Written commentary for compositional exercise (shaping form using sound mass)

Study of technique:

This exercise was rather tricky to write as sound mass is conventionally explored with large orchestral settings and the exploitation of having many voices. I studied, Charles Ives' *Three Outdoor Scenes: Halloween* and the works of Iannis Xenakis to write this exercise, and its influence can be seen by the use of glissandi and the phrase markings of strings to increase the "density" of the music, a term that Xenakis used to describe the "events" per second.

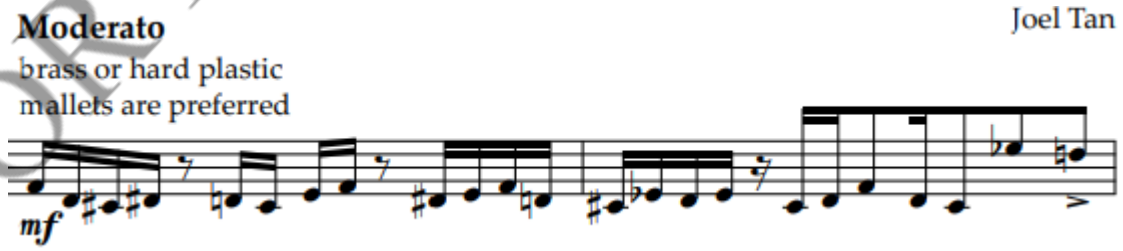
This exercise was influenced by my mathematical background and explores a $(\text{rondo})^3$ form, where the main motif is constructed from a rondo motif in a rondo arrangement, and is overall structured as a rondo.

The process of formal derivation of the rondo motif is as follows:

<RONDO> motif:
<R>: 18 (mod 12) = 6 → F
<O>: 15 (mod 12) = 3 → D
<N>: 14 (mod 12) = 2 → C♯
<D>: 4 (mod 12) = 4 → D♯
<O>: 15 (mod 12) = 3 → D

The main motif is a rondo form of the <RONDO> motif:

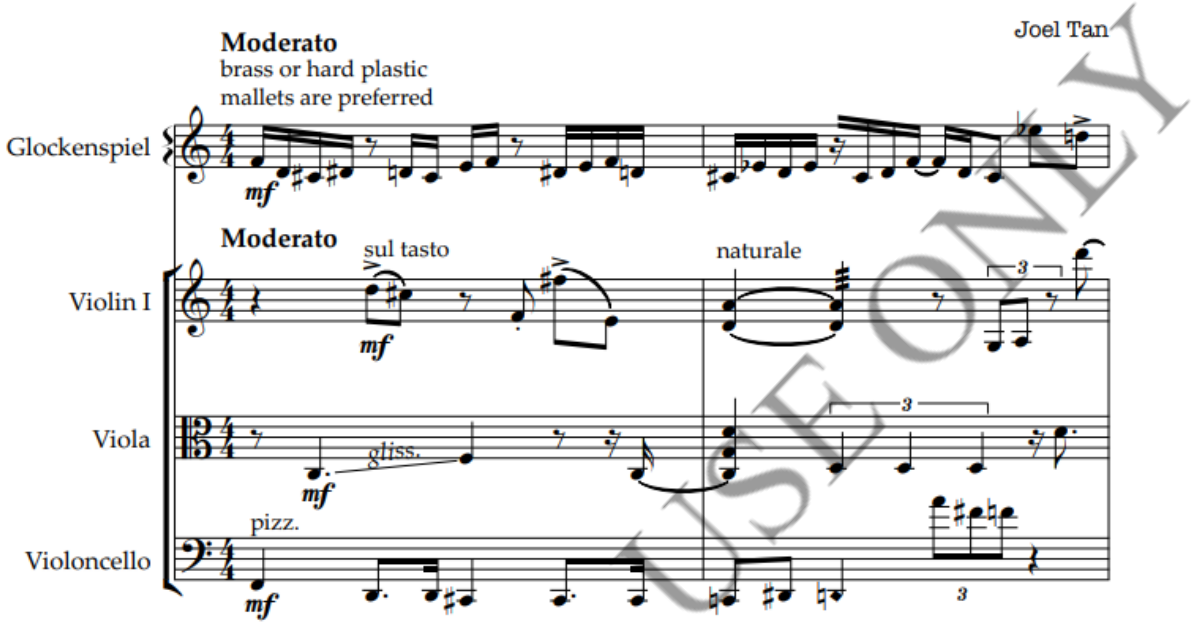
(A) : F D C♯ D♯ D
(B) : C♯ E F D♯ E (inversion of (A) around D♯)
(A) : F D C♯ D♯ D
(C) : D♯ C♯ D (second, third and fourth note of (A), followed by retrograde i.e. fragmentation of (A))
(A): F D C♯ D♯ D



