

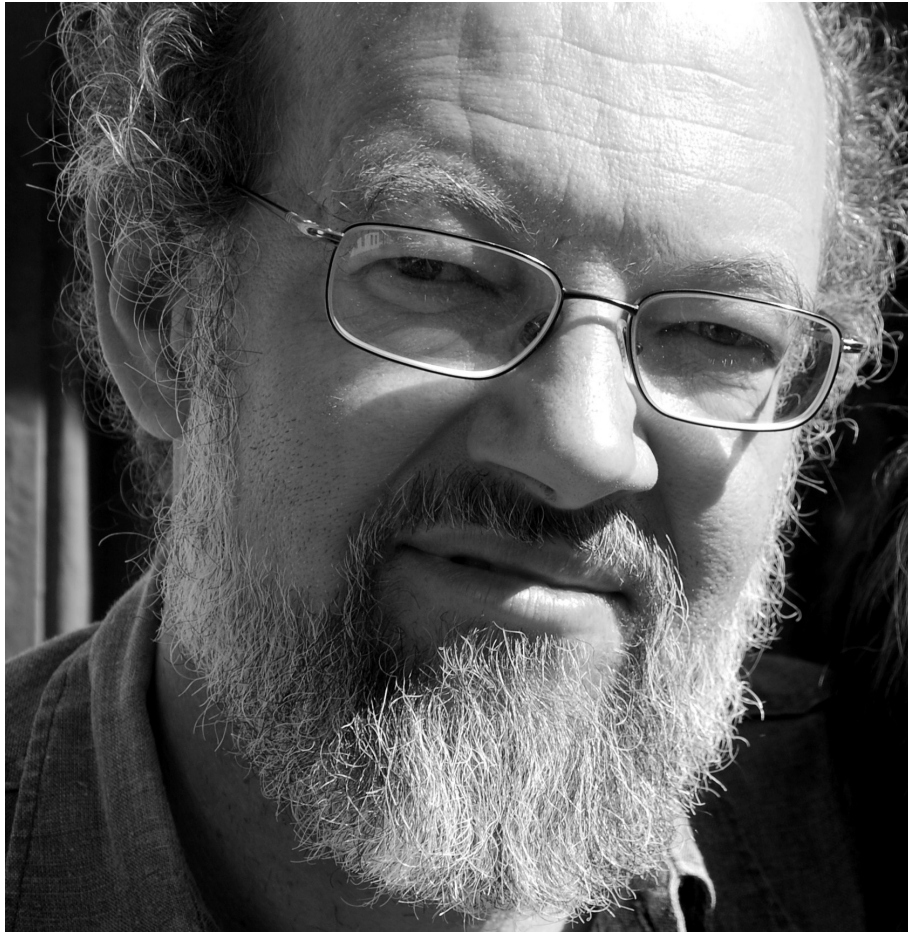
SASRIM conference, Cape Town, July 2015

Hans Huyssen

PROPOSING A  
COMPLEXITY THEORY OF MUSIC

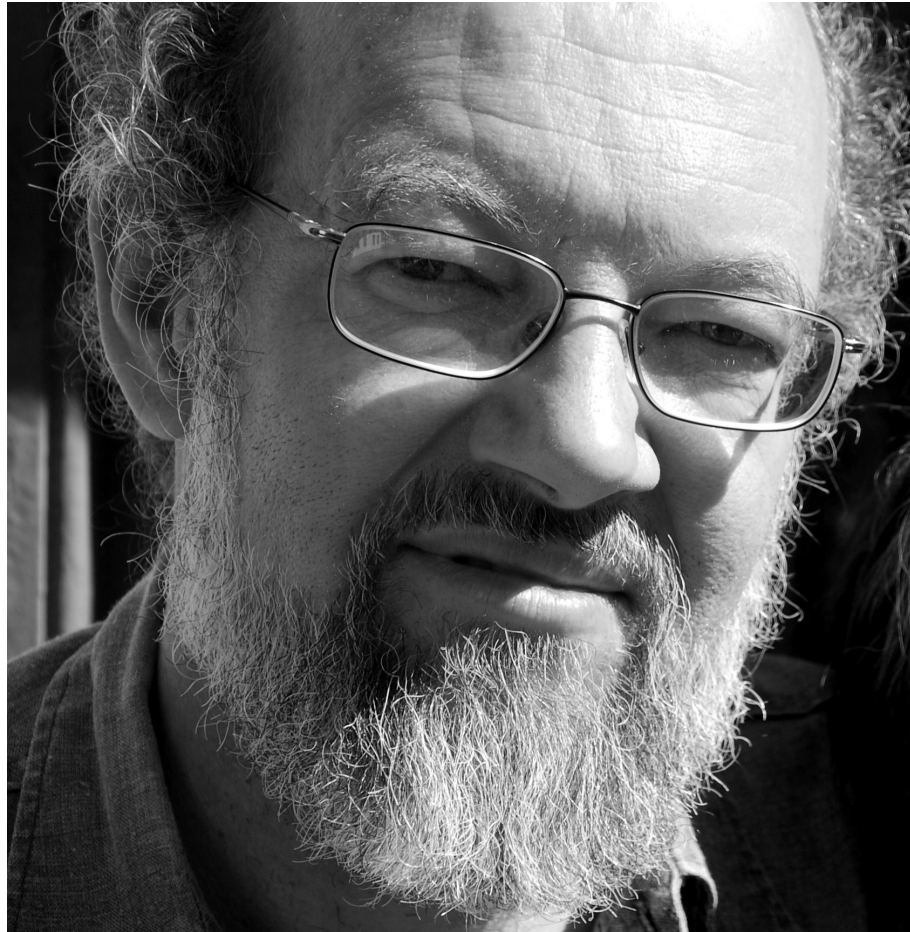
1. What is a complex system?
2. Why should music be considered a complex phenomenon?
3. What are the implications of a complexity perspective on music?

# COMPLEXITY THINKERS



Paul Cilliers (1956-2011)

