

Finding rules in shakuhachi¹ timbre and applying them to structure music: Composition for shakuhachi and live electronics *Kaze no Michi (Wind Way)*

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Introduction

This paper presents an investigation on timbre in shakuhachi solo music, *honkyoku*. In *honkyoku*, a player uses various timbral expressions. It is likely that the enormously wide range of timbral expressions of the shakuhachi were not imported from the continent at the same time as the instrument, but must have been developed through the period during which the shakuhachi was used as a religious tool. Through an interview² with shakuhachi master of the Kinko school Ernst Gunnar Jinmei Linder, the fact that the shakuhachi has several timbral qualities was revealed. For the demonstration the standard shakuhachi of 1 *shaku 8 sun* was used.

The structure of shakuhachi timbre and a development of a fingering chart based on it

Although the shakuhachi has a highly developed timbral expression, this is not reflected in existing fingering charts. Strangely enough, shakuhachi fingering is usually written one-dimensionally in a semi-tonal scale just like Western fingering charts³. For example, there are two fingerings for the note Ab, *chi no meri* and *u*, but the timbral difference between them is not indicated. Another example is G. There is only one fingering *re*, and *u no meri*, which Kinko shakuhachi players consider more tasteful, is omitted. However, as shakuhachi music is timbre-dominant and originally had no conception of twelve-tones, this description should be changed into a timbre-dominant order. The internal structure of the flowing sound of shakuhachi was examined in order to discover the factors that make shakuhachi timbre ‘uneven’.

It is known that shakuhachi players use various techniques for producing various timbres. For example, *meri-kari* is the technique used to produce dark-light variations by changing the angle of the head and *kazashi-yubi* is another technique which uses fingers to ‘shade’ the finger-holes to various degrees. However, listening to the basic-tones, the full-resonance tones of the shakuhachi without applying any techniques such as *meri-kari* or *kazashi-yubi*, reveals that the instrument has a bright open timbre. Looking into the detail of the relation between timbral change by *meri-kari* and pitch change at ‘*tsu*’, shows a large range of pitch changes, which covers the pitches from Eb to F in Western notes and three different recognisable timbral steps, *meri*, *chu-meri* and non-*meri* become clear. This can be described two

¹ Japanese end-blown bamboo notch-flute.

² Interview on 11 Aug. 2004, Tokyo

³ Blasdel, Christopher, Y., and Kamisango, Yuko. *The shakuhachi*. Tokyo: Ongaku no tomosha, 1988. Miki, Minoru. *Nihongakkiho* [Japanese instrumentation]. Tokyo: Ongaku no tomosha, 1996.

dimensionally:

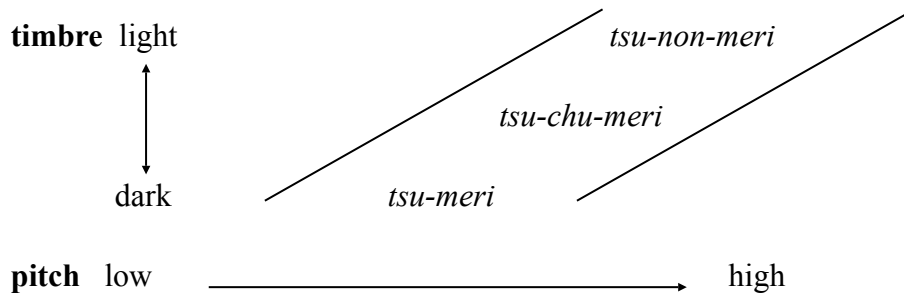


Figure 1: Two dimensional representation of tone *tsu*.

Through this demonstration by Linder, the fact that the shakuhachi enlarged the range of timbral expression by reducing its resonance using these techniques becomes clear. Although timbral change of the shakuhachi is to be played continuously, several timbral states used in *honkyoku* such as *chu-meri* and *meri* could be set as norms in order to compare timbral differences between tones. With the cooperation of Linder, the author developed an original fingering chart. On this fingering chart the timbral states mentioned above are classified into six steps and related to the pitch and its notation. This chart is, in other words, two dimensional⁴.