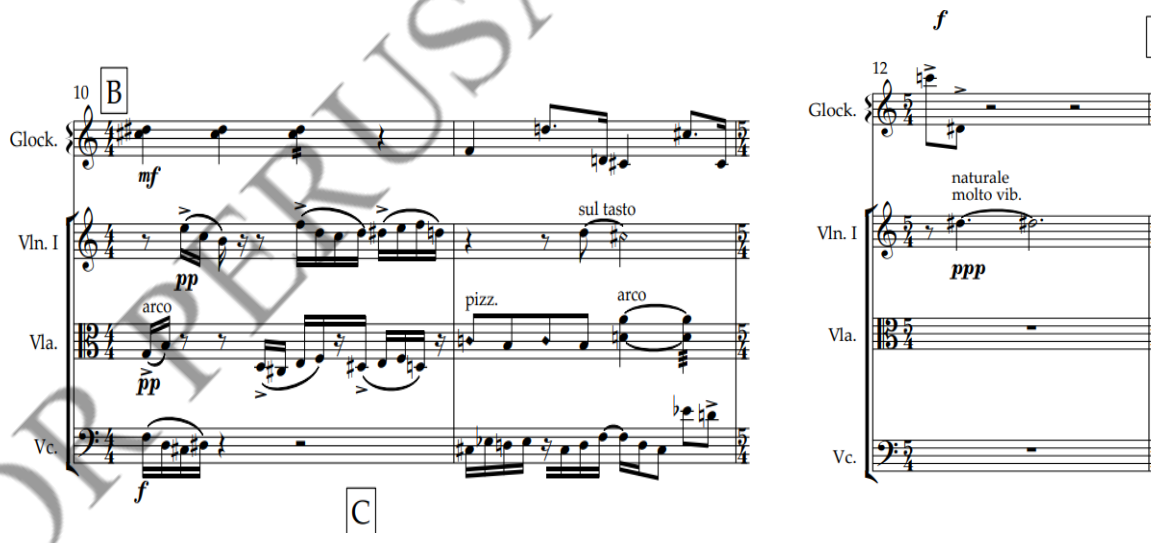
Therefore, (imaginatively,) there is a <RONDO> within a small-scale rondo structure constructed from the motifs, giving a $(\text{rondo})^2$.

We define the main motif as $(\text{rondo})^2$.

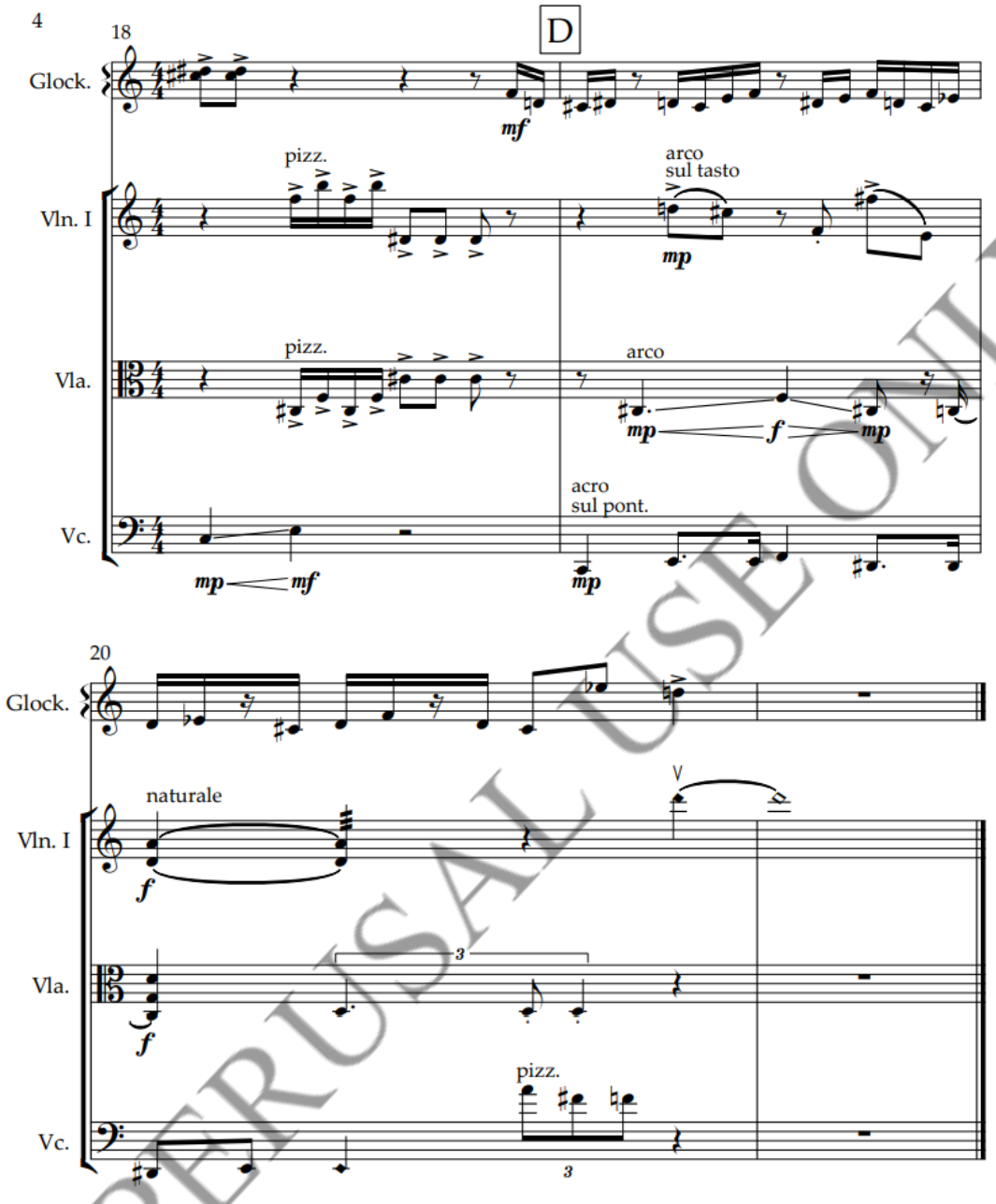
Proof. Given that the $(\text{rondo})^2$ appears at bars 1 to 2, 10 to 12 and 19 to 20, we can now prove that the overall form is $(\text{rondo})^3$.



