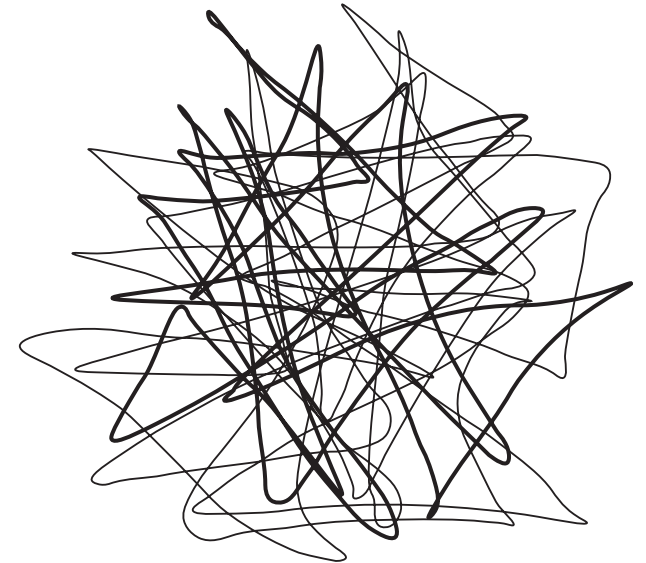


reflection of light is either specular or diffuse

Joel Kirk (2016)

solo flute

c. 2mins

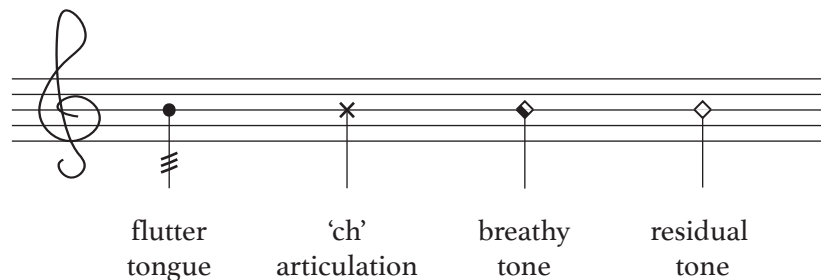


Programme Note:

When light reflects off the surface of an object, two types of reflection can be achieved: specular, where the image is retained in a mirror-like manner; and diffuse, where the image is either lost or distorted. The nature of the reflection is determined by the nature of the reflective interface. This piece for solo flute is saturated in structural palindromes, reflections, and symmetries in both partial and complete forms; exact and distorted. Thus, the musical material develops through the piece via symmetry and palindromes in both specular and diffuse forms in order to emulate the reflection of 'light' (the resultant musical material) from various 'reflective interfaces' (the original musical material). The duration of the piece is also significant; emitted by the performer and instrument, it is fleetingly transmitted through, reflected around, and ultimately absorbed by the performance space.

This piece also forms the basis for my published paper "Initial approaches to idiomatic contemporary writing for a musical instrument: discovering methods of practice-based research" (2018) which outlines a research model for approaching writing for an instrument for the first time in a contemporary style (this piece was my first attempt at writing for the flute). I was fortunate enough to work with virtuoso flautist Roberta Michel (of the SEM Ensemble) on this piece, who kindly provided further insight into writing for the instrument; this experience helped to develop my paper's findings beyond my initial conclusions, greatly influencing my approach to writing for other instruments for the first time (a practice that I imagine will be ongoing for the rest of my career!).

Notations:



Link to associated article:

<https://www.fieldsjournal.org.uk/article/id/415/>

Fingerings:

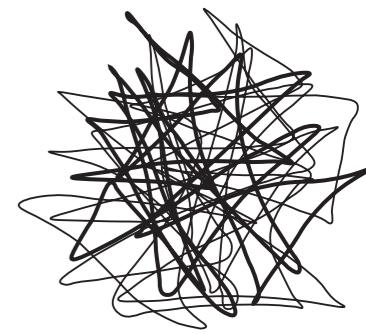
A musical staff in treble clef showing notes with their corresponding fingering diagrams. The notes are: a note on the first line with an asterisk above it, a note on the first space, a note on the second line, a note on the second space, a note on the third line, a note on the third space, a note on the fourth line, a note on the fourth space, a note on the fifth line, and a note on the fifth space. Each note has a fingering diagram below it showing the positions of the fingers (1-4) on the keys. The first note has an asterisk above it, indicating it requires a B-footjoint.

