Incontri di fasce sonore by Franco Evangelisti. From the rebuilding to the analysis via synthesis process

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What we have done

- Reconstruction of the piece “as a technician” (process based work)
- Created a brand new listening score
- New analysis
- Improved study about Evangelisti
What we have **NOT** done

- Restoration
- Sound study
- Problems like reverb
History

- 1956-57
- WDR Cologne
The dream (1)

Evangelisti’s dream

“The problem of the creation of the score, with explanations and symbols, is fundamental from an historical point of view as proof of our work, due to the fact that tapes are going to deteriorate [...] and only a precise documentation will allow people to obtain something from us and, eventually to reconstruct our work.”

“Electricity and automation are two closely connected concepts.”

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The dream (2)

Evangelisti’s dream

“To obtain certain sound-transformations we should need various very expensive pieces of apparatus which would make it possible to do it without the human hand.”
From FRANCO EVANGELISTI. *Incontri di fasce sonore.* Universal, 1958 (introduction)

“Much depends on the manual dexterity of the technician, a fact that shows us still to be far away from genuine electronic sound-production, electronic in the absolute sense of the word.”
From FRANCO EVANGELISTI. *Incontri di fasce sonore.* Universal, 1958 (introduction)


several articles and analysis on *Incontri di fasce sonore*
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Score description

The score
- realization score
- “Leporello”
- 2 staves, 21 lines for the amplitudes, single staff for amplitudes, labels
Compositive process (1)

- **Process**
  - sinus tones
  - freq scale
  - mixtures, used:
    - “as they are”
    - reverb
    - to ring modulate
    - transposed
    - double reverb

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Composervative process (2)

Structure
- Linear counterpoint (focal point, see below)
- Reversed beginning in the end

Technical Means
- oscillators
- ring modulation
- reverb
Why “Incontri di fasce sonore”

- **Why**
  - Score
  - Precise indication
  - Only electronic sounds
  - Born for automation

- **Other pieces have problems**
  - Stockhausen’s *Studie 1*
  - A few pieces from Warsaw studio (Dobrowolsky, . . . )
The generative process (1)

Start data → 1st parser → Functions → python → Incontri.sco → csound → Incontri.wav

2nd parser

incontri.pdf
The generative process (2)
The generative process (3)

- The starting data file
  - events
  - as a technician

Example:

```
u (i1) (0) 13.6
```
- staff
- start time
- instrument
- length tape

```
0 13.6 40 0 0 0 0 0 0 0 0 0
```
- amplitude segments

```
Z21
```
- mixture name
- impulse data

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The generative process (4)

- Csound score and audio files
  - .dat, .orc, .sco
  - reverb
Generating mixtures (1)

- Rules, mixtures structure
  - Several groups
  - Several rules
  - Not explained into the text: it is necessary to discover them
  - Internal structure: dictionary (keys == mixture name, values == groups of 7 mixtures)
Generating mixtures (2)

Examples:

1st mixture

2nd mixture

3rd mixture

etc

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Generating mixtures (3)

1st mixture

2nd mixture

3rd mixture

87 93 100 107 115 123 132 141 151 etc

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Generating mixtures (4)

Complex Example (a):

- First mixture
- Second mixture
- Third mixture
Generating mixtures (5)

Complex Example (b):

- 3rd mixture
- 4th mixture
- 5th mixture
- 6th mixture
- 7th mixture
- 8th mixture
- etc.
The new score (1)

Why another score?
- need for listening score
- less data, more readable
- automatically build
- make Evangelisti’s dream come true
- control system for mistakes (see below)
The new score (2)

- **Software**
  - python (because it is extremely good)
  - csound (because it is the best)
  - bash scripting (because we love the cmd line)
  - pic (because we are crazy)

- **General features**
  - one BIG box
  - label == mixture name
  - slope == envelope
  - different lines for different instruments
  - possible to scale the score from 0.1 seconds to $\infty$
The new score (3)
The new score (4)

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The new score (5)
The new score (6)

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Like Evangelisti, we created the following (with Csound):

- simple oscillator
- reverberated oscillator
- impulses. They are obtained by a simple ring-modulation instrument
- reverberated impulses
- transposed mixtures
- transposed impulses
- transposed and reverberated impulses
- double reverberation (for the ending part of the piece)
Comparing the audio

- **Problems**
  - Reverb
  - Some impulses

- **Examples:**
  - 04-08 sec. ca.
  - 08-12 sec. ca.
  - 46-52 sec.
  - 1:35-1:41
  - 2:00-2:04
  - 3:04-3:22
Analysis

Detailed analysis

- not possible to be covered now (long)
- how:
  - macro-segmentation (episodes)
  - micro-segmentation (events)
  - interpretation of recurring figures and listing
  - consideration about “linear counterpoint”
Explanation

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Recurring figures, structure and counterpoint

- Recurring figures
  - Leading voice
  - Rapid agglomerate
  - Juxtaposition and decay
  - Rising superposition
  - In-out-reverb

- Structure
  - 21 episodes
  - more than 67 events

- Counterpoint
  - contrast
  - similar and oblique motion
  - standard imitation
  - mirror
  - “amplitude progression”, etc.
Example A - Imitation
Example B - Complex episode

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Example C - Mirror

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What is “linear counterpoint”?

- counterpoint of amplitudes
- different rules for frequencies
- substitution of typical counterpoint processes with . . .
  . . . an elaboration of linear (line == the amplitude of freq. mixture in time) events
“Mistakes” list

- aesthetical issue: what does it mean to **correct** an electroacoustic piece?
- mistakes / differences
- kind of mistakes:
  - simple graphical mistake
  - bad graphical mistake (ambiguity)
  - missing data
- 70 mistakes found
Summary

- Useful for didactic purpose
- Critical edition-revision of the piece
- Reusable methodology
- Enrich the study of Evangelisti
TODO, if we find the money...

- Broaden the field of study (repertoires, authors, etc.)
- Create a gui for the software
- Generalize the software (rewritten objects-oriented)
- Release it under GPL license
- Try to link it to Audio Retrieval research (well... too early now)
Grazie
Thank you
Merci
Danke