A NEW DIRECTION FOR THE "TANG MUSIC PROJECT" CODING 'MEDIEVAL' JAPANESE MUSICAL MANUSCRIPTS

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Abstract

The development of encoding systems for Sino-Japanese notations under the auspices of the LIBRARY OF CONGRESS' Music Preservation Program enables us to produce "printed" and web versions of manuscripts and to automatically transcribe/transnote these notations into Western staff notation (and MIDI). The database of encoded notations not only facilitates analytical work but also allows the testing of hypotheses on complete manuscript sources, and is therefore an important companion to web- and book-based reproductions of original manuscripts.

This paper illustrates the encoding process: re-synthesis from code to notation functions as a safe-guard for accurate reading before automatic transcription/transnotation. Automated re-representation of a "printed" notation and re-transcription after application of analytical tools allows visual and aural investigation of research data.

1 Background

Since reproductions of Sino-Japanese musical manuscripts are both rare and frequently quite hard to use (see Fig. 1, and the computer-generated, analytical re-synthesis of the notation only, in Fig. 2), and since facsimile reproductions are per se not electronically searchable, and therefore provide only one side of the toolkit for the modern researcher, we shall

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present here some of our efforts to present Sino-Japanese notations via a
unified encoding system (Fig. 3) in a searchable format. This latter allows:
(a) the re-synthesis of the original notational format, which serves also as
a check-up for the accuracy of the encoded notations (Fig. 4); and (b) au-
tomated transnotation into a scholarly significant format which presents
a “fixed font” notation, in which the x-axis represents musical time, thus
allowing a synchronoptic view of ostinato patterns (Fig. 5) or of notated
variant versions (Fig. 6). Color is used to indicate the different strings of
the instrument. Glosses (Fig. 7) are represented in this version of the soft-
ware as end-notes; the next version of the re-synthesis and transnotation
program Moronaga will allow the placement of glosses within the main
text.

Moronaga (Fig. 8), the software suite developed for the above purposes,
was originally written in C, then (for reasons of portability for the graphi-
cal output) re-written and enhanced in Perl, producing graphical output
in PostScript. At the moment, a major re-orientation sees the develop-
ment of most analytical tools accompanying the basic programs contained
in Moronaga written in Erick Gallesio’s R’RS compliant object-oriented
Scheme implementation STklos (http://kaolin.unice.fr/pub/STklos/),
utilizing the GTK (included in STklos) rather than Perl/Tk for the graphical
interface.

The reason for switching from the “popular” language Perl to Scheme
is mainly for scholarly reasons: Scheme (or any other functional language
for that matter) is better suited to capture the mental processes of per-
formers, and therefore provides more in the way of literate and cognitive
programming.

The encoding for Sino-Japanese tablatures can also be transformed into
the code for other analytical programs, such as David Huron’s HumDrum
Toolkit (Fig. 9), or into more popular Music-Writing programs (DARMS-
based (Fig. 10), MUP-based (Fig. 11); filters for operating-system specific
programs such as Score, or Finale exist also), and into MIDI code.

The use of different program components playing together to produce
performance scores for Chinese musicians at a recording session in Cam-
bridge (England) will be discussed in Elizabeth Markham’s paper, the next
paper in this session.
2 Neumatic Notation

Figure 1: Manzairaku: Japanese Medieval Vocal Notation from Facsimile Reproduction
Figure 2: *Manzairaku*: Japanese Medieval Vocal Notation in Analytical Resynthesis from Encoded Notation
3 Instrumental Notation

?26.m07: Manzairaku 1.1 +

Gk Sos * Kgk BH * Jf BH * F Jfj *
1 1

B H * S-os G * S D * G Kgk *
1

B H * F Jfj * Kgk K%Kg * R C%Jfj *
1

Kgk RC * Kgk BH * R C%Jf * Fj E%G *
2

Gcj Jfj * Jf BH * Jfj BH * {BH} - |
1

R C%Kgk * Kg RC * Gk Sos * B H *
1

Jfj Kgk * Kg RC * Kgk RC | F Jfj *

R C%Jfj * Jf BH * \Hdk Kgk * B H *
1

Kg RC * Jfj BH * R C%Jfj * G Kgk *
1

B H%Kg * Jfj RC * Kg RC * {RC} - |
1 1 1
Figure 4: Manzaimku: Japanese Instrumental Notation for biwa/piba in Analytical Resynthesis from Encoded Notation
Manzairaku 1.1

Figure 5: Manzaimku: Japanese Instrumental Notation for biwa/piba in Analytical Transnotation from Encoded Notation
Figure 6: Manzairaku: Japanese Instrumental Notation for biwa/piba in Comparative Analytical Transnotation from Encoded Notation: two notated versions
Figure 7: Manzaimku: Japanese Instrumental Notation for biwa/piba in Analytical Transnotation from Encoded Notation: Glosses as End-Notes
Figure 8: Moronaga: Graphical User Interface
4 Filters

!! Koromogae
**kern **lyrics
*k[f#c#] .
*M4/4 .
=1 =1
16G Ko-
16F .
8G .
8G ro
16G mo
16F .
4E ga
4E e
=2 =2
4E se-
8E .
32D mu-
32CC .
16D .
4BB ya
4B .
== ==
*-*

Figure 9: HUMDRUM–encoding of Koromogae
K Koromogae $
I1 !F !K2# !M4:4
((8S 7S) 8E) (8E (8S 7S)) 6Q 6Q /
6Q (6E ((5T 4T) 5S)) 3Q 10Q /

Figure 10: Koromogae (Transnotation filtered for DARMS)

// Koromogae.mup
score
time = 4/4
key = 2#
staffs = 1
clef = bass
beamstyle = 4, 4, 4, 4

music
1: 16g; 16f; 8g; 8g; 16g; 16f; 4e; 4e;
lyrics 1: 4; 8; 8; 4; 4; "Ko-ro-mo-ga-e";
phrase 1: 1 til 1.5; 2.5 til 2.75;
bar

1: 4e; 8e; 32d; 32c; 16d; 4b--; 4b;
lyrics 1: 4.; 8; 2; "se-mu-ya";
phrase 1: 2.5 til 2.75;
bar

Figure 11: Koromogae (Transnotation filtered for MUP)