RESURFACING MECHANICS AND ACTION IN MUSIC NOTATION: THE *MUSICWRITER*

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ABSTRACT

This text discusses the compositional use of the *Musicwriter*, a music notation device used after old engraving practices such as lithographic notation and metal printing blocks for music printing, but discontinued before modern digital notation. After a short description of this singular device, the author presents his ongoing composition/engraving project: *'Meaning The Score'*, a series of *tyscores* (or typed scores) performed using the Musicwriter; the notation of this series is conceived as an emergent property of the performative interaction with the Musicwriter, notation that is later reinterpreted by musicians that react to both, the live-typeset notation and the composer's performance that created the score in the first place.

1. MUSICWRITER

As early as 1885, Charles Spiro patented his *Columbia Music Typewriter*, a rotating disc with metal music-types to manually press or stamp on paper to notate music. Later 'music stamping' machines, such as the French *Dogilbert* (1905), the German *Nocoblick* (1910), the British *Walton Music Typewriter* (1923), and the German *Melotyp/Nototyp* (1931), were all original inventions that paved the road to one of the most flexible and interesting music typewriters: the *Keaton Typewriter*.

In 1936, Robert Keaton from San Francisco, California patented his music typewriter, a round portable metal reel of music-types mounted on a drafting-like table. Keaton's unique design allowed to treat the engraving surface as an open canvas, basically making possible any imaginable music layout (Figure 1).

Keaton's first machine was ten years later superseded by composer Cecil Effinger, inventor of his own music typewriter. Effinger's *Musicwriter* is basically a modified typewriter; it uses a reduced set of music notation symbol instead of the usual alphanumeric characters found in conventional typewriters. Anyone familiar with alphanumeric

typesetting would find the Musicwriter's keyboard configuration as an intuitive and ergonomic interactive device (Figure 2).
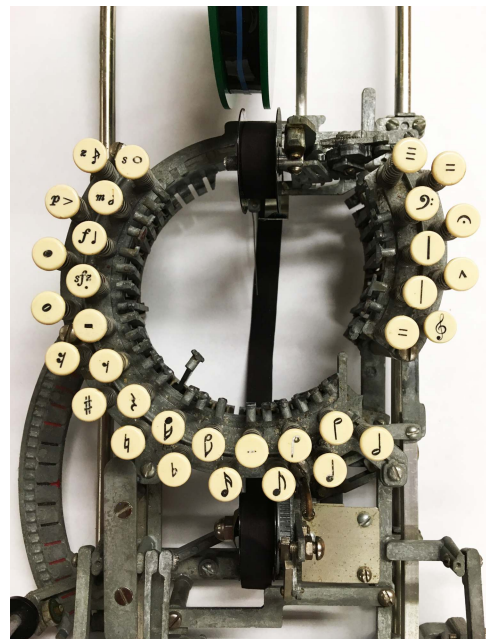

Figure 1. Keaton Music Typewriter. (Archive of Rec-orded Sound, Stanford University).

Figure 2. *Musicwriter* (Olympia GS3). Keyboard layout.

Effinger's company, *Music Print Corporation*, produced the prototype model for later music typewriters built in partnership with *Smith-Corona* (in 1950), *Allen* (in 1955), *Olympia* (in 1965), and even an electronic model produced by *IBM* in the late 1980s.

Despite its thoughtful design, the Musicwriter never really had a widespread use in major publishing houses or professional typesetting environments; its relatively high cost, laborious process to typeset conventional music, and its delicate calibration (extremely prone to errors), were all factors together that favor its eventual decay. However, all these inconveniences would eventually have been overcome if the Musicwriter had not been overshadowed once and for all due to the emergence of digital notation in the late 1960s.

2.TYPED SCORES OR TYSCORES & *MEANING THE SCORE*

Meaning The Score is a series of typeset scores or *tyscores* using the Musicwriter in its Olympia version (a modified GS3 machine). This piece is an evolving work in which each page of it is live-typeset as part of its performance. This is a work whose 'in situ' notation [1] is conceived as an emergent property of the performative interaction [2] with the Musicwriter, notation that is later reinterpreted by musicians that react to both, the live-typeset score and the composer's performance that created the score in the first place (Figure 3).

Figure 3. Live-typesetting of *Meaning The Score*. Matt Ingalls (Clarinet) & Mauricio Rodriguez (*Musicwriter*).

