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Emergence and Emergency

Theoretical and Practical Considerations in Agostino di Scipio's Works

[Audio-file: [lecture schroeder.wav](#), 22 min.]

The following provides the slides which accompanied the paper given on March 22, 2011 in Berlin. The paper itself can be listened to, only.

1. Introduction

When system theory was at its first height...

2. Systems in Agostino Di Scipio's Works

Agostino di Scipio has adapted the system model including theoretical concepts for his musical works...

Slide 1:

Agostino Di Scipio's *Audible Ecosystemics*, Live Electronic Compositions:

Audible Ecosystemics (2002–2005)

- No. 1 Impulse Response Study.
- No. 2 Feedback Study.
- No. 3a Background Noise Study.
- No. 3b Background Noise Study in the vocal tract.

Sound Installations

- *Untitled. Ecosystemic Sound Installation in Small Reverberant Space* (at DAAD gallery 2005).
- *Untitled. Ecosystemic Sound Installation in Abandoned or Dismantled Room(s)* (at Villa Elisabeth, Inventionen 2008) (L'Italia é una Repubblica fondata sul lavoro).

Slide 2:

Agostino di Scipio: *UNTITLED 2008. Ecosystemic Sound Installation in Abandoned or Dismantled Rooms* (Berlin, Inventionen 2008)



"Recycle"

Slide 3:

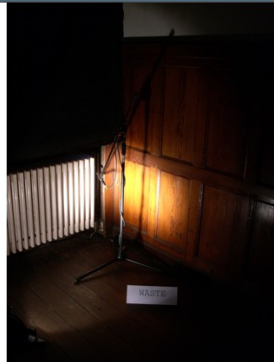
Agostino di Scipio: *UNTITLED 2008. Ecosystemic Sound Installation in Abandoned or Dismantled Rooms* (Berlin, Inventionen 2008)



"surface vibrations are being picked up"

Slide 4:

Agostino di Scipio: *UNTITLED 2008. Ecosystemic Sound Installation in Abandoned or Dismantled Rooms* (Berlin, Inventionen 2008)

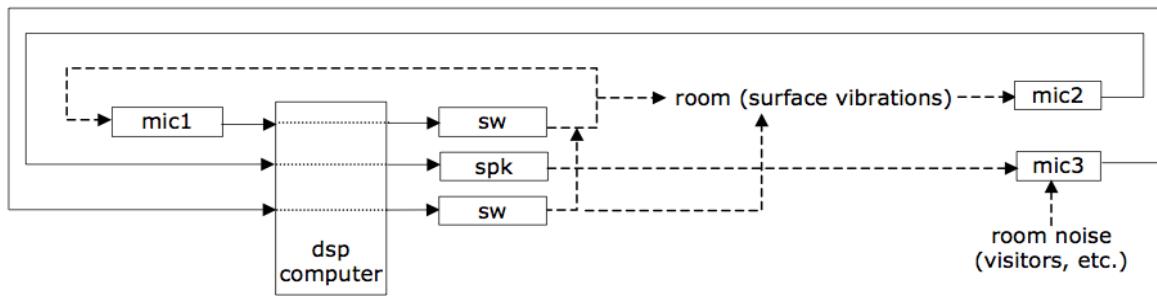


"Waste"



"Consume"

Slide 5:



"Overview of complete technical infrastructure" from: Agostino di Scipio: score for *UNTITLED 2008. Ecosystemic Sound Installation in Abandoned or Dismantled Rooms*

Slide 6:

What is the "System"? ...

- Hardware-level?
- Program-level?
- Sound-level (composition)?
- Musical performance including room acoustics and audience?
- Potential musical performance as documented in the score including extra-musical allusions?

Slide 7:

- Metaphor of the "system" society?

