

MELODIC TRANSFORMATION PROCESSES IN THE ARRANGEMENTS OF JINGJU *BANSHI*

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Motivation

In traditional jingju (also known as Peking or Beijing opera), arias were not the original work of a composer (*zuoqu*), but tunes arranged (*bianqu*) by actors according to a set of predefined conventions. Three main concepts intervene in this process: *shengqiang*, which provides a distinctive melodic framework and sets the overall emotion of the play; *banshi*, a metric pattern into which the melodic framework is set and which specifies the expressive function of its particular music passage, and the role-type, which determines pitch range, voice quality and singing style. For each *shengqiang*, the *banshi* known as *yuanban*, literally meaning ‘original metre,’ is conceived to convey the original melodic framework, and each of the remaining *banshi* are thought as transformations of this one. Thus, *manban*, literally meaning ‘slow

a) *manban*

♩ = 35



西施女生长在苕萝村里。

b) *yuanban*

♩ = 76



当日里好风光忽觉转变。

c) *kuaiban*

♩ = 149



提起了旁人我不晓。

Fig 1. Opening lines from couplets arranged in *manban*, *yuanban* and *kuaiban* (Cao 2010, pp. 38, 12, 91; transnotated from its original form in *jianpu* notation).

metre,’ is explained as the result of slowing down *yuanban* in tempo and stretching it in metre; whilst *kuaiban*, ‘fast metre’, is obtained by speeding *yuanban* up in tempo and compressing it in metre (Fig 1¹). However, there are other factors that take part in shaping the resulting tune.

¹ Tempo markings have been obtained from the following recordings:

- *manban*: <https://musicbrainz.org/recording/f83e1071-898e-496e-8d25-5542e2aaf621>

Besides the needs of the dramatic context and the individual interpretation of the actor, one of the most important elements are the tone categories of Chinese language, whose melodic contours ought to be maintained in order to ensure intelligibility. If this is common knowledge in the musicological literature (Zhang 1981, Wichmann 1991, Liu 1992, Jiang 2000, Cao 2010, Zhang 2011), a thorough analysis of how *banshi* are transformed, and which sheds light upon these transformation processes, is still to be undertaken. This paper addresses precisely this issue and offers a preliminary approach to the topic.

Methodology

Analytical approaches to music in Chinese traditional opera have focused mostly on single arias (Pian 1972; Stock 1993, 1999, 2005). In his work on Cantonese opera, Yung (1989) adopted a comparative approach supported with manually extracted statistical information for the analysis of the relationship between tonal categories and melody. In this paper we adopt a comparative analysis approach for the study of the transformation processes in the melodic structure of different *banshi*, supported with computationally obtained statistical information. We focus on one of the two main *shengqiang* of jingju, called *xipi*, and the three *banshi* described in the previous section, *yuanban*, *manban*, and *kuaiban*, as they are arranged for the *dan* role-type, the one that portrays young or mid-age female characters. To ensure high representativeness of the analysed material, we have gathered those arias quoted as examples for each of these *banshi* (in the selected *shengqiang* and for the selected role-type) in three standard jingju music textbooks (Zhang 1981, Liu 1992, Cao 2010). According to musicological literature, the basic melodic unit in jingju arias is the couplet, so that each of the couplets of lyrics into which one aria is written is arranged to the melodic framework given by the *shengqiang* and concretised by a specific *banshi*². **Table 1** shows the number of passages³ and couplets gathered as our dataset. In order to be able to extract statistical information, we have converted the printed scores to MusicXML. In the first stage of our analysis, we manually compare the couplets arranged in *yuanban* to extract its underlying melodic structure. Then, since this *banshi* is considered to convey the original melodic form, we search for this structure in *manban* and *yuanban* couplets, in order to observe how it is transformed. Finally, we compute statistical information using the Music21 toolkit⁴ to also analyse divergences in the melodic surface level⁵.

	<i>manban</i>	<i>yuanban</i>	<i>kuaiban</i>
Passages	8 (2)	7 (1)	12 (1)
Couplets	21 (4)	23,5 (2)	84 (13,5)

Table 1. Number of passages and couplets used for analysis. Additional repeated instances in bracket.

