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 (zuqu), 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

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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).

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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 1). However, there are other factors that take part in shaping the resulting tune.

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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. Table 1 shows the number of passages 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 toolkit to also analyse divergences in the melodic surface level.

<table>
<thead>
<tr>
<th></th>
<th>manban</th>
<th>yuanban</th>
<th>kuaiban</th>
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<tr>
<td>Passages</td>
<td>8 (2)</td>
<td>7 (1)</td>
<td>12 (1)</td>
</tr>
<tr>
<td>Couplets</td>
<td>21 (4)</td>
<td>23,5 (2)</td>
<td>84 (13,5)</td>
</tr>
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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](https://musicbrainz.org/recording/0d011b09-469c-49d8-ba05-52735c4c3dc0)
- kuaiban: [https://musicbrainz.org/recording/a8663002-f837-40c7-b83c-10c721309d8c](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.
5 The code used for this analysis is available in [https://github.com/Rafael-Caro/Jingju-Score-Analysis](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).

As literature estates, 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.
**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.](image)

**Conclusions**

The current paper is part of a larger on-going research in the framework of the CompMusic project[^6], 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.

**Acknowledgements**

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[^6]: [http://compmusic.upf.edu/](http://compmusic.upf.edu/)
Bibliography


Glosary

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