Due to the incremental nature and visual scope of the full score, the pages of *Meaning The Score* are usually displayed as standalone visual works in gallery settings. Over its various performances in collaboration with artists such as Wilfrido Terrazas, Matt Ingalls, and Guillermo Galindo, among others, this project has become an open platform to explore the dynamic relationship between music and its multiple forms of representation [4, 5, 6]. The endless notational plasticity of the Musicwriter to create different forms of music representation has definitely met the aesthetic and creative expressions (sonic and visually) of this artistic project (Figures 4 & 5).
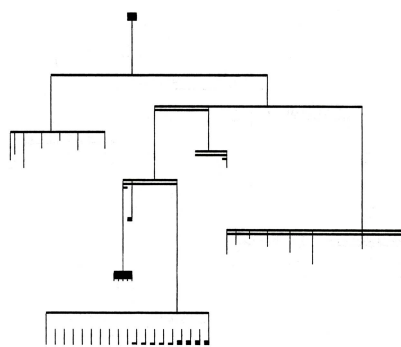
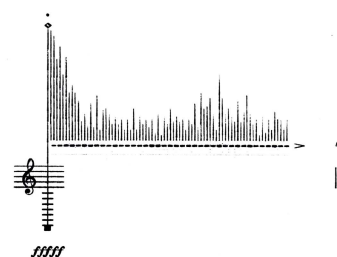**Figure 4**. *Tyscore No. 002*. Ribbon ink on paper.

Figure 5. *Tyscore No. 016*. Ribbon ink on paper.

The Musicwriter was conceived to typeset conventional or common Western music notation [3]; despite the reduced set of the conventional music symbols embedded in the Musicwriter, the flexibility of its design allows to notate music documents of the most varied representations; as an example of that, it is shown here the author's transcription of one page of 'Threnody to the Victims of Hiroshima' by Krzysztof Penderecki [7] (Figure 6), and a transcribed fragment of 'Tertium Datur' by Boguslaw Schaeffer [8, 9] (Figure 7):
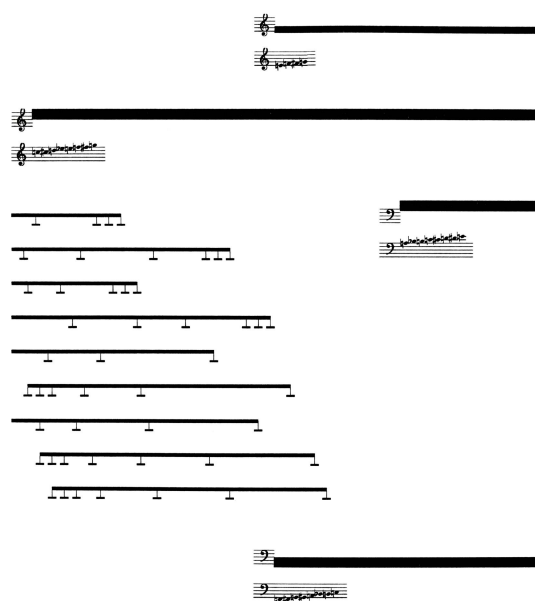
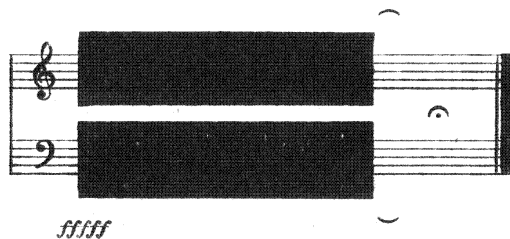**Figure 6**. Tyscore Transcription of *Threnody to the Vic-tims of Hiroshima* by Penderecki.

Figure 7. Tyscore Transcription of *Tertium Datur* by Schaeffer.