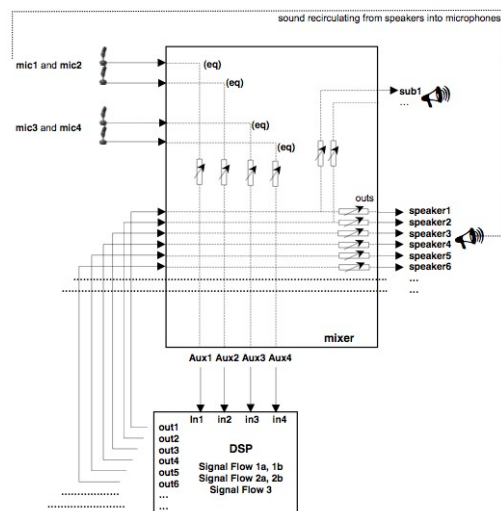
Subtitle of *Untitled* (2008):
l'Italia é una Repubblica fondata sul lavoro
 (Quote from Italian constitution:
 "Italy is a republic based on work.")

Art's potential for social criticism.

Let's have a look at another ecosystemic composition's circuit diagram...

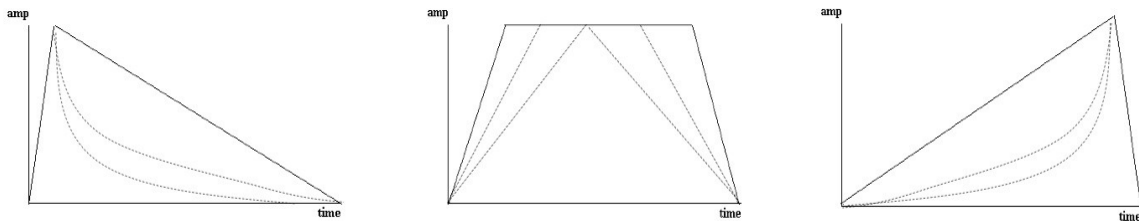
Slide 8:

Audio Connections

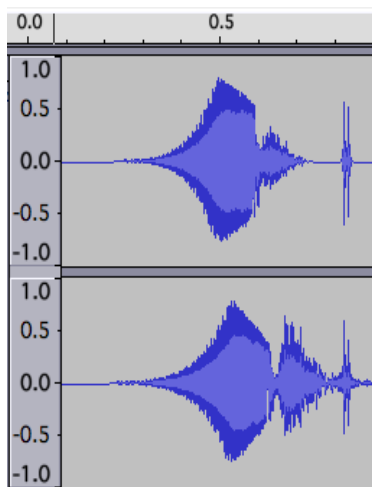


Agostino Di Scipio: *Feedback Study*, circuit diagram

Slide 9:



Agostino Di Scipio *Feedback Study*, gestures to be performed on the level faders of microphone 1 and 2.



Opening gesture from *Feedback Study*.

Sound example: *Opening gesture* from Agostino Di Scipio, *Feedback Study*, in: CD *Hörbare Ökosysteme*, edition RZ, 2005.

The sound quality has changed from the recognizable feedback-crescendo toward a completely different, much more complex gestalt...

Sound example: End from Agostino Di Scipio, *Feedback Study*, in: CD *Hörbare Ökosysteme*, edition RZ, 2005.

3. Emergence as Aimed for in Agostino Di Scipio's Work

This new texture cannot be explained directly from the gestures of the electronic performer...

Slide 10:

Change of textural quality

Di Scipio aims for "creating wanted interactions having audible traces [...]". One designs, implements and maintains a network of connected components whose emergent behaviour in sound one calls music".¹
(Di Scipio 2003)

Slide 11:

The concept of Emergence

„[I]m Verlauf der Evolution [treten] neue Dinge und Ereignisse mit unerwarteten und tatsächlich unvorhersehbaren Eigenschaften auf; Dinge und Ereignisse, die in dem Sinne neu sind, in dem ein großes Kunstwerk als neu bezeichnet werden kann“.²
(Karl Popper, *The Self and Its Brain – An Argument for Interactionism* (1977)).

... In Computer sciences Artificial Life theories are based on the concept of emergence³...

Slide 12:

The concept of "Emergence" in Sociology

"Oft spricht man [im Zusammenhang mit einem Gesellschaftssystem, das eine eigene strukturelle Komplexität aufbaut,] auch von 'emergenten' Ordnungen und will damit sagen, daß Phänomene entstehen, die nicht auf die Eigenschaften ihrer Komponenten [...] zurückgeführt werden können."