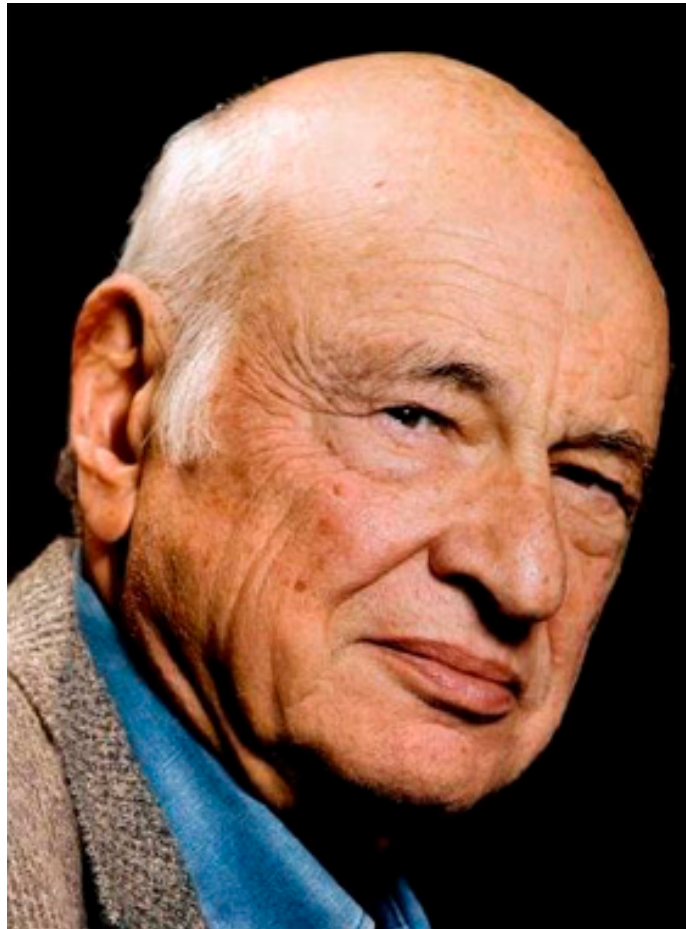
## COMPLEXITY THINKERS



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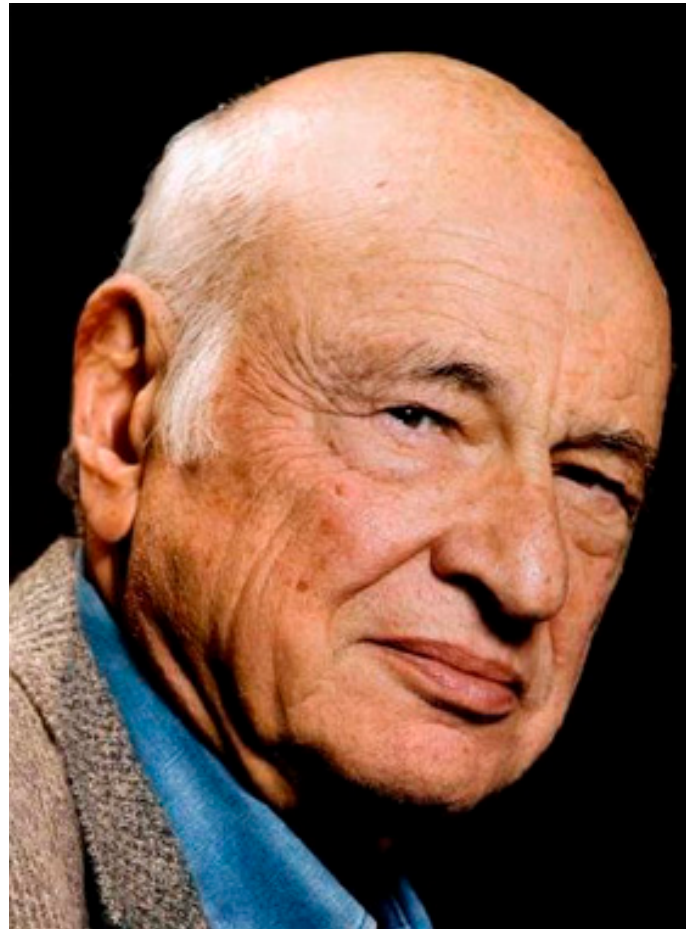
‘Diversity is not a problem to be solved; it is the precondition for the existence of any interesting behaviour.’

## COMPLEXITY THINKERS



Edgar Morin (\*1921)

## COMPLEXITY THINKERS



Edgar Morin (\*1921)

'I am not furnishing the method; I am starting out on the search for the method.  
I am not starting out with a method; I am starting out with the refusal to simplify.'

# COMPLEXITY

1. The whole is more than the sum of its parts:

$$W > P_1 + P_2 (+ P_n)$$

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*example: H<sub>2</sub>O*

**Water**

(i.e. blue, life-supporting liquid and universal solvent)

is the improbable, unpredictable  
'result' from covalent bonds of

**Hydrogen + Oxygen**

(both highly reactive, colorless gasses,  
oxygen being toxic to anaerobic organisms)



# COMPLEXITY

The 'product' is qualitatively different/other than its substances.

The nature of the whole cannot be deduced from, nor reduced to the substance of the parts.



Water *emerges* from Hydrogen & Oxygen

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The nature of the whole cannot be deduced from, nor reduced to the substance of the parts.