- *yuanban*: <https://musicbrainz.org/recording/0d011b09-469c-49d8-ba05-52735c4c3dc0>
- *kuaiban*: <https://musicbrainz.org/recording/a8663002-f837-40c7-b83c-10c721309d8c>

² This assumption has been questioned by Stock (1999).

³ A passage can refer to a whole aria arranged in a single *banshi* or a section of an aria arranged into multiple *banshi*.

⁴ <http://web.mit.edu/music21/>

⁵ The code used for this analysis is available in <https://github.com/Rafael-Caro/Jingju-Score-Analysis>

Results and discussion

Fig 2 shows a schematic representation of *xipi yuanban*'s melodic framework for *dan* role-type as obtained from the manual comparative analysis of its couplets. Three essential structural points are observed: E5 and G#4 establish the general pitch range, and frame a fluctuating descending melodic shape; then each line closes in two different modal degrees, respectively the 6th (C#4) and the 5th (B4), after an ascending melodic shape. Pitch histograms support the structural importance of these four modal degrees (**Fig 3**).



Fig 2. Schematic representation of *xipi yuanban*'s underlying melody for *dan* role-type, including metrical information for the lyrics in the one-line staff, so that each note corresponds to a Chinese character, and rests to instrumental passages. White note-heads in the five-lines staff indicate essential structural notes, black note-heads indicate important structural notes, small black note-heads indicate predominant notes at those locations, and ⊗ indicate avoided notes in that particular measure. Stemmed notes indicate high occurrence of the note at that metrical position, stemless notes indicate predominance of that pitch without a fixed metrical position.

As literature states, *manban* is the result of a slow realisation in tempo of *yuanban*, what allows a heavier melodic density (**Fig 1-a**). Comparing pitch histograms for *yuanban* (**Fig 3-b**) and *manban* (**Fig 3-a**), although not significant differences are appreciable, it can be observed a bigger exploration of the lower register in *manban*. Comparing their interval histograms (**Fig 4-b** and **Fig 4-a**), it is ostensible an increase in the use of major seconds, what suggests a more profuse diatonic ornamentation.

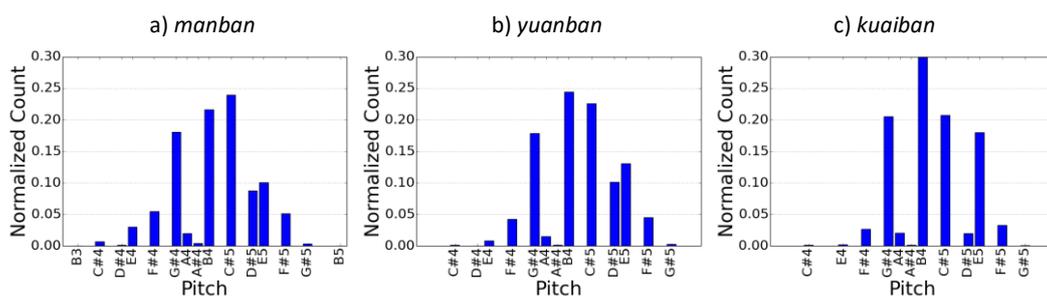


Fig 3. Aggregated pitch histograms for all the passages in *manban*, *yuanban* and *kuaiban*.

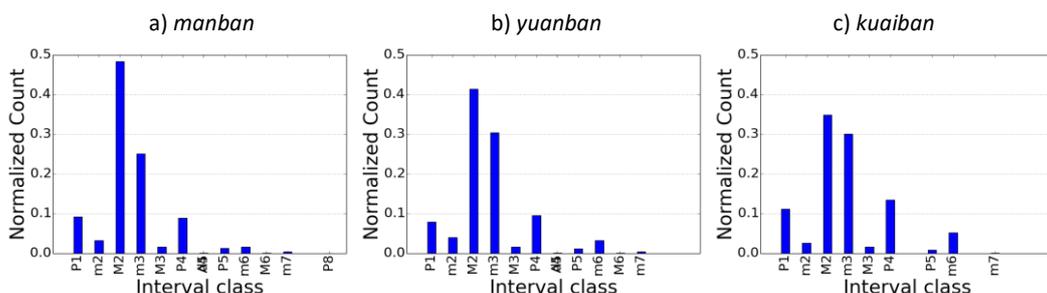


Fig 4. Aggregated interval histograms for all the passages in *manban*, *yuanban* and *kuaiban*.