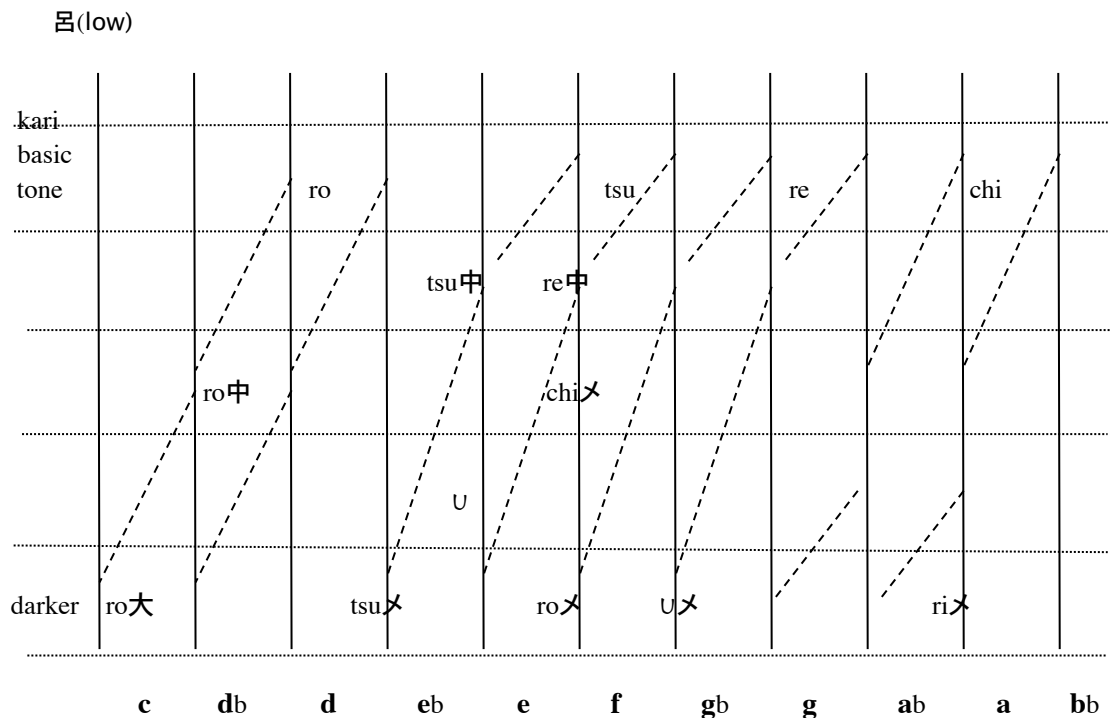


Figure 2: The fingering chart which includes timbral differentiation (part). Created by the author.

⁴ Ishii, H. *Composing electroacoustic music relating to traditional Japanese music*. PhD thesis at City University 2006.

However, shakuhachi players distinguish the timbre in more detail. According to Linder, the shakuhachi has some other timbral qualities other than dark-light (*mei-an*) :

- airy-focused
- indirect-direct (expressive)
- more-less *shibui*, or *jimi* (sober and quiet) -*hade* (bright and loud)
- gentle-hard

Among these qualities of timbral change, the three types of differentiation, airy-focused, indirect-direct and more-less *shibui* qualities are produced by fingering. For example, several tones which have the same pitch as *ri* (approximately between C4 and C4# in Western twelve tone tuning) are:

- *Ri*
- *nishigo no Ha* (*Ha* of 245)
- *Ro no meri*

Ri has a clear, strong resonance, whereas *nishigo no ha* is airy, and *ro no meri* has a dark tone. *Ri* normally has a clear focused tone whereas *nishigo no ha* cannot be played clearly and focused. As another example, the quality of timbral change explained by the term *shibui* is heard between *chi no meri* and *u*. *Shibui* is the term that refers to the highest status in the sound aesthetics of the shakuhachi. This term does not have an approximate term in English, but could be explained by several terms such as sober and quiet, or fading stage. Although *chi no meri* is a darkened tone and *u* is a basic tone, *u* has more *shibui* timbre than *chi no meri*. This indicates that the quality of *shibui* is different from the dark-light scale. In the fingering chart created by the author these timbral qualities are notated by using different fonts.