Thanks to the veteran-owned New York based company *FJA*, who have provided the author with original hand-made colored ribbon spools, the visual expression of the represented music adds some interesting subtlety with some coloring enhancement (Figure 8 and 9).
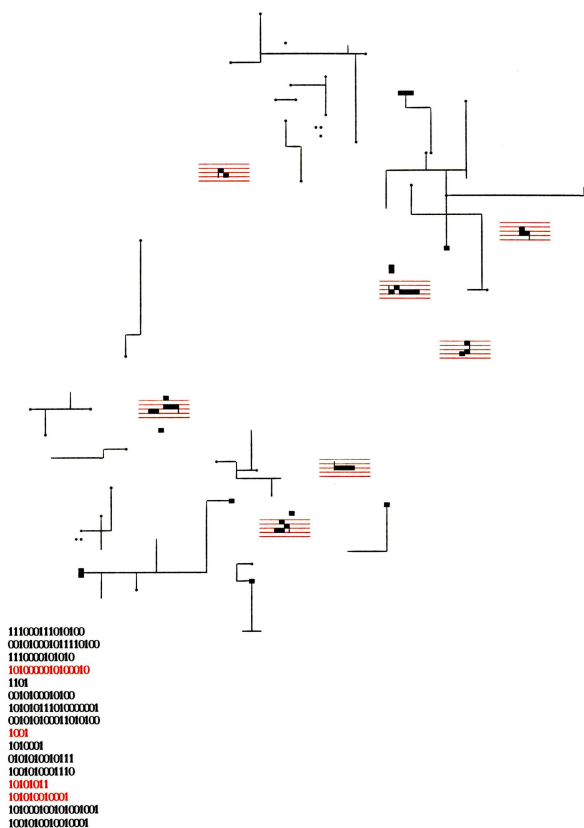

Figure 8. *Tyscore No. 068*. Colored ribbon ink on paper.

3.INTER-TEXT: PIANO ROLL MUSIC & *MUSICWRITER*

To show some additional interactions with the Musicwriter, an ongoing project incarnation of *Meaning The Score* uses piano rolls as the typeset surface. In this case, the tyscores result as the musical re-interpretation of the codified (punched) music on the rolls, so the typeset scores

are 'visual/musical comments' over the visual/musical perforations on the rolls. The created pieces are then re-interpreted by musicians who react to the gestural live-typesetting performance, the typeset score, the piano roll perforations, and to the physical disposition of these very large-format scores (over 15 feet) on the displaying space (Figures 10, 11, 12).
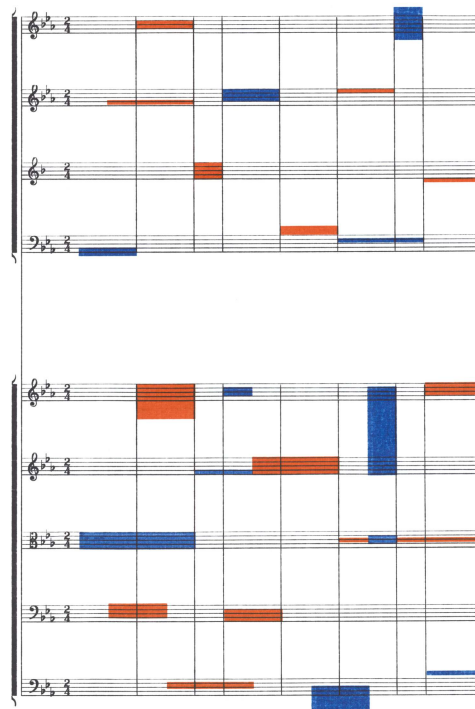

Figure 9. *Tyscore No. 080*. Colored ribbon ink on paper.

To appreciate the creative process in *Meaning The Score*, the following video-link presents a performance in collaboration with composer/improviser Matt Ingalls:

www.mauricio-rodriguez.com/MTS.mp4

4. CONCLUSIONS

The *Musicwriter* is an old heavy-duty typesetting device that never really had a widespread use in professional music typesetting. Its very laborious usage (a one single-page of conventional music notation averages 5000 key strokes), its extremely prone-to-error complicated calibration, its heavy weight (around 42 pounds), and most importantly, its disadvantageous position before digital notation technology, were all factors that contributed to the permanent discontinuation of this original music notation device.