(Niklas Luhmann, *Die Gesellschaft der Gesellschaft*, Frankfurt/Main: Suhrkamp, 1997; p. 134.

Slide 13:

The concept of "Emergence" in performing arts

"[Im Rezeptionsvorgang einer Aufführung] tauchen Bedeutungen auf, ohne daß das wahrnehmende Subjekt dies intendiert hätte, [...] unbegründet und unmotiviert. [...] Die Bedeutungen, die in diesem Prozeß erzeugt werden, lassen sich in diesem Sinne als Emergenzen begreifen."

(Erika Fischer-Lichte, *Ästhetik des Performativen*, Frankfurt/M.: Suhrkamp, 2004; pp. 248–9.

Slide 14:

The concept of "Emergence" in the Ecosystemics

"As all sonically relevant elements and decisions are connected among them, sometimes it will be necessary to step back and refine or retune some level previously fixed, or to move or re-orient the speakers, etc. The aim is to find a point of 'unstable balance' among all system components, such that as large a variety of sound events as possible can emerge from the system dynamics."

(Agostino di Scipio, *UNTITLED 2005, Ecosystemic Sound Installation in Small Reverberant Space*, Instruction notes/score (Berlin, July 2005)).

Other "musical material" is background noise. And Di Scipio termed the poetic *sound dust* for granulated sounds ...

Slide 15:

"'Sonic dust' is a loose definition for the by-products of a network of sonic interactions, a shortcut term for thin, noisy artifacts, finely grained textures, maybe closer to a sand – dispersive systems and processes that leave light but audible traces behind."

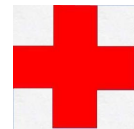
(Agostino Di Scipio, in: Anderson, Christine: "Dynamic Networks of Sonic Interactions", in: *Computer Music Journal* 29, 3 (Fall 2005); pp. 11–28.)

"Granular Synthesis, a blanket term for the bitmapping of sonic information in digital music, pulverises sound, returns music to dust. In the hard drive's gigabyte wilderness, grains can be scattered like seed and the potential for genetic modification seems infinite."

(Rob Young "Worship the Glitch. Digital Music, Electronic Disturbance", in: Rob Young (ed.), *Undercurrents: The Hidden Wiring of Modern Music*, London, New York 2002; pp. 45–55, 51.)

Slide 16:

4. Emergency and Risk to be taken in order to achieve Emergence




"The risk of failure must always be there. When it is there, art is indeed taking place, even in the case of actual failure. The point is, for a composer, to make the risk of failure clear to the listeners."

(Agostino di Scipio (2006) interviewed by Mariano Mora McGinnity, *Hörer in Aktion. Komposition Diplomarbeit*, Robert Schumann Musikhochschule, Düsseldorf, 2006.)

Slide 17:

security measures

if needed more than once, change freely octaves (of the same pitches), also in extreme registers (first and last piano octave)

 = tremolo/ribattuto with changes in speed independent for the two hands

>20"



as soon as electronics fade out, go back to the last encountered backtrack point in the main notation system (□) and keep going from there

ppp - f
ad libitum, also with different nuances between the two hands
never sforzando

ped. _____ l.v.

as you go back to the main notation system, keep pedal depressed, and lift it only as soon as you incur into the next mistake

"Security Measures": Score excerpt: A. di Scipio, 3 PEZZI MUTI (DALLA SUPERFICE AL FONDO) for piano and live-electronics (2005–07).