Thus, through this investigation, the fact that the shakuhachi has developed its remarkable expressive qualities by increasing the range of resonance towards ‘poor’ resonance became clear. In other words, shakuhachi traditional music does not consist only of good resonance tones. When only good resonance tones are used, the phrases sound flat and lose their shakuhachi-like flavour. This can be described in the following figure:

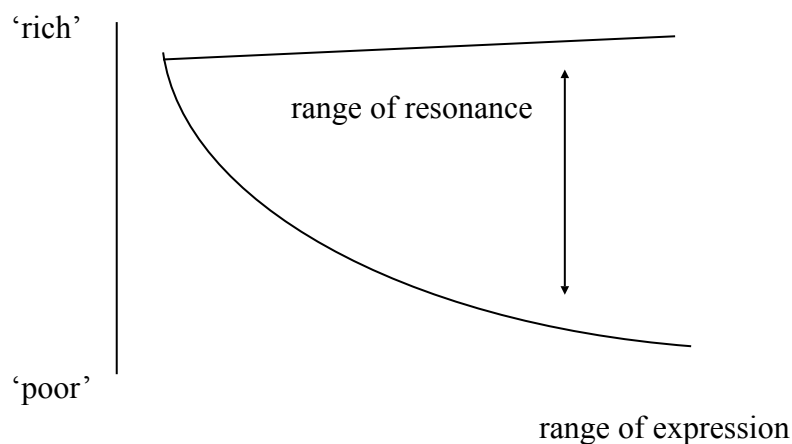


Figure 3: The relationship between resonance and expression.

Application of the timbral rules to composition: the shakuhachi live electronic piece *Kaze no Michi (Wind Way)* →

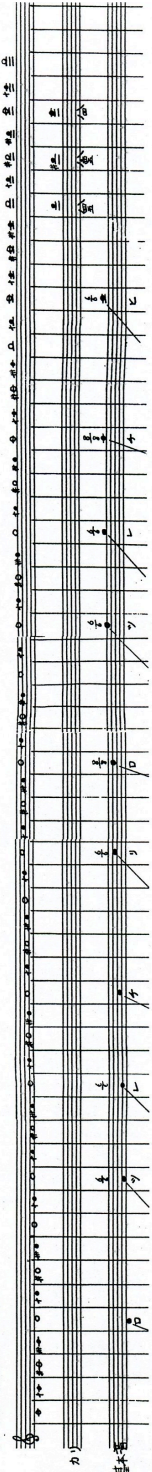
In *Kaze no Michi* the shakuhachi part follows the stages of timbral development mentioned. For this piece, the original fingering chart introduced was applied to create a timbre mode table. This suggests the possible combinations between pitch in the level of quartertones and timbre in 6 steps (figure 4 and 5)⁵. It also allows the performer to create phrases that do not exist in traditional shakuhachi music. The shakuhachi begins to play using phrases with only basic tones, which produce a clear and bright timbre, then the tones are to be darkened to *chu-meri*, and then to *meri*, reaching the full range of timbral change. Then this range is gradually reduced. The basic tones of full resonance are omitted, and then airy tones are added. In the final stage the phrases are played using mainly *shibui* tones, *u* and *u no meri*. Silence, or the absence of sound, which is also considered a sound factor as the antithesis of sound, increases in duration and is used more and more frequently. As a whole, the music progresses towards the highest stage of timbral aesthetics of the shakuhachi.

The computer part is not an extension of the instrument, but rather is designed as ‘environment’. The material sound is not the shakuhachi, but environmental sound recorded at Shinjuku train station, Tokyo. The functions for sound processing are planned referring to the parameters of timbral change in the shakuhachi sound mentioned. They are also structured towards *shibui* sound and silence.

