



# Compiling Old Chinese Music

---

Silicon Valley Forth Interest Group

December 15, 2012

Chen-Hanson Ting



# Chinese Music Score

---

- Chinese music can be dated to the time of Confucius, 500 BC
- Oldest Chinese music score can be dated to about 1000 AD
- Kunqu operas from 1500 AD are still being performed
- Beijing opera started around 1800 AD



# Chinese Music Scores

---

- Several types of music scores have survived:



# Old Notes

---

<b>C3</b>	上,	<b>C4</b>	上	<b>C5</b>	仕
<b>D3</b>	尺,	<b>D4</b>	尺	<b>D5</b>	伋
<b>E3</b>	工,	<b>E4</b>	工	<b>E5</b>	仝
<b>F3</b>		<b>F4</b>	凡		
<b>G3</b>	合	<b>G4</b>	六		
<b>A3</b>	四	<b>A4</b>	五		
<b>B3</b>	一	<b>B4</b>	乙		



# Key Signatures

---

**Bb** 上字調

**C** 尺字調

**D** 小工調

**Eb** 凡字調

**F** 六字調

**G** 正工調



# Timing Notation

---

- Measures: , \_ L
- Beats: . o ^





# Forth Code

---

: 上, /1 ;

: 尺, /2 ;

: 工, /3 ;

: 合 /5 ;

: 四 /6 ;

: 上 1 ;

: 尺 2 ;

: 工 3 ;

: 凡 4 ;

: 六 5 ;

: 五 6 ;

: 仕 \1 ;

: 伋 \2 ;

: 仝 \3 ;





# Forth Code

---

```
: 誦子
( 昔 ) | 五
( 日 ) 六 五 -
( 有 ) | 仕 ^ . 五 = 六
( 個 ) 五 ^ 仕 ^ 五 ^ 六 ^
( 目 ) | 工 . 尺 ^
( 蓮 ) 工 六
( 僧 , ) | 五 ----
```



# Forth Code

---

**: WriteMIDI**

**Z" 誦子.mid" EXTopen**

**EXTwrite EXTclose ;**

**DECIMAL**

**create midi**

**midi EXTpointer ! 550 ppqn !**

**initiate**

**006 MIDIheader 001 MIDIformat 001 MIDI numTracks 384 MIDIppqn**

**BeginTrack**

**00 DeltaTime 003 MetaEvent**

**007 c, 84 c, 114 c, 97 c, 99 c, 107 c, 32 c, 49 c,**

**誦子**

**3811 DeltaTime 47 MetaEvent 00 c,**

**EndTrack**

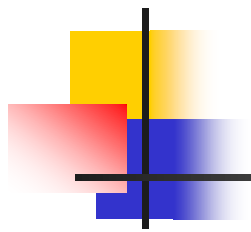
**WriteMIDI**



# MIDI Files

---

- 誦子.mid
- 山坡羊.mid
- 採茶歌.mid
- 哭皇天.mid
- 香雪燈.mid
- 風吹荷葉煞.mid



# MIDI Demo



---

# Actual Performance

<http://www.tudou.com/programs/view/U33-FzQm5mI/>