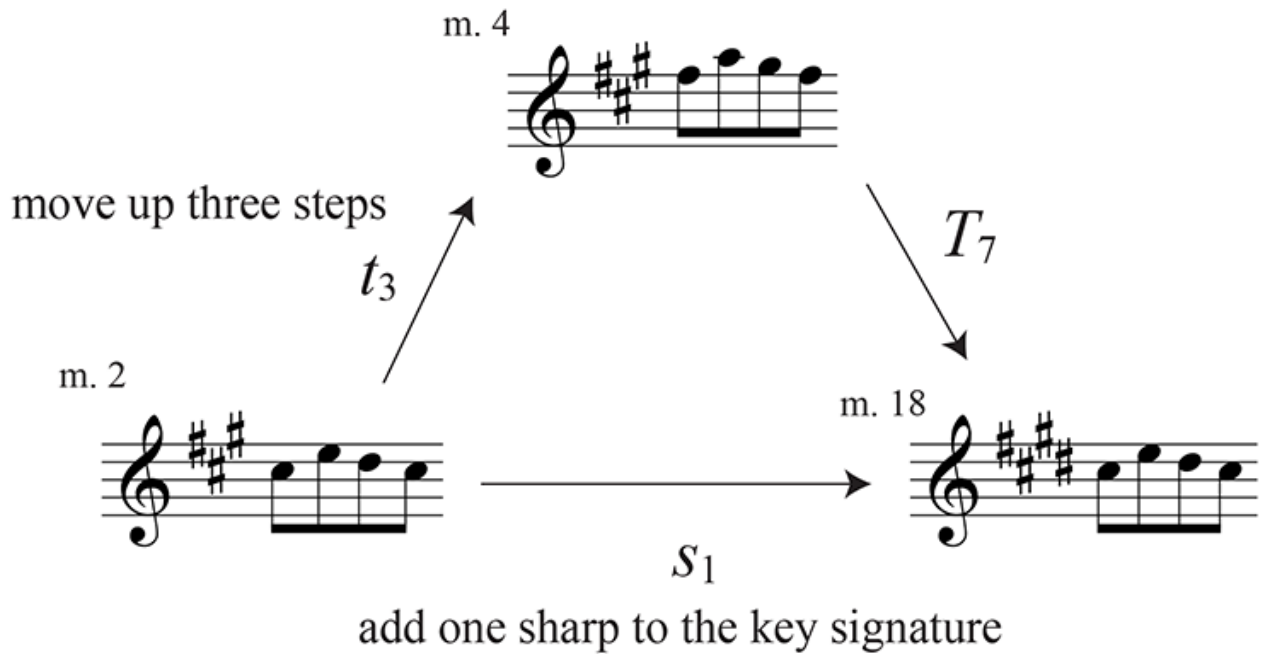
m. 7b

D pent. A pent. D pent.

Example 1.2. "Choiwan jeui yyut," motivic network with distinct versions of the syncopated motive



Example 1.3. Hook's (2008, 139) analysis of Franz Schubert, "Valse sentimentale" D. 779, No. 13



Example 2.1. Concordance of Chinese and Western note names in D pent., with C fixed to *huangzhong* by convention; common *pianyin* in grey

movable pitch	pentatonic positions	gongshang:	清羽 qingyu	變宮 biangong	宮 gong	商 shang	角 jue	清角 qingjue	變徵 bianzhi	徵 zhi	羽 yu		
		gongchepu:		乙/一 yi	上 shang	尺 che	工 gong	凡 fan	六/合 liu/he	五/四 wu/si			
	written jianpu:		7/7	1	2	3	4	5/5	6/6				
	sung jianpu:		si	do	re	mi	fa	sol	la				
fixed pitch	lulu:	黃鐘 huangzhong	大呂 dalü	太簇 taicu	夾鍾 jiazhong	姑洗 guxian	仲呂 zhonglü	蕤賓 ruibin	林鍾 linzhong	夷則 yize	南呂 nanlü	無射 wuyi	應鐘 yingzhong
	letter names:	C	C#/D♭	D	D#/E♭	E	F	F#/G♭	G	G#/A♭	A	A#/B♭	B