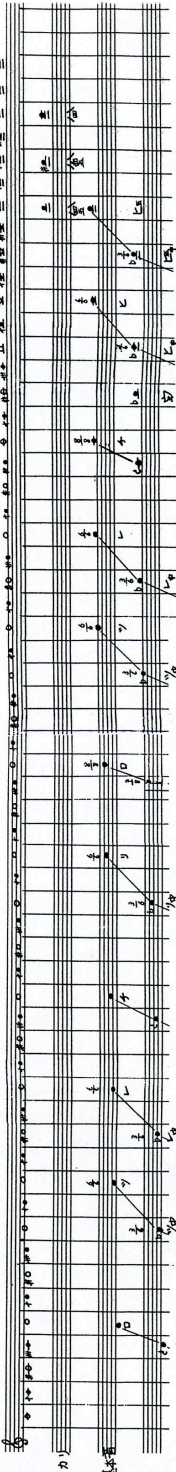
⁵ Ishii, H. *Composing electroacoustic music relating to traditional Japanese music*. PhD thesis at City University 2006. Score for *Wind Way*.

Kaze no Michi (Wind Way)
timbre mode tables

1. the basic tones



2. the range between the basic tones and *chumeri*



3. the whole range of light-dark scale (except the airy tones and *u*)

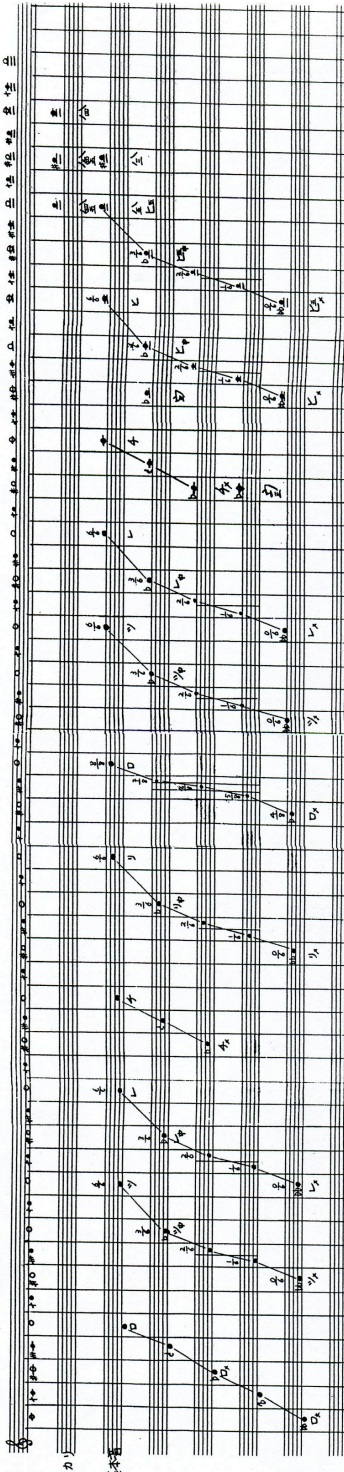
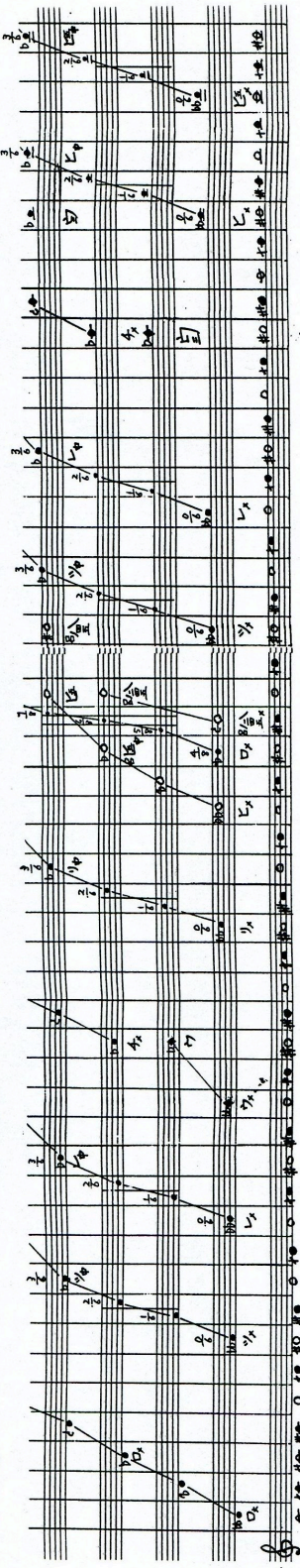
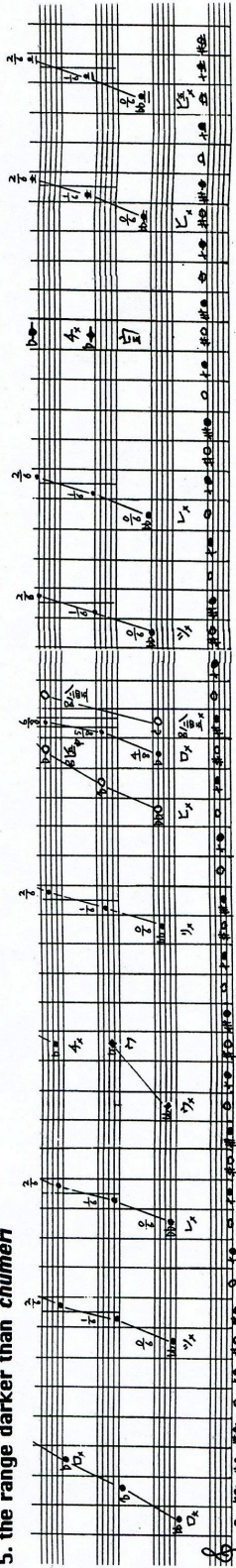