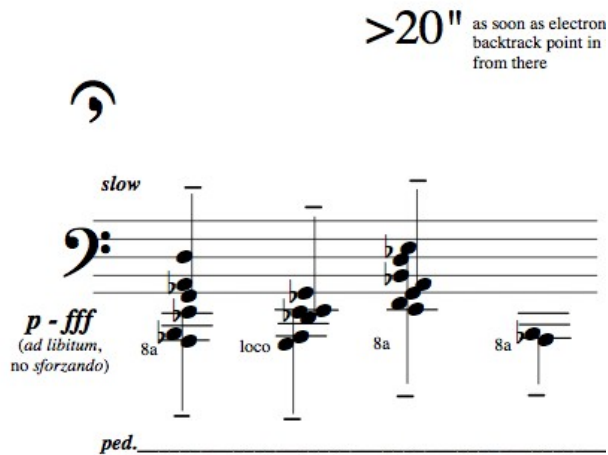
Slide 18:

security measures

the first time, use only the four chords in parenthesis, and repeat them, also changing order and tempo, occasionally emphasizing the *acciaccatura*

the second time (and third, if needs be), freely alternate between the four low-register chords with one or more of the chords in parenthesis, always changing order and tempo

>20"



as soon as electron backtrack point in from there

"Security Measures": Score excerpt: A. di Scipio, 3 PEZZI MUTI (DALLA SUPERFICE AL FONDO) for piano and live-electronics (2005–07).

[Sound example: A. di Scipio, 3 PEZZI MUTI (DALLA SUPERFICE AL FONDO) for piano and live-electronics (2005–07).]

In the following example from *tre pezzi muti* we will hear a computer-sound-texture which grows gradually louder. The low piano chords enter as a "security measure" to stop the computer sounds from getting overwhelming and finally succeed in having the computer-sound texture retreat...

Slide 19:

“Emergency Situations and Security Measures”

“In those circumstances when events louder than average become frequent in your mouth [...], the texture of electronic transformations may eventually grow, if not in terms of actual loudness, at least in terms of thickness of material, and saturation of musically relevant information. The overall process becomes uncontrollable, and goes adrift. There you face an emergency situation. [...]. In an emergency, you resort to security measures and exert some degree of violence in order to hush or ‘kill’ the accumulation of sound material and finally restore a better balance in the process, representing more acceptable conditions for the performance to continue.”

(Score Excerpt: A. di Scipio, *Background Noise Study with Mouth Performer(s)*, live electronics and mouth performer(s) (2004/05).)

To circumvent such emergencies in the Feedback Study the composer has built in a self-regulation...

Slide 20:

Selfregulation

“The computer also executes a variety of feature-extraction methods, using the extracted data for internal self-regulation. For example, it traces the input amplitude of the feedback events and scales the output amplitude down by an inversely proportional factor. It's a kind of ‘self-gating,’ useful to avoid saturation and to ensure that a more balanced situation is eventually restored whenever louder feedback events or some thicker computer sound perturbs the system. Selfgating and other self-regulating methods I use reflect a broader systemic principle of ‘compensation.’ If some sonic variable happens to build up to a critical point, some other variable automatically counterbalances that occurrence by releasing some energy.”

(Di Scipio in: Anderson, Christine: “Dynamic Networks of Sonic Interactions: An Interview with Agostino Di Scipio”, in: *Computer Music Journal* 29, 3 (Fall 2005); p. 17.)

In order for an interesting event to emerge – for music to emerge, there must be a certain amount of emergency...

Slide 21:

Dampening/avoiding painfully loud sounds

“The output level should be high enough to let the speaker sound feed back into the microphone, and the thus created feedback loop start ringing (Larsen effect). The software, however, handles dynamically the output level, decreasing the feedback gain as the output increase, thus dampening the Larsen tones or anyway avoiding them to get painfully loud. The position and orientation of microphones should be carefully adjusted in order to achieve a variety of Larsen tone frequencies.”

(Agostino Di Scipio, *LARGE SOUND PORTRAITS*, instructions 2009/10)

Conclusion

Both, emergence and emergency, occur in time, in a process...

... thank you!

