Information preserving in ukulele transcription

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March 28, 2021

> Frustra fit per plura quod potest fieri per pauciora
>
> *William of Ockham*

Abstract

The problem is addressed of how to make up for the limited range of the instrument in ukulele transcription.

1 Problem

Limited extension, especially so in high-G ukulele, [1] often makes it necessary moving sequences of notes or sometime even one single note from one octave to another. [2] That may cause voice crossing and possible blurring of the main leading voice and/or of other melodic lines in general. Melodic continuity may be hampered, motives may become hardly recognizable and the original salience of single notes or sequence of notes may be lost. [3] Moving a note from the original register may introduce a skip which the listener can interpret as the entry of a different voice, so breaking the melodic continuity especially in fast passages (this may be one of the reasons for prohibiting large melodic skips in polyphonic music, besides the difficulties that large skips may bring about to the singers). [4] In general the problem is how to make up for the loss of all those information that in the original text were conveyed thanks to a wider extension of the instrument (i.e. keeping different voices separate). [5]

2 Mitigating devices

Though it may be necessary to accept part of this loss, we can perhaps to some extent reduce it by resorting to some other channels of communication which make up for the more limited extension of

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[1] *Reentrant* (or high-*G*) tuning – i.e. $G_4 - C_4 - E_4 - A_4$ – is the most common tuning for ukulele.

[2] Of course changes of octaves may occur also in absence of constraints due to the limited range of the instruments (e.g., in Stravinsky's *Greatings Prelude*, where the melodic range of the original tune is indeed expanded).

[3] Although the result would still be close to the original in terms of Pitch-Class Set Analysis. On Pitch-Class Set Analysis see [11].

[4] See [9], page 123.

[5] Similar problems must have been faced in baroque guitar practice, where "unconventional voice leading" was often adopted due to reentrant tuning and the limited number of strings of that instrument (see [10], page 13).

the instrument. [6] In what follows some hints are provided on how to partially preserve the information content which was originally guaranteed by spaced voices:

1) **Top-down or semi top-down arpeggios**; to the extent that there is a correspondence between vertical and horizontal dimensions,[7] switching from the first to the second dimension (or adding the second to the first one by means of the arpeggio and broken chords) [8] allows to exploit the further communication channel given by the order of pitches: so as the salience of a given note (belonging to the main melodic line) was originally ensured by its (up) outer position, it may now (in the transcription) be still provided by its being the last note to be played in the arpeggio. An analogy may be drawn between this procedure and the use of embellishments in 16th century organ transcription:

> ... the first organ transcriptions of vocal music is essentially distinguished by the richness of ornament: the abundance of embellishments and coloring perhaps tended to accentuate some notes, as it was impossible to get dynamics differences on the organ.[9]

In the following example, the melodic line in the treble clef, as well as being lowered, is no longer the up outer line in the transcription; nevertheless it may still be identified as the leading voice as its notes are the ending notes of the arpeggios; by the same token the bass line may be identified as the one consisting of the first notes of the arpeggios to be played (although not always the lower ones):

Figure 1:

1a. Claudio Monteverdi (1567 - 1643), *Si' dolce e'l tormento*

1b. Claudio Monteverdi (1567 - 1643), *Si' dolce e'l tormento* - Transcription

2) Relying on melodic continuity (faster moving voices spontaneously acquire salience); in the following transcription of the first bars of *Lachrimae Antiquae*, B_4 which in the first bar replaces the original

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[6] In general the problem of preserving to the maximum possible extent the original content is the same faced in other linguistic fields. As in the case of *Toki Pona* – which has around 123 root words and 14 phonemes (see [8], page 12) – relying on context may be part of the solution.

[7] See [6], page 48.

[8] In Baroque music, broken chords helped introduce a third *diagonal* dimension, see [5]. On broken chords and arpeggios in lute music see also [2].

[9] See [4], page 98.

B_3 should not blur the melodic sequence $A_4 - G_4 - F_4$ despite gaining the upper position, as the faster moving of the melodic sequence would preserve its integrity:

Figure 2:

2a. John Dowland (1563 - 1626), *Lachrimae Antiquae*
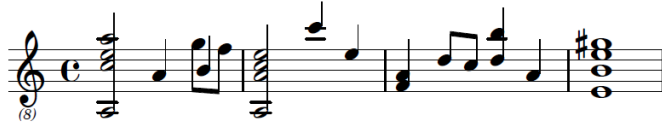
2b. John Dowland (1563 - 1626), *Lachrimae Antiquae* - Transcription

3) Unison doubling; in his *Principles of Orchestration*, Nikolai Rimsky-Korsakov writes

> Melody planned in the upper parts stands out from the very fact of position alone, and likewise, to a less degree when it is situated in the low register. In the middle of the orchestral range it is not so prominent [...] whether it be long or short, a simple theme or a melodic phrase, melody should always stand out in relief from the accompaniment. This may be done by artificial or natural means [...] naturally, by selection and contrast of timbres, strengthening of resonance by *doubling*, tripling, etc...(italics added). [10]

In the following example the descendant interval $A_4 - E_4$ at the beginning of the first bar of the outer voice in the original score is rendered in the transcription by the unison doubling of E_4, so preventing the listener from misinterpreting the melodic interval $A_4 - G_4^\sharp$ in the transcription as the main melody: [11]

Figure 3:

3a. Anonimo (20th-21st century)   3b. Anonimo (20th-21st century) - Transcription

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[10] See[3], page 36.

[11] Note also that in the transcription of this chordal fragment, the E chord loses its fifth, however it should still maintain its functional role; this may have a precedent in the way that the connection of chords that have no common tone has been justified by interpreting one of the two chords as a chord whose root has been omitted; see [7], page 113.

5) **Cultural continuity**; things may be different if the original tune is already known by the listeners; in this case there should be some more possibility for changing the original text without running the risk that the listener loses or equivocates the original musical meaning. In the following ukulele transcription of the first bars of the famous Bach's *Bourrée* - BWV 996, the octave reduction of the distance between the two voices — due to the limited range of the instrument — sometimes results in a crossing of voices; nevertheless the piece's popularity should help get it recognized:

Figure 4:

4. - Transcription

3   Conclusions

Transposing to an instrument of limited scope necessarily implies that the organization of different aspects (rhythmic, melodic, harmonic, expressive) of the original piece is damaged. In the previous section several devices have been shown in order to make up for information losses resulting in the process and to re-organize the musical material. However a kind of competition between different organizing processes [12] necessarily emerges: adding arpeggios in order to restore melodic salience to a note, which has been moved to a lower register may harm the original rhythmic flow, unison doubling may blur the original color and expressive character. Often the choice must also be made between accepting these drawbacks or leaving the original relative distances between the notes unchanged, but at the cost of moving the whole tune to too high a register.

References

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