Example 2.2. D pent. in (a) scalar and (b) fifth orders

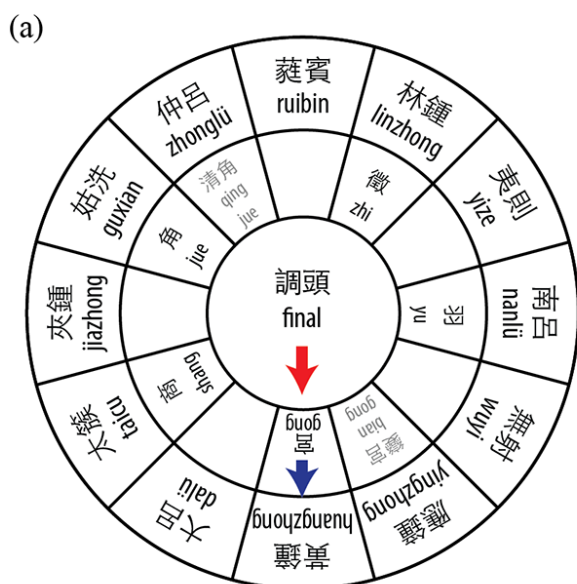
(a) scalar order

(b) fifth order

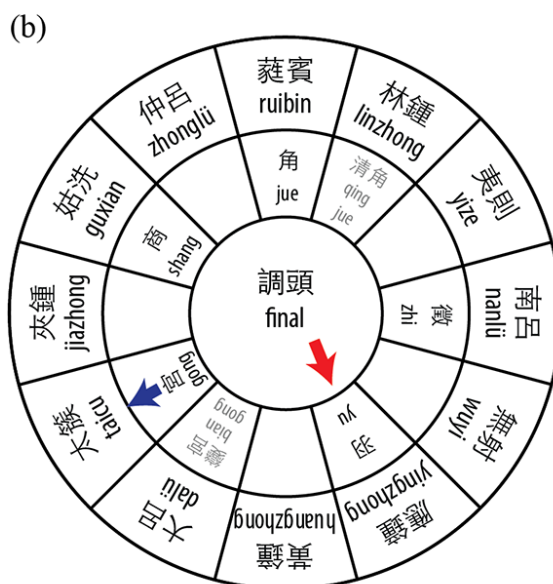
pentatonic pitch class: (D,**gong**) (D,**shang**) (D,**jue**) (D,**zhi**) (D,**yu**) (D,**gong**) (D,**zhi**) (D,**shang**) (D,**yu**) (D,**jue**)

(2,0) (2,1) (2,2) (2,3) (2,4) (2,0) (2,3) (2,1) (2,4) (2,2)

Example 2.3. *Xuangong* tone wheels at (0,0) and (2,4)



pentatonic set: huangzhong (C pent.)
 pentatonic position of modal final: **gong**
 pc of modal final: huangzhong (C)
 pentatonic pc: (0,0)



pentatonic set: taicu (D pent.)
 pentatonic position of modal final: **yu**
 pc of modal final: yingzhong (B)
 pentatonic pc: (2,4)

Example 2.4. "Shuilong yin" 水龍吟 ("Water-dragon chant") in *bendiao* 本調 (original key) and *meihuadiao* 梅花調 (plum blossom key) excerpted from Jones 2007 (107–8), outline of the lower shawm part

(a) structural pentatonic scale

	(E,gong) (E,shang) (E,jue) (E,zhi) (E,yu)										
	(4,0) (4,1) (4,2) (4,3) (4,4)										
<i>bendiao</i> 本調 (home key)											
T_{10}											
<i>meihuadiao</i> 梅花調 (plum blossom key)	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center;">(D,gong)</td> <td style="text-align: center;">(D,shang)</td> <td style="text-align: center;">(D,jue)</td> <td style="text-align: center;">(D,zhi)</td> <td style="text-align: center;">(D,yu)</td> </tr> <tr> <td style="text-align: center;">(2,0)</td> <td style="text-align: center;">(2,1)</td> <td style="text-align: center;">(2,2)</td> <td style="text-align: center;">(2,3)</td> <td style="text-align: center;">(2,4)</td> </tr> </table>	(D,gong)	(D,shang)	(D,jue)	(D,zhi)	(D,yu)	(2,0)	(2,1)	(2,2)	(2,3)	(2,4)
(D,gong)	(D,shang)	(D,jue)	(D,zhi)	(D,yu)							
(2,0)	(2,1)	(2,2)	(2,3)	(2,4)							

(b) melodic excerpts (ornaments omitted)

bendiao (home key)

meihuadiao (plum blossom key)

Example 2.5. "Guo jiang long" 過江龍 ("River-crossing dragon"), A and B section, incipits

	(F,zhi) (F,gong) (F,yu) (F,zhi) (F,jue)
	(5,3) (5,0) (5,4) (5,3) (5,2)
正線 <i>zhengxian</i> (home key)	
t_3	
反線 <i>fanxian</i> (inverse key)	
	(F,shang) (F,zhi) (F,jue) (F,shang) (F,gong)
	(5,1) (5,3) (5,2) (5,1) (5,0)

Example 2.6. Correspondance of diatonic and pentatonic intervals in F pent.

pentatonic transposition	pc interval		diatonic interval		Examples of transpositions in F pent.	
	smaller	larger	smaller	larger	smaller	larger
t_1	2	3	M2	m3	F → G	A → C
t_2	4	5	M3	P4	F → A	A → D
t_3	7	8	P5	m6	F → C	A → F
t_4	9	10	M6	m7	F → D	A → G

Example 2.7. Duan Pingtai 段平泰, *Course in Polyphonic Music* (2013, 171), canon

The image shows two systems of musical notation in 4/4 time, featuring a treble and bass clef. The first system includes several annotations: a brace labeled 'M2' spans the interval between the first and second notes of the upper staff; an arrow labeled 't-3' points from the first note of the upper staff to the first note of the lower staff; a brace labeled 'm3' spans the interval between the fifth and sixth notes of the lower staff; and a bracket labeled 'not B!' is placed under the sixth note of the lower staff. The second system begins with a measure number '5' and continues with similar melodic lines in both staves.