Water *emerges* from Hydrogen & Oxygen

proposing a symbol for *Emergence*  
(i.e. 'somewhat more' and 'different'):

$E \rightarrow \leftarrow \rightarrow \searrow \rightarrow \triangleright$

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*Emergence*



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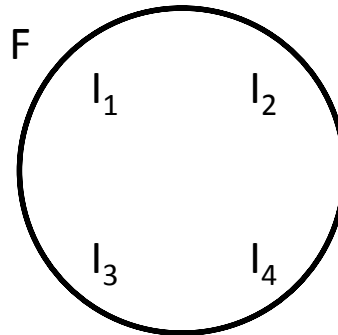
$$W < P_1 + P_2 (+ P_n)$$

# COMPLEXITY

2. The whole is less than the sum of its parts:

$$W < P_1 + P_2 (+ P_n)$$

*example: family*



F = family

I = individual

# COMPLEXITY

$$\begin{matrix} I_1 & I_2 \\ I_3 & I_4 \end{matrix}$$

# COMPLEXITY

man, Greek, Catholic  
economist, consultant  
marathon runner, mentor  
son, brother, uncle, lover  
husband, father

I<sub>1</sub>

woman, Italian, Socialist  
architect, lecturer, author  
best friend, muse  
daughter, sister, niece  
mother, wife

I<sub>2</sub>

I<sub>3</sub>

brother, son  
father, husband  
film critic, chef  
IT specialist, agnostic  
man, South African

I<sub>4</sub>

daughter, sister  
social worker  
student, dancer  
political activist, Buddhist  
woman, South African



# COMPLEXITY

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## Individual 2

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architect, lecturer, author  
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daughter, sister, niece

F

husband, father

mother, wife

brother, son

daughter, sister

father, husband  
film critic, chef

IT specialist, agnostic  
man, South African,

## Individual 3

social worker  
student, dancer  
political activist, Buddhist  
woman, South African

## Individual 4

# COMPLEXITY

F

husband, father

mother, wife

brother, son

daughter, sister

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Individual 4

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different framing reveals different reality

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## Individual 4

different framing reveals different reality

# COMPLEXITY

Framed from a family perspective individuals with multiple relationships / identities / qualifications / abilities / propensities are 'reduced' to more or less restricted systemic positions / functions / roles

$$F < I_1 + I_2 (+ I_n) \quad | \quad F \neq I_1 + I_2 (+ I_n)$$

The system *constrains* the individual potential of its members.



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proposing a symbol for *Constraint*  
(‘somewhat less’ and ‘different’):

$$C \rightarrow < \rightarrow \leftarrow$$

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3. The whole is *more and less* than the sum of its parts:

$$W \leqslant P_1 + P_2 (+ P_n)$$

# COMPLEXITY

3. The whole is *more and less* than the sum of its parts:

$$W \lessgtr P_1 + P_2 (+ P_n)$$

*previous examples hold:*

## Water

not only gains from its constituting parts but also  
loses some of the qualities of its constituent parts:  
is *not* gaseous, flammable, combustible, toxic any more

## Family

not only restricts its members but concurrently  
enriches the individual:  
providing its very existence, ancestry, relatives, heritage,  
support-system, inheritance

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The whole is more *and* less than the sum of its parts:

$$W \lessgtr P_1 + P_2 (+ P_n)$$

# COMPLEXITY

The whole is more *and* less than the sum of its parts:

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$$W \neq W$$



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$$W \leftrightarrow W$$

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$$W \diamond W$$

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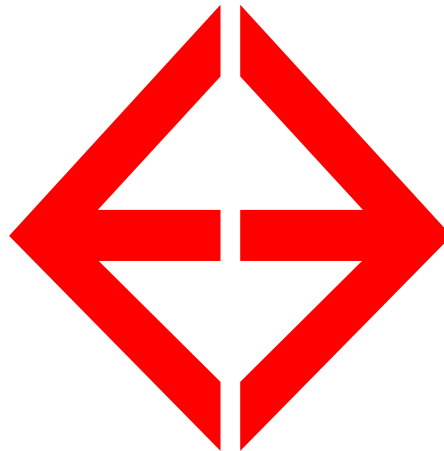
The whole is complex:

$$W \diamond W$$

proposing a symbol indicating a *complex relation*  
(concurrently *emergent* and *constraining*):

$$\leftarrow + \rightarrow \rightarrow \diamond$$

# COMPLEXITY



# COMPLEXITY

characterizes systems and wholes  
based on *complex organizational interactions and relations*  
determined by *emergence* and *constraints*



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*examples of complex systems:*

living organisms, life itself,  
the brain, the mind, consciousness  
societies, cultures, languages

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*examples of complex systems:*

living organisms, life itself,  
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music?