Endnotes

1. Agostino Di Scipio, „Sound is the interface: from interactive to ecosystemic signal processing“, in: *Organised Sound* 8 (3) 2003; S. 269–277; 271.
2. Karl Popper „Der Materialismus überwindet sich selbst“ in: Karl Popper und John Eccles, *Das Ich und sein Gehirn (The Self and Its Brain – An Argument for Interactionism*, Heidelberg et al.: Springer 1977) dt. von Willy Hochkeppel, Piper: 2008; S. 44. Quoting Popper re emergence gives a certain tendency to my line of argumentation: Popper was interested in the emergence of life, consciousness etc. Interestingly, Agostino di Scipio has a tendency to personify his compositional systems and metaphorically alluding to them as if they were living beings. In this regard we can indeed quote Popper's concept of emergence talking about di Scipio's poetics.
3. Cf. Jean-Claude Heudin „Artificial Life and the Sciences of Complexity: History and Future“ in: Bernard Feltz, Marc Crommelinck and Philippe Goujon (eds.), *Self-Organization and Emergence in Life Sciences*, Dordrecht: Springer, 2006; pp. 227–247.

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Becker, A.; C. Mehr et al. (eds.) *Gene, Meme und Gehirne. Geist und Gesellschaft als Natur. Eine Debatte Frankfurt/Main*: Suhrkamp, 2003; especially: Dietrich Dörner „Seelen aus der Retorte?“, pp. 256–278.

Fischer-Lichte, Erika, *Ästhetik des Performativen*, Frankfurt/M.: Suhrkamp, 2004.

Heudin, Jean-Claude, „Artificial Life and the Sciences of Complexity: History and Future“ in: Bernard Feltz, Marc Crommelinck and Philippe Goujon (eds.), *Self-Organization and Emergence in Life Sciences*, Dordrecht: Springer, 2006; pp. 227–247.

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Popper, Karl, „Der Materialismus überwindet sich selbst“ in: Karl Popper und John Eccles, *Das Ich und sein Gehirn (The Self and Its Brain – An Argument for Interactionism*, Heidelberg et al. Springer 1977) dt. von Willy Hochkeppel, Piper: 2008; S. 44.

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Zusammenfassung

„Emergenz und Notfall. Theoretische und praktische Überlegungen zu Agostino di Scipio's Arbeiten“

Agostino di Scipio bezieht sich in seinen Arbeiten auf theoretische Überlegungen der Systemtheorie und überträgt deren Modelle in Kompositionen und Klanginstallationen, neuerdings sogar Klangobjekte. Im Vortrag werden einige Bezüge erwähnt und das Modell der Arbeiten di Scipios exemplarisch dargestellt. Zentral ist in interaktiven Echtzeit-Computer-Kompositionen wie di Scipios *Audible Ecosystemics* (2002–05) das Konzept der Emergenz, also das unplanbare und unvorhersehbare Auftauchen neuer Qualitäten. Der Komponist zieht sich offenbar zurück, um die Strukturen aus den Interaktionen der Systemteile entstehen zu lassen. Wenn es keine Kontrolle über das System gibt, können sich auch Notfallsituationen einstellen. Deshalb fügt di Scipio in seine Systeme Sicherheitsfunktionen ein, welche in solchen Notfallsituationen selbstregulierend eingreifen.

Abstract

Agostino Di Scipio refers in his works to theoretical implications of system theory and transfers its models into his compositions, installations, and recently into his sounding objects. Some of these references are mentioned in this paper and the transfer is looked at. In interactive real-time compositions like Di Scipio's *Audible ecosystemics* series (2002–05) the concept of emergence is central, the unplanned and unforeseen emergence of new qualities. Seemingly, the composer withdraws to let new structures evolve unhindered from the interactions between the system's parts. But lack of control allows for emergency situations. In order to avoid emergency Di Scipio adds self-regulation to his computer composition systems.

Author

Julia H. Schröder is a musicologist and a research fellow at Freie Universität Berlin, SFB 626. She has written her doctoral dissertation on the *Cage & Cunningham Collaboration* (Hofheim 2011) and co-edited and co-commented a book on documents on the music of the 20th century (Helga de la Motte-Haber, Lydia Rilling, Julia H. Schröder, *Dokumente zur Musik des 20. Jahrhunderts*, Laaber 2011).

Title

Julia H. Schröder, *Emergence and Emergency: Theoretical and Practical Considerations in Agostino di Scipio's Works*, in: kunsttexte.de/auditive_perspektiven, Nr. 3, 2011 (7 Seiten), www.kunsttexte.de.