Example 3.1. The central diatonic superset of a pentatonic scale in (a) scalar order and (b) fifth order

(a) scalar order



C pent.: **gong shang jue qingjue zhi yu biangong**

(b) fifth order


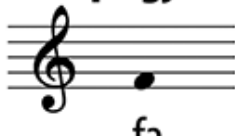





F pent.: **gong zhi shang yu jue**

C pent.: **qingjue gong zhi shang yu jue biangong**

G pent.: **gong zhi shang yu jue**

Example 3.2. C pent. scale transformed by b_1 and q_1 via pivot notes **biangong** and **qingjue**

<p>(F,zhi) (F,yu) (F,gong) (F,shang) (F,jue)</p> <p>(5,3) (5,4) (5,0) (5,1) (5,2)</p> 	
<p>"qingjue"</p> <p>()</p> <p>fa</p>	q_1
<p>(C,gong) (C,shang) (C,jue) (C,zhi) (C,yu)</p> <p>(0,0) (0,1) (0,2) (0,3) (0,4)</p> <p>do re mi sol la</p> 	
<p>"biangong"</p> <p>()</p> <p>si</p>	b_1
<p>(G,jue) (G,zhi) (G,yu) (G,gong) (G,shang)</p> <p>(7,2) (7,3) (7,4) (7,0) (7,1)</p> 	

Example 3.3. "Lao liuban" 老六板 ("Old six beats") and "Jinshe kuangwu" 金蛇狂舞 ("Wild dance of the golden snake"), arr. by Nie Er 聶耳, B sections

pentatonic positions in D pent.: (D,zhi) (D,jue) (D,zhi) (D,shang)
 (2,3) (2,2) (2,3) (2,1)

gongche syllables in D dia.: 六 工 六 尺
 liu gong liu che

老六板 *Lao liuban*
 (Old six beats)

pentatonic positions in G pent.: (G,shang) (G,gong) (G,shang) (G,yu)
 (7,1) (7,0) (7,1) (7,4)

gongche syllables in D dia.: 六 凡 六 尺
 liu fan liu che

金蛇狂舞 *Jinshe kuangwu*
 (Wild dance of the golden snake)

Example 3.4. Terminology for shawm fingering (after Yang 1996; Li 2011)

	b_3	b_2	b_1		q_1	q_2	q_3
pent. set	A pent.	D pent.	G pent.	C pent.	F pent.	Bb pent.	Eb pent.
scale names	三壓上	雙壓上	壓上	本調	單借	雙借	三借
	<i>san yashang</i>	<i>shuang yashang</i>	<i>yashang</i>	<i>bendiao</i>	<i>dan jie</i>	<i>shuang jie</i>	<i>san jie</i>
	lower <i>shang</i> thrice	lower <i>shang</i> twice	lower <i>shang</i> (do → si in <i>gongche</i>)	home key	single borrowing	double borrowing	triple borrowing

Example 3.5. Common qin tunings

慢宮調 *mangongdiao* 慢角調 *manjuediao* 正調 *zhengdiao* (standard tuning) 蕤賓調 *ruibindiao* 清商調 *qingshangdiao*
 慢一三六 loosen 1st, 3rd, 6th 慢三 loosen 3rd 緊五 tighten 5th 緊二五七 tighten 2nd, 5th, 7th

Example 3.6. Li Yinghai, *Yigong Variations* (2000), incipits

The image displays five systems of musical notation for the incipits of 'Yigong Variations' by Li Yinghai. Each system is marked with a dynamic of q_1 and is connected to the others by a large, curved arrow on the left side. The systems are as follows:

- System 1:** Treble and Bass clefs, key signature of one sharp (F#), 4/4 time signature. The melody in the treble clef features a dotted quarter note followed by eighth notes, while the bass clef provides a steady accompaniment of quarter notes.
- System 2:** Treble and Bass clefs, key signature of one sharp (F#), 4/4 time signature. The notation is identical to the first system.
- System 3:** Treble and Bass clefs, key signature of one sharp (F#), 6/8 time signature. The treble clef contains a more active melody with eighth and sixteenth notes, while the bass clef features a rhythmic accompaniment of eighth notes.
- System 4:** Treble and Bass clefs, key signature of one flat (Bb), 4/4 time signature. The treble clef has a melody with eighth notes and a dotted quarter note, while the bass clef has a simple accompaniment of quarter notes.
- System 5:** Treble and Bass clefs, key signature of two flats (Bb, Eb), 2/4 time signature. The treble clef features a melody with eighth notes and a dotted quarter note, while the bass clef has a simple accompaniment of quarter notes.