Figure 4: The score of *Wind Way*. Timbre mode table (part 1). Copyright belongs to the author.

4. the range except the basic tones + the airy tones and *u*



5. the range darker than *chumeri*



microtones

- ♯ --- 1/4 higher
- ♯ --- 1/2 higher
- ♯ --- 3/4 higher
- ♮ --- 1/4 lower
- ♭ --- 1/2 lower
- ♭ --- 3/4 lower
- 0/6 ~ 6th tones
- 0/8 ~ 8th tones

Figure 5: The score of *Wind Way*. Timbre mode table (part 2). Copyright belongs to the author.

Conclusion

Nowadays the shakuhachi is a well-known instrument worldwide. All genres of shakuhachi music can be classified as follows:

1. Traditional Japanese music
2. Contemporary music developed from Western conventional music (live electronics for shakuhachi in electroacoustic music is included)
3. Free jazz (shakuhachi improvisation with Western instruments and ethnomusical instruments)

Between these three musics, shakuhachi performance differs greatly. The works for shakuhachi and computer are mainly found in genres 2 and 3, which are live electronic pieces and jazz improvisation. The typical idea for the shakuhachi pieces seen often in contemporary music is to treat the sound of the shakuhachi as new sound material without its traditional background, or to treat it simply like a Western flute. In genre 3, the shakuhachi plays noise expressions loudly rather than delicate timbral expressions, because the performance venues are mainly clubs where the environmental sound levels are high. Although the timbral expression of the shakuhachi has been highly developed in traditional solo music, it has barely been applied in electroacoustic music. The main reason seems to be the lack of investigation from the viewpoint of timbre-oriented composition. However, as examined, the paper concludes that there exists potential of developing electroacoustic music relating to traditional Japanese music.

Finally, the paper introduces two shakuhachi live electronic pieces. The one developed from the Western style contemporary music, and the other developed from traditional Japanese music being based on its sound aesthetics. By listening these examples, the difference of sound aesthetics between two various styles of live electronic music will be clear. The first example *Irasshaimase für shakuhachi und Live-Elektronik* by Thomas Kessler begins with shakuhachi-like expression, but moves to flute-like expression in the early stage of the piece and structures climax in Western style (MGB CTS-M61. *Schweizer Kompositionen für shakuhachi*. Andreas Gutzwiller, 2000). The second example *Wind Way for shakuhachi and live electronics* by Hiromi Ishii (Wergo ARTS 8112 2 *Wind Way*, 2006) is structured thoroughly based on the sound aesthetics of the shakuhachi as mentioned. It begins with the expression of shakuhachi folk music, then moves towards the expression of *honkyoku* and reaches the *shibui* sounds, the highest stage of the sound aesthetics of shakuhachi,

Reference

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Discography

CDs

Gutzwiller, Andreas. *Schweizer kompositionen für shakuhachi*. 2000. MGB CTS-M 61

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