Nevertheless, using the Musicwriter as a musical instrument for live-typesetting performances has opened a fruitful space to explore the multiple and dynamic relations of music and visual design. *Meaning The Score* is a work that hopes to stimulate a unique appreciation of sound and music through varied forms of visual representation, but overall, this work series aims to revive an engraving practice

that is almost unknown in the times of a generalized usage of music notation software.
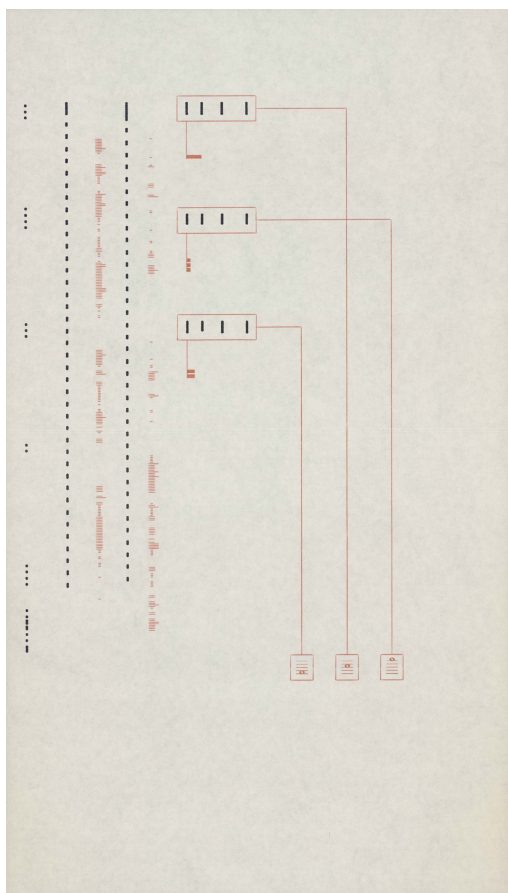
www.mauricio-rodriguez.com/tyscore.html

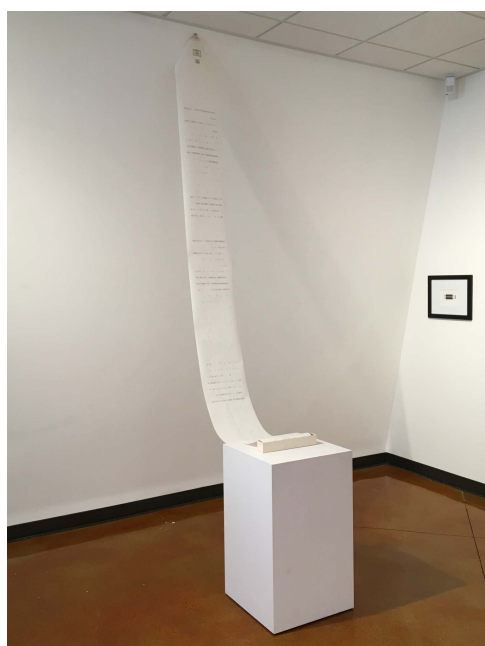**Figure 10**. *Tyscore No. 120*. Colored ribbon ink on piano roll.

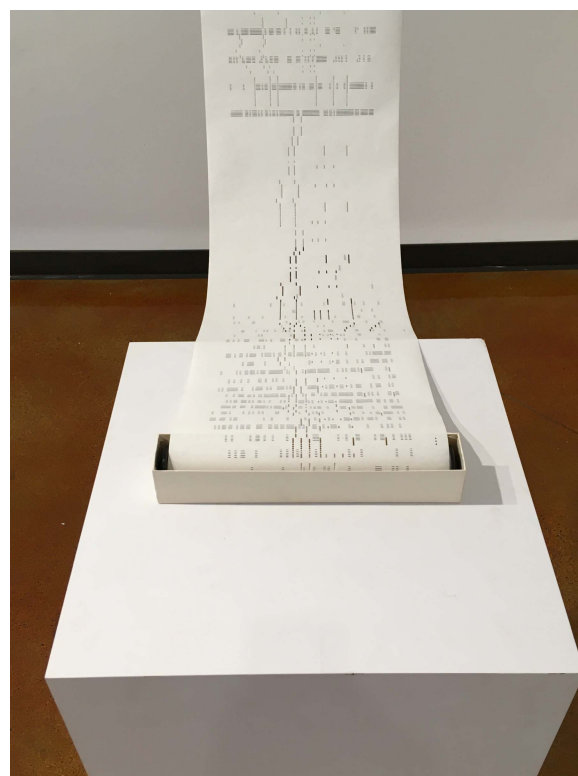**Figure 11**. *Tyscore No. 138*. Ribbon ink on piano roll.

Figure 11. *Tyscore No. 138*. Ribbon ink on piano roll.

5. REFERENCES

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