Example 3.7. (a) Li Yinghai, *Wusheng yindiao gangqin zhifa lianxi* 五聲音調鋼琴指法練習 (Pentatonic fingering exercises for piano), Exercise 1.2. Parallel-relation, gong-transposing, mode-changing exercise (gradual transition), 1, upshift 同主音調式移宮移調練習 (逐漸過渡), 1. 上移 (2002 [1964], 3)

1. 上移

(1) C 宮 C 徵 c 商 c 羽 c 角

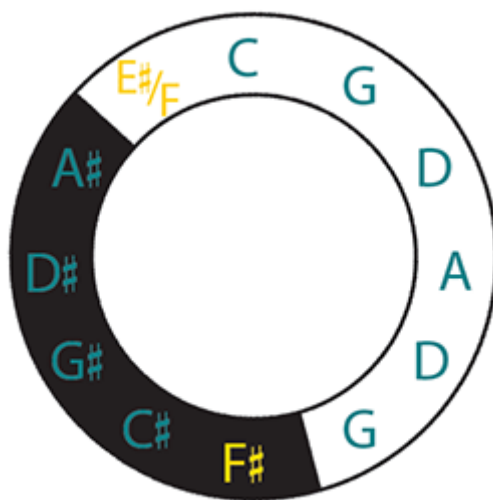
(2) q_1 $q_5 = T_1$ bD 宮 bD 徵 $^c c$ 商 $^c c$ 羽 $^c c$ 角

(3) D 宮 D 徵 d 商 d 羽 d 角 $q_{12} = t_1$




Example 3.8. Comparison of diatonic and pentatonic accidentals

scale type	signature transformation	transposition of underlying scale	semitone inflection
diatonic	sharp-directed (s_n)	Up P5	Up A1
	flat-directed (f_n)	Down P5	Down A1
pentatonic	bian-directed (b_n)	Up P5	Down m2
	qing-directed (q_n)	Down P5	Up m2

Example 3.9. Animated transposition of complementary diatonic and pentatonic sets



Example 3.10. "Choiwan jeui yyut," motivic network, with annotations

	<p>(D,yu) (D,gong) (D,yu) (D,zhi) (D,jue)</p> <p>(2,4) (2,0) (2,4) (2,3) (2,2)</p>
m. 5	
	<p>$t_{-2} = t_3$</p> <p>↓</p>
	<p>(D,jue) (D,zhi) (D,jue) (D,shang) (D,gong)</p> <p>(2,2) (2,3) (2,2) (2,1) (2,0)</p>
m. 9a	
	<p>b_1</p> <p>↓</p>
	<p>(A,yu) (A,gong) (A,yu) (A,zhi) (A,jue)</p> <p>(9,4) (9,0) (9,4) (9,3) (9,2)</p>
m. 9b	

T_7

Example 3.11. The fifth transpositions of a C pent. scale

(F,gong) (F,shang) (F,jue) (F,zhi) (F,yu) (F,zhi) (F,yu) (F,gong) (F,shang) (F,jue)
 (5,0) (5,1) (5,2) (5,3) (5,4) (5,3) (5,4) (5,0) (5,1) (5,2)

t_2 T_5 q_1

(C,jue) (C,zhi) (C,yu) (C,gong) (C,shang) (C,gong) (C,shang) (C,jue) (C,zhi) (C,yu) (C,zhi) (C,yu) (C,gong) (C,shang) (C,jue)
 (0,2) (0,3) (0,4) (0,0) (0,1) (0,0) (0,1) (0,2) (0,3) (0,4) (0,3) (0,4) (0,0) (0,1) (0,2)

b_1 T_7 t_3

(G,jue) (G,zhi) (G,yu) (G,gong) (G,shang) (G,gong) (G,shang) (G,jue) (G,zhi) (G,yu)
 (7,2) (7,3) (7,4) (7,0) (7,1) (7,0) (7,1) (7,2) (7,3) (7,4)

Example 3.12. All 60 forms of the pentatonic scale

The image displays 12 rows of musical notation, each representing a different pentatonic scale. Each row contains five distinct melodic forms of that scale, connected by diagonal lines. The scales are labeled on the left as follows:

- A \flat pent.
- E \flat pent.
- B \flat pent.
- F pent.
- C pent.
- G pent.
- D pent.
- A pent.
- E pent.
- B pent.
- F \sharp pent.
- C \sharp pent.
- D \flat pent.

Traditional Chinese labels (gong, shang, jue, zhi, yu) are placed above and below the notes in various rows to identify the scale degrees. For example, the A \flat pent. scale is labeled with gong, shang, jue, zhi, yu in the first form, and zhi, yu, gong, shang, jue in the second. The C pent. scale includes interval markings: t_2 , T_5 , q_1 , t_3 , b_1 , and T_7 . The D \flat pent. scale is labeled with gong, shang, jue, zhi, yu in the first form, and yu, gong, shang, jue, zhi in the second.