Bars 1 to 2



Bars 10 to 12



Bars 18 to 21

By observation, bars 1 to 2 and bars 10 to 12 are similar due to the presence of the $(\text{rondo})^2$. Additionally, observe that the cello part in bar 1 reflects that of the glockenspiel in bar 11. Note that these two sections are also similar in textural density. Thus we conclude that bars 1 to 2 and bars 10 to 12 are similar.

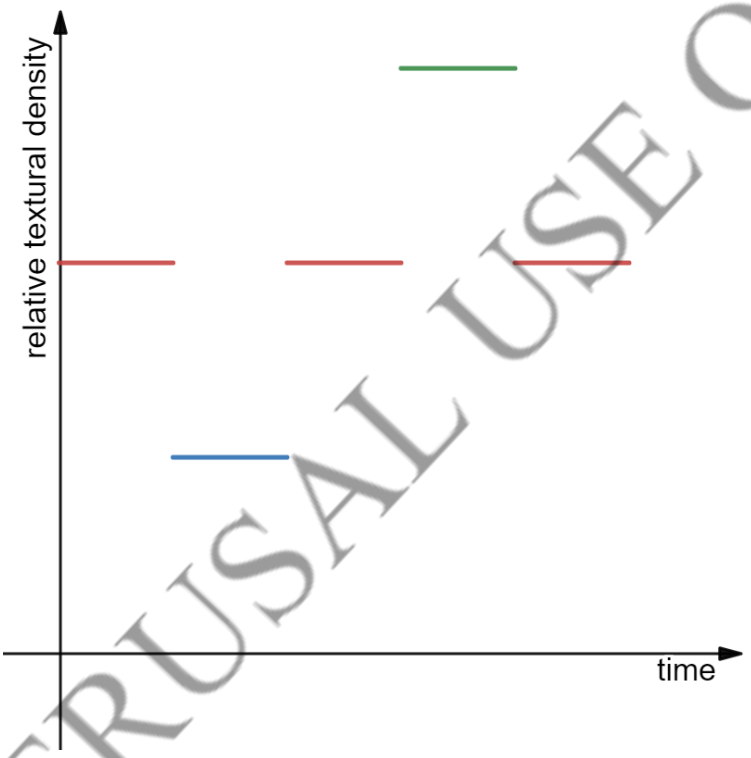
By further observation, bars 1 to 2 are also similar to bars 19 to 20, with both sections containing the $(\text{rondo})^2$ in the glockenspiel part, as well as similar rhythmic parts. We further conclude that bars 1 to 2 and bars 19 to 20 are similar. Note that these two sections are also similar in textural density.

By the same argument, we can say that bars 10 to 12 and bars 19 to 20 are similar.

Hence, let '**Section X**' refer to bars 1 to 2, bars 10 to 12, and bars 19 to 20.

By comparing the remaining bars (bars 3 to 9 and bars 13 to 18), we can say that these two sections are different in terms of rhythmic density and material. So bars 3 to 9 and bars 13 to 18 are not similar. Let '**Section Y**' and '**Section Z**' refer to each of them respectively.

Plotting a (relative) textural density-time graph, we get the following:



We can see that for **Section X**, there is a moderate textural density. **Section Y** sees a low textural density, while **Section Z** sees a high textural density. From this, we deduce that the overall textural pattern is also in rondo form. Since $(\text{rondo})^2$ appears in all of **Section X**, we conclude that there exists a $(\text{rondo})^2$ within a rondo form.

By the same (imaginative) argument from the main motif being a rondo nested within a rondo, the entire exercise is a rondo within a rondo within a rondo, at different levels of generality. Therefore this exercise is in $(\text{rondo})^3$ form.

Chronomatryoshka

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