Kuaiban is the result of a fast realisation in tempo of *yuanban*, and also a compression in metre. Therefore, it is usually transcribed in 1/4 metre. Results of manual comparative analyses show a freer metrical organisation for lyrics, with a high variability of measures per line, as well as a freer melodic structure, mostly determined by the tonal categories of the lyrics. Nonetheless, the essential structural notes identified in *yuanban* remain as key points (Fig 5), what is confirmed by its pitch histogram (Fig 3-c), which shows a remarkable simplification in pitch space. Consequently, an increase in the use of minor thirds and fourths is also appreciated (Fig 4-c).



Fig 5. Schematic representation of *xipi kuaiban*'s underlying melody for *dan* role-type. Same indications as for Fig 2 apply. Notes in the bracket do not show metrical precedence of one over the other. Stemmed notes indicate the metrical position of the last character of the line.

Conclusions

The current paper is part of a larger on-going research in the framework of the CompMusic project⁶, which aims at gaining a deeper understanding and a novel representation of jingju *shengqiang*. In this paper we take a first step towards this goal using a computer aided comparative analysis approach. We identify the underlying structure of *yuanban*, the “original *banshi*” and explore the processes that transform it into *manban* and *kuaiban*. Future work will expand this research in three directions: analysis of the whole repertoire of *banshi* to identify the melodic identity of each of them, analysis and comparison of these processes for other role types, mostly *laosheng*, and finally validation of these results by comparing them with identical analyses for the *erhuang shengqiang*.

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⁶ <http://compmusic.upf.edu/>

Bibliography

- Cao Baorong 曹宝荣, ed. (2010) *Jingju changqiang banshi jiedu* 京剧唱腔板式解读 (Deciphering *banshi* in jingju singing). Beijing: Renmin yinyue chubanshe.
- Jiang Jing 蒋菁 (2000) *Zhongguo xiqu yinyue* 中国戏曲音乐 (Music of Chinese traditional opera). Beijing: Renmin yinyue chubanshe.
- Liu Jidian 刘吉典 (1992) *Jingju yinyue gailun* 京剧音乐概论 (Introduction to jingju music). Beijing: Renmin yinyue chubanshe.
- Pian, Rulan Chao (1972) "Text Setting with the Shipyi Animated Aria", in Laurence Berman, ed., *Words and Music: The Scholar's View*. Cambridge: Harvard University Press, 237-270.
- Stock, Jonathan P. J. (1993) "The application of Schenkerian Analysis to Ethnomusicology: problems and possibilities", *Music Analysis* 12/2, 215-240.
- _____ (1999) "A reassessment of the relationship between text, speech, tone, melody, and aria structure in Beijing Opera", *Journal of Musicological Research* 18/3, 183-206.
- _____ (2005) "'Yang's Eight Pieces': Composing a Musical Set-Piece in a Chinese Local Opera Tradition", in Michael Tenzer, ed., *Analytical Studies in World Music*. Oxford & New York: Oxford University Press, 275-302.
- Wichmann, Elizabeth (1991) *Listening to Theatre: The Aural Dimension of Beijing Opera*. Honolulu: University of Hawaii Press.
- Yung, Bell (1989) *Cantonese Opera: performance as creative process*. Cambridge: Cambridge University Press.
- Zhang Yunqing 张筠青 (2011) *Jingju yinyue fenxi* 京剧音乐分析 (Analysis of jingju music). Beijing: Zhongyang yinyue xueyuan chubanshe.
- Zhang Zhengzhi 张正治 (1981) *Jingju chuantongxi pihuang changqiang jiegou fenxi* 京剧传统戏皮黄唱腔结构分析 (Structural analysis of *pihuang* singing in jingju traditional plays). Beijing: Renmin yinyue chubanshe.

Glosary

<i>bianqu</i>	编曲	<i>kuaiban</i>	快板	<i>xipi</i>	西皮
<i>dan</i>	旦	<i>laosheng</i>	老生	<i>yuanban</i>	原板
<i>erhuang</i>	二黄	<i>manban</i>	慢板	<i>zuoqu</i>	作曲
<i>jingju</i>	京剧	<i>shengqiang</i>	声腔		