Example 5.1. Joseph Koo Kar-Fai 顧嘉輝 (music), James Wong Jim 黃霑 (lyrics), "Jukfuk nei" 祝福你 ("Bless you") (1980)

intro (parallel period)

B \flat : I V

V I

t_{-2} t_{-3}

verse

I V

V I

t_{-3} t_{-2} t_{-1}

bridge

IV I

T_7

vi V/V V

rising t_1 motion

Example 5.2. Joseph Koo Kar-Fai, "Jukfuk nei," motivic network

intro

(B \flat ,gong) (B \flat ,zhi) (B \flat ,zhi) (B \flat ,gong)

verse

(B \flat ,gong) (B \flat ,zhi)

bridge

(E \flat ,zhi) (B \flat ,zhi) (B \flat ,yu) (B \flat ,gong) (F,zhi) (F,jue)

verse

(B \flat ,gong) (B \flat ,zhi)

Example 6.1. Tan Dun 譚盾, "Eight Memories in Watercolor" (1978–79), Op. 1, "Staccato Beans," complete thematic material with codettas and transitions omitted and phrases grouped by similarity (phrase 5 is the same as phrase 4 up an octave)

melody and final chord

phrase 1

m. 1

mp

phrase 3

m. 26

ff

opening chord

$t_{-2}q_1 = T_5t_1$

$t_{-3}q_1 = T_5$

phrase 2

m. 13

p

(F,yu) (F,zhi) (F,jue) (F,yu) (F,zhi) (F,jue)

t_{-1} t_{-1} t_2 t_{-1} t_{-1}

$t_{-1}t_{-1}t_2 = t_0$

phrase 4

m. 54

ppp

t_1 chord

(F,shang) (F,gong) (F,yu) (B♭,shang) (B♭,gong) (B♭,yu)

t_2 t_{-1} t_{-1} $t_{-1}q_1$ t_{-1} t_{-1}

$t_{-1}t_{-1}t_{-1}q_1 = T_5$

Example 7.1. Zhu Zaiyu 朱載堉, *Lülü jingyi* 律呂精義, Outer book 6 (1598, seq. 944), *gongchepu* short score of "Nanfeng ge" 南風歌) annotated (read top to bottom, then right to left)

t_{-1} : t_0 :

	gongchepu short score					lyrics
	var. 4	var. 3	var. 2	var. 1	original	
	合	四	一	尺	工	<p>舜歌一首 端如貫珠格</p> <p>南風之詩舜所作也</p> <p>Poem of Nanfeng by Shun</p> <p>A song of Shun Straight as strung pearls pattern</p> <p>南風之薰兮可以解吾民之愠兮南風之時兮可以阜吾民之財兮</p>
	工	合	一	尺	四	
	尺	一	四	合	工	
	一	四	合	工	尺	
	四	合	工	尺	一	
	合	工	尺	一	四	
	工	尺	一	四	合	
	尺	一	四	合	工	
	一	四	合	工	尺	
	四	合	工	尺	一	
	合	工	尺	一	四	
	工	尺	一	四	合	
	尺	一	四	合	工	
	一	四	合	工	尺	
	四	合	工	尺	一	
	合	工	尺	一	四	

Example 7.2. Zhu Zaiyu. *Lülü jingyi*, Inner Book 6 (1598, seq. 534), first ten variations of "Nanfeng ge" in the *straight as strung pearls pattern* 端如貫珠格 (my annotations in boxes)

t_{-1} : t_0 : $T_1 t_{-1}$:

Nanfeng ge 南風歌 in straight as strung pearls pattern 端如貫珠格

lülüpu short score					lyrics	lülüpu short score					lyrics
var. 9	var. 8	var. 7	var. 6	var. 5	(across two lines)	var. 4	var. 3	var. 2	var. 1	original	(across two lines)
大呂為宮 dalü (C ₁) as gong	夾鍾為商 jiazhong (D ₁) as shang	仲呂為角 zhonglü (E ₁) as jue	夷則為徵 yize (G ₁) as zhi	無射為羽 wuyi (A ₁) as yu	five tones in dalü (C ₁ pent.)	黃鍾為宮 huangzhong (C) as gong	太簇為商 taicu (D) as shang	姑洗為角 guxian (E) as jue	林鍾為徵 linzhong (G) as zhi	南呂為羽 nanlü (A) as yu	group headings in zhidiao five [relative] tones of huangzhong (C pent.)
仲夾大無夷仲夾大無夷仲夾大無夷仲夾大無夷	夷仲夾大無夷仲夾大無夷仲夾大無夷仲夾大無夷	仲夾大無夷仲夾大無夷仲夾大無夷仲夾大無夷	大無夷仲夾大無夷仲夾大無夷仲夾大無夷	夷仲夾大無夷仲夾大無夷仲夾大無夷	南風之薰兮可以解吾民之愠兮 南風之時兮可以阜吾民之財兮	姑太黃南林姑太黃南林姑太黃南林姑太黃南林	林姑太黃南林姑太黃南林姑太黃南林姑太黃南林	太黃南林姑太黃南林姑太黃南林姑太黃南林	南林姑太黃南林姑太黃南林姑太黃南林姑太黃南林	南風之薰兮可以解吾民之愠兮 南風之時兮可以阜吾民之財兮	
大呂畢曲	夾鍾起調	仲呂畢曲	夷則畢曲	無射起調	大為五音	黃鍾畢曲	太簇起調	姑洗畢曲	林鍾起調	南呂畢曲	南林姑太黃為五音 (AGEDC)
begins and ends on dalü (C ₁)	begins and ends on jiazhong (D ₁)	begins and ends on zhonglü (E ₁)	begins and ends on yize (G ₁)	begins and ends on wuyi (A ₁)	The five notes are wu, yi, zhong, jia, da (ARGEDC ₁)	begins and ends on huangzhong (C)	begins and ends on taicu (D)	begins and ends on guxian (E)	begins and ends on linzhong (G)	begins and ends on nanlü (A)	The five notes are nan, lin, gu, tai, huang (AGEDC)