1. What is a complex system?

2. Why should music be considered a complex phenomenon?



# WHY IS MUSIC A COMPLEX PHENOMENON?

3 reasons:

- a) Nobody can 'make music' alone.
- b) Music is always something other than just pure music.
- c) While music consists of very many different components, they can never be separated.

## WHY IS MUSIC A COMPLEX PHENOMENON?

### a) Nobody can 'make music' alone.

even solitary musicking as private pastime involves the roles of 'performer' and 'listener', albeit in a single person

what is generally perceived as a (worthwhile) musical experience rests on a communal, communicative aspect of sharing, creating & perceiving

∴ Music is a composite whole, resulting from different actions & interactions traditionally split up between *performer* and *listener*. (With the advent of musical notation in Europe these roles have further been diversified into those of *composer*, *performer*, *listener*.)

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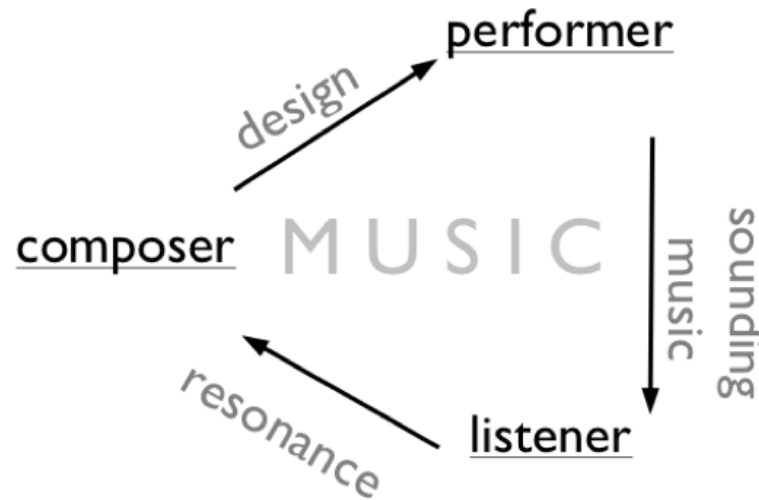
expressed in complexity terms:

$$M \triangleright \sum (\text{contributions \& interactions of } C + P + L)$$

(read: Music emerges from the total sum of contributions of composer, performer and listener.)

# WHY IS MUSIC A COMPLEX PHENOMENON?

Benjamin Britten's 'holy triangle'  
(requisite for music truly to emanate)



music originates from the interaction of composer, interpreter and listener

$$M \triangleright C + P + L$$

## WHY IS MUSIC A COMPLEX PHENOMENON?

### **b) Music is always something other than just pure music.**

the creation and performance of music is inevitably contingent on cultural, historical, geographical conditions and contexts

therefore it always contains traces of such contexts  
(additional inherent information – ‘message’)

music is generally perceived as expressive, often even as a medium conveying ideas, values, aesthetic qualities  
(additional subjective, external associations – ‘reception’)

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music is generally perceived as expressive, often even as a medium conveying ideas, values, aesthetic qualities  
(additional subjective, external associations determine its ‘reception’)

expressed in complexity terms:

$$M = M + x_i + x_e$$

$$\therefore M \neq M$$

$$\therefore M \Leftrightarrow M$$

(read: Music is something different to each different pair of ears.)