Fingerings retrieved from Robert Dick's *The Other Flute: A Performance Manual of Contemporary Techniques* (1975, Oxford University Press). For further information, see said book, or Carin Levine and Christina Mitropoulos-Bott's *The Techniques of Flute Playing* (2002, Barenreiter).

* Notes requiring a B-footjoint can be played with only a C-footjoint, but will be sharp and must be lipped down accordingly.

reflection of light is either specular or diffuse Joel Kirk (2016-17)

solo flute



$\text{♩} = 78$ *molto rubato*

explosive
I
8
9
5
7
10
3
1
4

<sfz <sfz <sfz <sfz <sfz <sfz
pocof $\text{♩} 11:9$ mf $\text{♩} 8:10$ sfz f (flz.) mf mp $\text{♩} 3:2$

lyrical (lip gliss.) *agitated* *aggressive* $\text{♩} 8:7$ *sweetly* $\text{♩} 8:10$ *nimble*

(breathe where necessary throughout)

see performance notes for suggested microtone fingerings

poco rall. $\text{♩} = 64$ *poco accel.*

8
2
11
12
6
9

rougner (ch) *with some aggression* *gracefully* (breathy tone) $\text{♩} 9:11$ *hollow* *regaining consciousness*

$\text{♩} 10:8$ mf $\text{♩} 7:8$ $\text{♩} 10:8$ (residual tone; allow whistles to occur indeterminately) pp

slowly dying away...

(accel.) $\text{♩} = 72$

14
10
7
5
3
16
8

lyrical $\text{♩} 11:9$ *sweetly* $\text{♩} 8:10$ *flurried* $\text{♩} 8:7$ *gracefully* $\text{♩} 8:10$ *bold* $\text{♩} 2:3$ $\text{♩} 3:2$

mf *subito p* mf

poco rall.

20
2
4
11
12

flurried *agitated* $\text{♩} 10:8$ *lyrical* $\text{♩} 9:11$ *aggressive*

$\text{♩} 10:8$ f < *subito ff* $\text{♩} 7:8$ fff

maintain intensity to finish...

reflection of light is either specular or diffuse: analysis

It may seem rather excessive to provide a full detailed analysis of a piece with the performance notes, however it was advised to me that in the context of the music, it would greatly enhance the performer's understanding of the piece; thus proving for a more convincing performance.

- **Rhythmic Structure (Figure 1):**

- Bars 1-12 make use of a randomly ordered series of the numbers 1-12 to determine the time signatures for each bar ($n/8$).
- This same series (in its seventh permutation) is then used to determine the number of notes in each bar (not including grace notes), creating a palindromic effect between the time signatures and the number of notes in each respective bar.
- Bars 13-24 are derived from bars 1-12 in retrograde (i.e. bar 13 relates to bar 12, 14 to bar 11, etc.). This is done via swapping the digits in the tuplets (e.g. bar 11 contains 9 quavers in the time of 11, so it's related bar (bar 14) contains 11 quavers in the time of 9).
NB. Some bars threw up issues as they either did not contain a tuplet (e.g. bar 1), or the number of notes in the bar did not relate to the tuplet (e.g. bar 4). To get over this, I came up with 'theoretical tuplets', which allowed me to work out the rhythms of their related bars.
- This rhythmic structure orders the 24 bars of the piece into six sets of four (ordered into columns in Figure 1), which are in some way derived from one another. To allow the pitch structure to follow this same derivation pattern, I added grace-notes to certain bars so that every bar in each set contained the same number of notes (e.g. all bars in Set 1 contain 12 notes, Set 2 = 11 notes, etc.). The grace-notes in each individual bar are arranged symmetrically.