commentary

Example 7.3. Zhu Zaiyu. *Lülü jingyi*, Inner Book 6 (1598, seq. 540), first ten variations of “Nanfeng ge” in the *endless cycle pattern* 循環無端格 (my annotations in boxes)

Nanfeng ge 南風歌 in endless cycle pattern 循環無端格

lülüpu short score lyrics

var. 9 var. 8 var. 7 var. 6 var. 5

lülüpu short score lyrics

var. 4 var. 3 var. 2 var. 1 original

	jue of nanlü (A pent.)	yu of guxian (E pent.)	shang of yingzhong (B pent.)	zhi of rubin (F# pent.)	gong of dalü (C# pent.)		jue of yize (A pent.)	yu of jiazhong (E pent.)	shang of wuyi (B pent.)	zhi of zhonglü (F pent.)	gong of huangzhong (C pent.)		
	南呂之角	姑洗之羽	應鍾之商	蕤賓之徵	大呂之宮	南風之薰兮可以解吾民之愠兮	夷則之角	夾鍾之羽	無射之商	仲呂之徵	黃鍾之宮	黃鍾五曲	南風之薰兮可以解吾民之愠兮
	大應南	大應夷	大應夾	大應蕤	大無夷	仲夾大無夷	黃無夷	仲夾黃無夷	黃無林	仲夾黃南林	黃南林	南風之薰兮可以解吾民之愠兮	
	蕤姑大應南	蕤姑大應夷	蕤姑大應夾	蕤姑大應蕤	仲夾大無夷	仲夾大無夷	仲夾黃無夷	仲夾黃無夷	仲夾黃無林	仲夾黃南林	仲夾黃南林	南風之薰兮可以解吾民之愠兮	
	而為太蕤	而為南呂	而為姑洗	而為應鍾	而為蕤賓	而為仲呂	而為夷則	而為夾鍾	而為太蕤	而為無射	而為南呂	而為仲呂	
	5 th alteration: dalü (C#) becomes taicou (D)	4 th alteration: yize (G#) becomes nanlü (A)	3 rd alteration: jiazhong (D#) becomes guxian (E)	2 nd alteration: yingzhong (B)	1 st alteration: wuyi (A#) becomes rubin (F#)	All [tunes] begin and end on dalü (C#)	1 st alteration: zhonglü (F) becomes rubin (F#)	4 th alteration: linzhong (G) becomes yize (A)	3 rd alteration: taicou (D) becomes jiazhong (E)	2 nd alteration: nanlü (A) becomes wuyi (B)	1 st alteration: guxian (E) becomes zhonglü (F)	All [tunes] begin and end on huangzhong (C)	5 th alteration: huangzhong (C) becomes dalü (C#)

commentary

Example 7.4. Qin tuning in *Lülü jingyi* reordered by b_1 and T1 (Zhu's original ordering in bold)

5 **10** b_1
 E gong A gong
3 **8** b_1 **1** q_1 **6** **11**
 D gong G gong C gong F gong B \flat gong
 only use top 5 strings for *Nanfeng ge* skeletal notes
 q_1 **4** **9** **2** **7** **12**
 E \flat gong A \flat gong D \flat gong G \flat gong C \flat gong