## WHY IS MUSIC A COMPLEX PHENOMENON?

**c) While music consists of very many different components, they can never be separated.**

there is good reason to split up music into distinct activities:

- theoretical, harmonic, formal conception regarding the *composition*;
- technical, instrumental, acoustical requirements regarding the *performance*;
- idiomatic literacy, technical proficiency, regarding the *interpretation*;
- cultural, aesthetic consensus with audience regarding the *reception*

however, these must finally coalesce into a final, unified musical experience

they do not make sense on their own

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expressed in complexity terms:

$$M \leftarrow [C \succ (t + h + f)] + [P \succ (t + i + a)] + [I \succ (il + tp)] + [R \succ (cc + ac)]$$

$$M \leftarrow P_1 + P_2 + P_n$$

(read: Music constrains / binds together a huge variety of components into a unified expression.)



## FORMULATING A COMPLEXITY THEORY OF MUSIC

*Music is a complex phenomenon  
emerging from interactions  
of composer, performer and listener.*

# FORMULATING A COMPLEXITY THEORY OF MUSIC

*Music is a complex phenomenon  
emerging from interactions  
of different subjective agents.*

## FORMULATING A COMPLEXITY THEORY OF MUSIC

*Music is a complex phenomenon  
emerging in highly diverse manners  
from reciprocal actions of different subjective agents.*

## FORMULATING A COMPLEXITY THEORY OF MUSIC

*Music is a complex phenomenon  
emerging in highly diverse manners  
from reciprocal actions of different subjective agents.  
It is autonomous by virtue of being structurally coupled to  
cultural (i.e. historical, social and geographical) contexts.*

## MUSIC AS COMPLEX PHENOMENON

- theory is not new – rather summarizes age-old insight
- recognizes relationality as crucial element and conspicuous feature of complex systems
- allows for musical comparisons with other complex phenomena
- provides a new vocabulary to speak of and about music
- should not be understood as formulaic recipe - theory needs to be fleshed out, practiced, 'lived'
- inherently recognizes that musical positions are particular, subjective, contingent and provisional
- provides a robust tool to unpack musical issues, negotiate positions, strategies;
- offers a super-disciplinary base for intra-disciplinary questions
- potentially has many and far-reaching implications for current (modernist) musical conventions

1. What is a complex system?

2. Why is music complex?

3. What are the implications?

# MUSICAL IMPLICATIONS FROM A COMPLEXITY PERSPECTIVE

a musical practice based on complexity principles will be

- a) contextual
- b) collaborative
- c) considerate
- d) conditional
- e) conjectural

# MUSICAL IMPLICATIONS FROM A COMPLEXITY PERSPECTIVE

a musical practice based on **complexity** principles will be

## a) *contextual*

to be understood in an ecological sense:

- any system is always part of a surrounding, supportive ecosystem
- immediate 'eco'-system functions as smallest sustainable survival unit
- the richer, (more diverse, nuanced) the better the living conditions



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- the richer, (more diverse, nuanced) the better the living conditions

note:

contexts can be framed differently, subjectively, provisionally

i.e. geographical, cultural, historical, current, stylistic, personal, imagined...

contextual relationships & links are not necessarily linear, immediate, apparent, but more interesting when dynamic, differentiated, varied, adaptive

but music without any context is meaningless

# MUSICAL IMPLICATIONS FROM A COMPLEXITY PERSPECTIVE

*In contrast, modernist musical practices attach little value to **contextuality***

viz:

- ‘avant- garde’ movements deliberately cut ties with traditions
- the ‘international generic’ is based on the assumption that ‘naturalized idioms’ have attained global quality
- internationalisation pretends that artistic expressions can randomly be transplanted
- marketing strategies evoke music as ‘universal language’; i.e. clearly do not value specific qualities
- the soloist / prima donna (lone fighter, winner) enjoys highest musical status

# MUSICAL IMPLICATIONS FROM A COMPLEXITY PERSPECTIVE

a musical practice based on complexity principles will be

## **b) collaborative**

principally acknowledging the systemic, relational nature of music

by definition constituted through multiple contributors

allows for dialogue, encounter, engagement, enrichment, growth

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a musical practice based on complexity principles will be

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principally acknowledging the systemic, relational nature of music

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allows for dialogue, encounter, engagement, enrichment, growth

delineation:

not for altruistic, but for structural reasons

collaborations are far more difficult to facilitate than competitions, as they must allow for the unexpected, interferences, differences, disturbances to enter into the artistic process

require risk taking, negotiations, compromises, adaptability, patience...