- **Pitch Structure (Figures 2a, b and c):**

- 2a(i) highlights the 12-note scale used to organise the pitch structure. Notes 7-12 are intervallically symmetrical to (and superimposable over) notes 1-6.
- 2a(ii) shows how the scale is used in the piece. In bars 1-12, only notes 1-6 of the scale are used. In bars 13-24, notes 7-12 take over. In each case, the six notes are numbered and arranged into a series using the same series as the rhythmic organisation (in its original permutation both times).
- 2a(iii) indicates how these series are treated. The example I will use is bar 1:

In bar 1, there are 12 notes. Therefore, according to 2a(iii), we start at the note labelled '1' in the series (D). We then move through the series forwards from this point (going back to the start when necessary) until we have the 12 notes of the bar. This process is repeated for each of the first 12 bars of the piece.
- Figure 2b maps the registral change over the course of the piece (directly symmetrical between bars 1-12 and 13-24). I devised this by choosing my starting and ending pitches, then mapping the bar numbers 1-12 out equidistant from each other and drawing lines between the starting and ending pitches. I then pinpointed the pitches where the bar-lines and pitch-lines met.

- Figure 2c shows how bars 13-24 are derived from bars 1-12 (again, in retrograde fashion). The example I will use is bar 1 in relation to bar 24:

The last note of bar 1 (note '4' in the series; F#) is taken and used as the first note in bar 24, however as its equivalent note in the series for bars 13-24 (C#). We then move backwards through the series until we have the number of notes required for bar 24 (six). So, technically, bar 24 can be regarded as a rhythmically augmented, transposed retrograde of the last six notes of bar 1 (with added grace-notes). This process is repeated between all corresponding bars of the piece (shown in Figure 2c).

- The grace-notes are added via a filtration system from the 'primary bars' in each set¹. The example I will use is bar 1 related to bar 24:

Including grace-notes, bar 24 contains 12 notes. The pitch of each grace-note is determined by the note in bar 1 in its equivalent position in the bar. For example, the first note of bar 24 is a grace-note. Therefore, it takes the pitch of the first note of bar 1 (D). The third note of bar 24 is also a grace-note, so takes the pitch of the third note of bar 1 (Eb). This filtration process of pitches from the 'primary bars' is used throughout the piece to determine the pitch of each grace-note.

- **Extra Notes:**

- The tempi are chosen so that bars 1-12 and 13-24 each last exactly one-minute each (if played exactly metronomically).
- In terms of register, dynamics and performance directions, the piece is not arranged systematically (so as not to make it too autonomous). I made the choices for these according to my own realisation of the piece (within the parameters of my structural materials).
- Occasionally, the pitch-ranges specified by Figure 2b are not adhered to, so as to achieve a more effective musical result.

¹ The 'primary bars' are highlighted in yellow in Figure 2c, and are the bars in each set which contain the greatest number of notes. In the cases where two bars contain this number of notes, the earliest occurring bar takes precedence (e.g. in set 1, bar 1 takes precedence over bar 13 as they both contain 12 notes).

FIGURE 1:

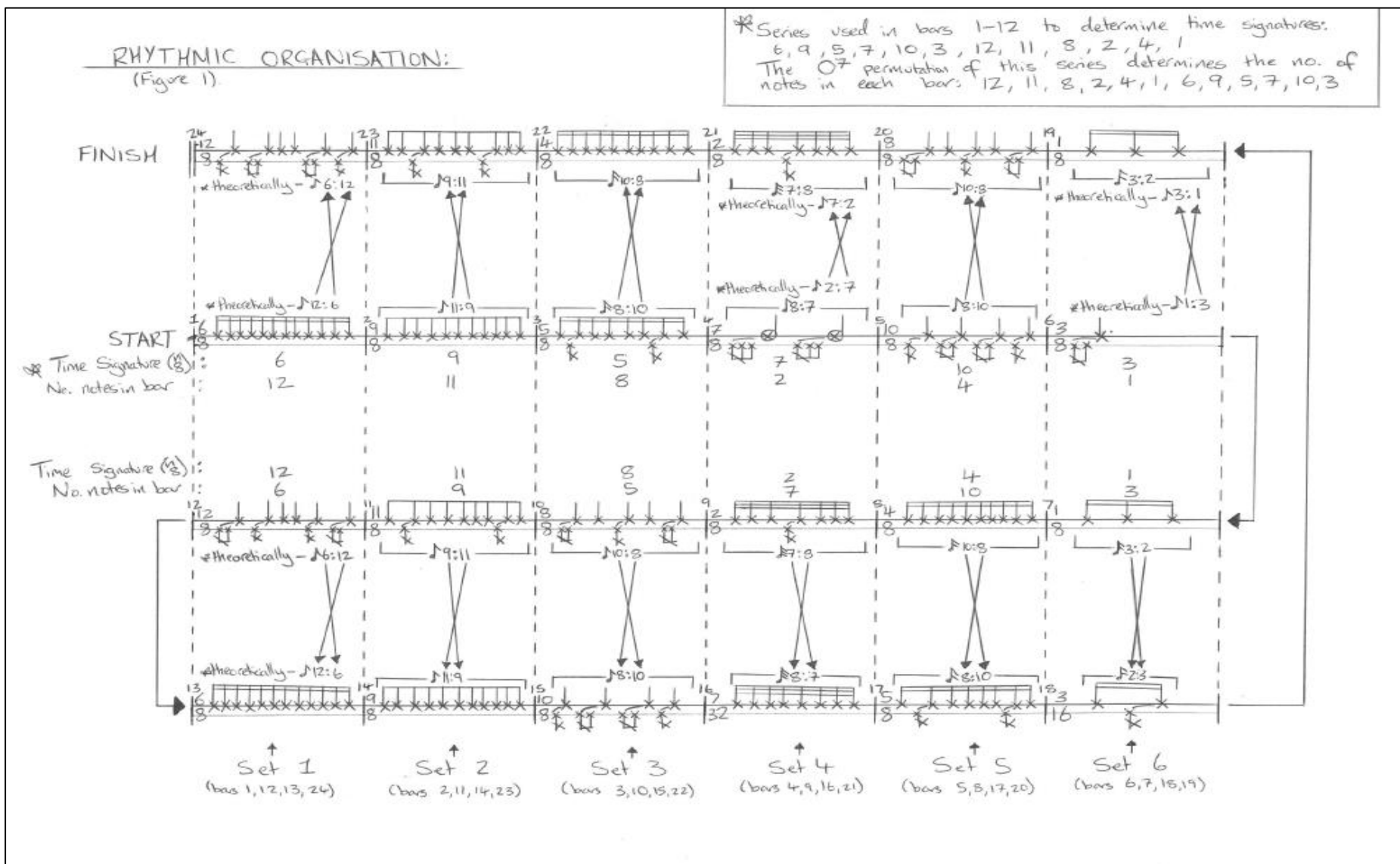
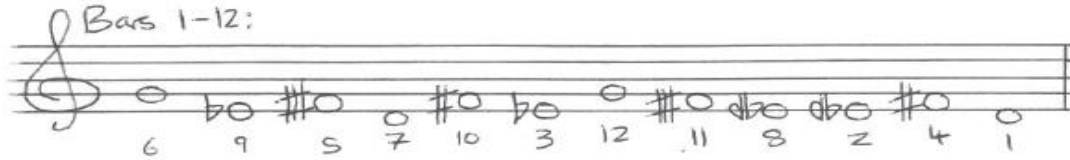



FIGURE 2A/B:

Figure 2a: Pitch Organisation.

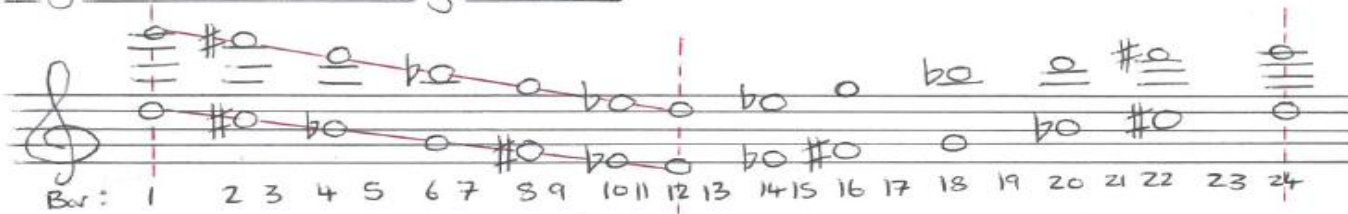
i) **Bars 1-12:**  **Bars 13-24:** 

ii) **Bars 1-12:**  **Bars 13-24:** 

iii)

No. notes in bar.	Starting position in series.
12	1
11	2
10	3
9	4
8	5
7	6
6	7
5	8
4	9
3	10
2	11
1	12

Figure 2b: Pitch Organisation.



Bar: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24

FIGURE 2C:

Figure 2c: PITCH ORGANISATION

= primary bar of each set (grace notes are filtered from these).
o = grace note. o = ordinary note.