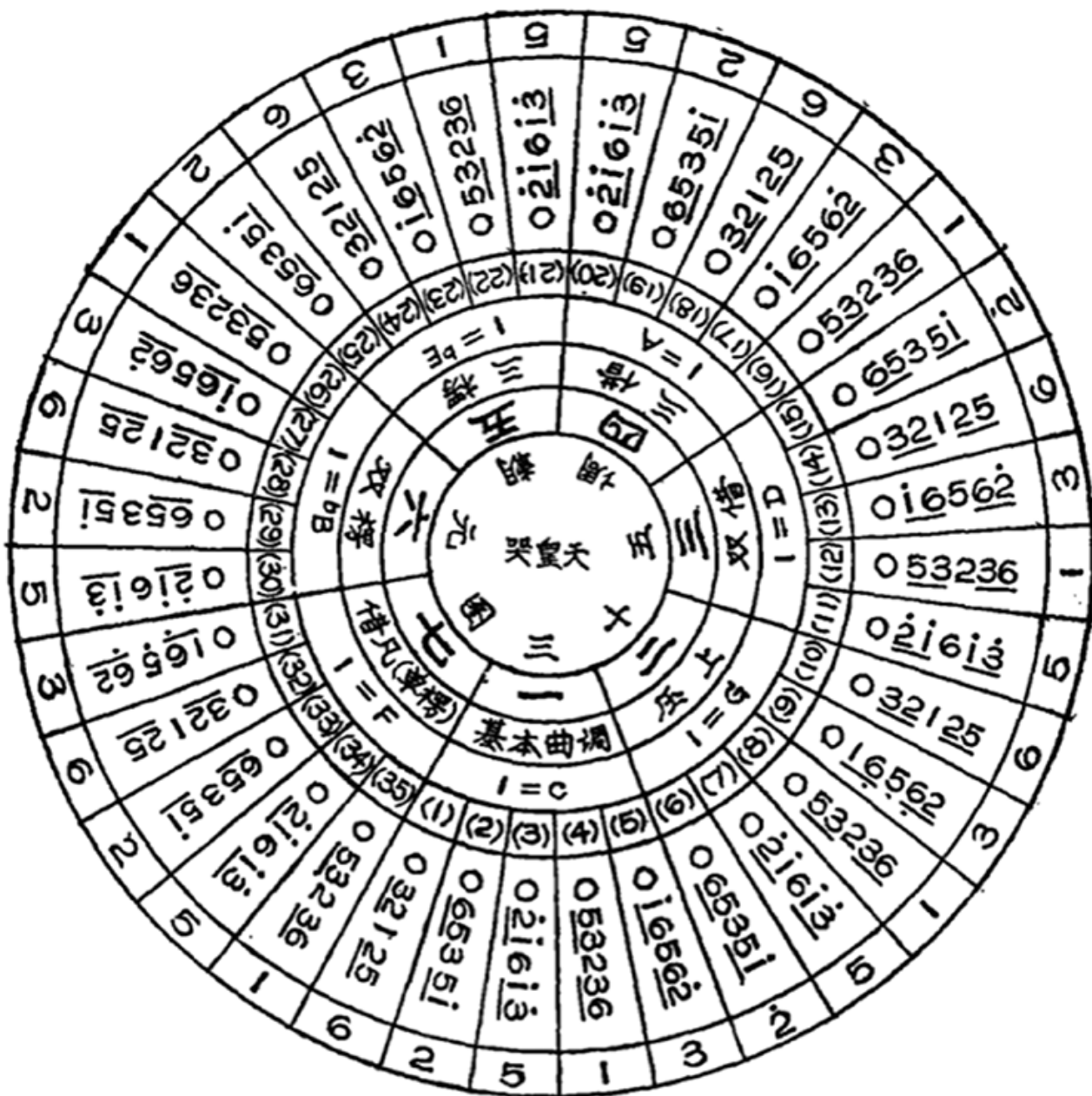
Example 8.1. "Ku huangtian" 哭皇天 ("Cry for heaven), from Li (1985, 93), original score in *gongchepu* by Zhang Hanchen 張漢臣 from Liaoyuan, Jilin province

5
 9

Example 8.2. *Ku huangtian*, five-key *chaoyuan* (each instance of the tune is abbreviated to its incipit and final)



Example 8.3. *Ku huangtian*, thirty-five-key *chaoyuan* cycle diagram by Li Laizhang 李來璋 (1985), notated in *jianpu* (incipit and final only)



Example 8.4. *Ku huangtian*, thirty-five-key *chaoyuan* cycle (incipit and final only)

The musical score consists of seven staves of music, numbered 21 through 35 on the first three staves, and 1 through 20 on the last four staves. The notation includes various intervals and transformations:

- Staff 1: Notes 21-25. Transformation T_6 above note 21. Transformation t_2 above notes 21-22.
- Staff 2: Notes 26-30.
- Staff 3: Notes 31-35. Note 35 is marked with an asterisk (*). Transformation t_2 above notes 31-32, 32-33, 33-34, 34-35. Transformation t_2b_1 above notes 35-36.
- Staff 4: Notes (36) 1-5. Transformation t_2 above notes 1-2, 2-3, 3-4, 4-5.
- Staff 5: Notes 6-10. Transformation t_2 above notes 6-7.
- Staff 6: Notes 11-15.
- Staff 7: Notes 16-20. Note 20 is marked with an asterisk (*). Transformation T_6 below notes 19-20.

Example 9.1. Bright Sheng, *Three Fantasies* for violin and piano (2005), "Tibetan Air," first and last presentations of the main theme in the A section with initial rhythm included for reference

A section theme

mm. 5–6

**violin theme
A section opening**

mm. 10–13

**piano theme
A section opening
(as intermediary)**

mm. 36–38
mm. 39–40

**violin theme at climax
A section ending**

Example 9.2. Bright Sheng, "Tibetan Air," thematic link between A and B sections with initial rhythm included for reference

A section to B section link

Ab pent.

Db pent.

mm. 39–42

**violin climax
A section ending**

mm. 47–48

**violin organum
B section opening**

Ab pent.

Eb pent.

Ab pent.