# MUSICAL IMPLICATIONS FROM A COMPLEXITY PERSPECTIVE

*modernist musical practices **privilege competition over collaboration***

viz:

- international competitions hold enormous prestige (make or break careers)
- indicate direct adoption of Darwinian principles (assumedly 'natural' selection) into cultural sphere  
(biologists now recognize symbioses as far more important evolutionary achievement, long before competition comes into play)
- competitive structures (exams, auditions, Eisteddfods) uphold hierarchies within the music industry

# MUSICAL IMPLICATIONS FROM A COMPLEXITY PERSPECTIVE

a musical practice based on complexity principles will be

## c) *considerate*

based on an attitude of give and take by all (role) players

levelling out hierarchies

attentive, communicative, nuanced, mindful, reaching out

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a musical practice based on complexity principles will be

## c) *considerate*

based on an attitude of give and take by all (role) players

levelling out hierarchies

attentive, communicative, nuanced, mindful, reaching out

delineation:

this does not imply that music should be 'nice' or that artistic principles should be dropped

implies an attitude of mindfulness, not lenience

# MUSICAL IMPLICATIONS FROM A COMPLEXITY PERSPECTIVE

*modernist musical practice **favours the authoritative professional***

viz:

idealized figures (*Maestro*, star, prima donna, virtuoso, etc.)

are esteemed because of their status, autonomy, proficiency

because of their 'know-how' and superior ability they need not consult anymore

performances by such figures are readily hailed as landmarks, even if (or because?)

they are inclined to be overly self-assertive (i.e. fully inconsiderate)



# MUSICAL IMPLICATIONS FROM A COMPLEXITY PERSPECTIVE

a musical practice based on complexity principles will be

## d) *conditional*

referring to specific circumstances, available means, forces etc.

conditions factually determine 'how' music comes into existence / is performed / perceived

act as 'gateway' for specific musical 'realizations'

though principally peripheral to the musical process, they inevitably affect it

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note:

context & condition are related concepts:

context refer to the broader, general 'environment';

conditions describe the state of the environment, i.e. immediate circumstances, actual situations

## MUSICAL IMPLICATIONS FROM A COMPLEXITY PERSPECTIVE

*modernist musical practice tends to create its own **'artificial' conditions***

viz:

- 'soundsystems' may be installed to overcome acoustic conditions
- 'world-class musos' will in principle outplay local practitioners
- flagship projects conjuring up disproportionate sponsorship, hype
- privileges singular events (art-festival, master-class, gala-concert) over sustainable practice

# MUSICAL IMPLICATIONS FROM A COMPLEXITY PERSPECTIVE

a musical practice based on complexity principles will be

## e) *conjectural*

where there are no absolute norms, subjective, self-responsible, bold musical decisions are the only way to go by

will favour the individual (over the canonical) voice

note:

conjectures need not be altogether random but can, in fact, be well-informed

hence *informed performance practice* has become such an important concept

# MUSICAL IMPLICATIONS FROM A COMPLEXITY PERSPECTIVE

*modernist musical practice relies on **canonic conventions***

viz:

- frowns upon conjecture
- instead favours streamlined commodification (based on closed, formulaic, repeatable universal, so called 'professional' approaches)

Since the practice of music is a complex affair,  
so are the current musical crises.

It will require complex thinking about music,  
rather than modernist strategies, to address them.

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so are the current musical crises.

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rather than modernist strategies, to address them.

Under the circumstances I consider it  
of the utmost importance to develop a

COMPLEXITY THEORY OF MUSIC.