A section material

B section double parallel organum

high and fast organum

phrase 1

mm. 47-48

Example 9.3. Bright Sheng, "Tibetan Air," B section double parallel organum: Phrase 1 of high/fast organum; phrases 1-6 of low/slow organum

high and fast organum
phrase 1
 mm. 47-48

low and slow piano organum
 phrases 1-6

phrase 1 mm. 48-50
phrase 2 mm. 51-53
phrase 3 mm. 54-57
phrase 4 mm. 58-60
phrase 5 mm. 61-62
phrase 6 m. 63ff.

mm. 5-8 vln opening
 mm. 36-38 vln climax
 mm. 39-40

fortspinnung
 T_5
 T_7

T_0
 T_4b_2
 T_{11}
 T_{1q_2}
 T_1

T_7
 T_7
 T_7

extended fortspinnung
 T_0

T_{11}
 T_1

G \flat pent.
D \flat pent.
G \flat pent.
D \flat pent.

A \flat pent.
E \flat pent.
A \flat pent.

E \flat /D pent.
G pent.
D pent.
A pent.
E pent.

C pent.

A \flat pent.
A pent.
B pent.
C \sharp pent.

A pent.
D pent.
G pent.

D \flat pent.
A \flat pent.
E \flat pent.
B \flat pent.
F pent.

$b_{26}=T_7b_1$
 $b_{25}=T_7$
 b_{27}
 $b_{25}=T_7$

$b_{30}=T_6$
 b_{26}
 b_{28}
 b_{27}

$b_{35}=T_5$
 b_{29}
 b_{27}
 b_{28}

b_{27}
 b_{26}
 $b_{25}=T_7$

continues at T_7

Example 9.4. The continuum from b_{30} to b_{25}

transposition			unique pcs transposed by T_6	unique pcs transposed by T_7	transposition of				
					C	D	E	G	A
b_{30}		$= T_6$	5	0	F#	G#	A#	C#	D#
b_{29}	$= T_7b_4$	$= T_6q_1$	4	1	F#	G#	B	C#	D#
b_{28}	$= T_7b_3$	$= T_6q_2$	3	2	F#	G#	B	C#	E
b_{27}	$= T_7b_2$	$= T_6q_3$	2	3	F#	A	B	C#	E
b_{26}	$= T_7b_1$	$= T_6q_4$	1	4	F#	A	B	D	E
b_{25}	$= T_7$		0	5	G	A	B	D	E

B section high and fast parallel organum

phrase 1 tonic state (A \flat & E \flat)

head motive

tail motives

fortspinnung

mm. 47–48

G \flat pent.
5

D \flat pent.
G \flat pent.
D \flat pent.

$b_{26}=T_7b_1$
 $b_{25}=T_7$
 b_{27}
 $b_{25}=T_7$

piano

violin (flautando)

A \flat pent.
E \flat pent.
A \flat pent.

Example 9.5. Bright Sheng, "Tibetan Air," B section double parallel organum: Phrases 1, 4, and 6–8 of the high/fast organum

phrase 4 subdominant state (D \flat & A \flat)

T_5 of phrase 1

T_5 of phrase 1

B pent.
6

F \sharp pent.
B pent.
F \sharp pent.

$b_{26}=T_7b_1$
 $b_{25}=T_7$

violin (on the string)

piano

D \flat pent.
A \flat pent.
D \flat pent.

phrases 6-8 tonic state (A & E \flat)

$b_{26}=T_7b_1$ of phrase 1

$T_2=T_7T_7$ of phrase 1

T_5
 T_7

$T_2=T_5b_1$
 T_5q_1

extended fortspinnung

mm. 60–61

A \flat pent.
6

E \flat pent.
A \flat pent.
E \flat pent.

$b_{30}=T_6$
 b_{31}
 b_{29}

mm. 61–62

G pent.

mm. 63ff

F pent.

violin piano

piano

violin

D pent.
A pent.
D pent.
B \flat pent.
F pent.
C pent.

Example 10.1.

to Nate

Secret Symmetries I - V

Nathan Lam (2017)

System 1: $\text{♩} = 126$. Viola and Cello. *mp*. Measure 5 marked.

System 2: $\text{♩} = 126$. Violin and Bass. *f*. **Fine**. *p^{iu}f*. Measure 10 marked. **D.C. al Fine rit.**

System 3: $\text{♩} = 126$. Viola and Cello. *mf*. First and second endings. Measure 5 marked. *f*. Measure 10 marked.

System 4: $\text{♩} = 112$. Violin and Bass. *f*. First and second endings. Measure 5 marked. *ff*. Measure 10 marked. *p*. *accel.* *a tempo*. *subito p*. Measure 10 marked.

Example 10.2. Nathan Lam, *Secret Symmetries* (2017), (a) transposition scheme and (b) excerpts of pentatonic step motive

(a)

	I.	II.	III.	IV.	V.
--	----	-----	------	-----	----

Viola

Cello

↑ t_4b_2 ↑ b_2 ↑ T_2 ↑ t_2b_2 ↑ t_3b_2

(b)

\wedge = M2, smaller pentatonic step
 \lrcorner = m3, larger pentatonic step

	I.	II.	III.
--	----	-----	------

Viola

Cello

mp *f* *mf*

IV. V.

f *mp*