



Interactive systems for composition and improvisation

Current status

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Outline



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Outline

- What I want to achieve



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Outline

- What I want to achieve
- Why I want to...



Outline

- What I want to achieve
- Why I want to...
- Creating a theoretical framework



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Outline

- What I want to achieve
- Why I want to...
- Creating a theoretical framework
- What is the object?



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- What I want to achieve
- Why I want to...
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- What is the object?
- Practical framework - tools



Outline

- What I want to achieve
- Why I want to...
- Creating a theoretical framework
- What is the object?
- Practical framework - tools
- Knowledge produced?



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Computer interaction

general cases to evaluate

... Music for improvising musician and computer.



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- ... Music for improvising musician and computer.
- ... Precomposed music for instrument(s) and computer.



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The computer becomes a musical instrument



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The computer becomes a musical instrument and a listener



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The computer becomes a musical instrument and a listener and a performer.



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The computer becomes a musical instrument and a listener and a performer.
What does that mean...



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What does that mean...

for the process of composition?



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The computer becomes a musical instrument and a listener and a performer.

What does that mean...

for the process of composition?

for the process of improvisation?



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The challenge



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The challenge

A musician playing an instrument is an analog system.



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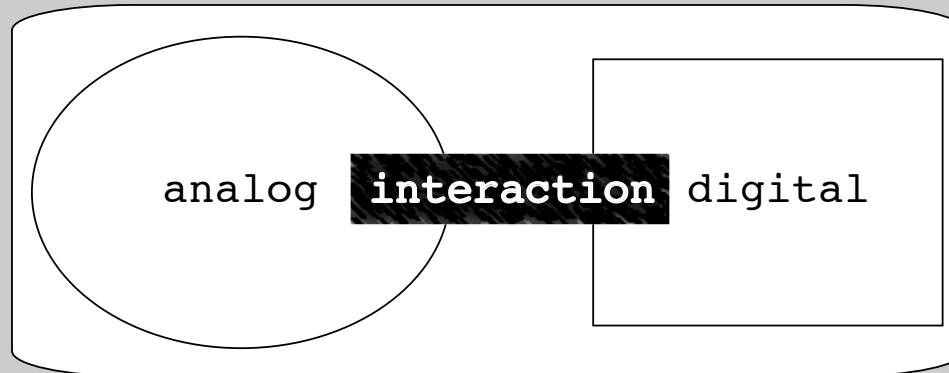
A computer is a digital system.



The challenge

A musician playing an instrument is an analog system.

A computer is a digital system.

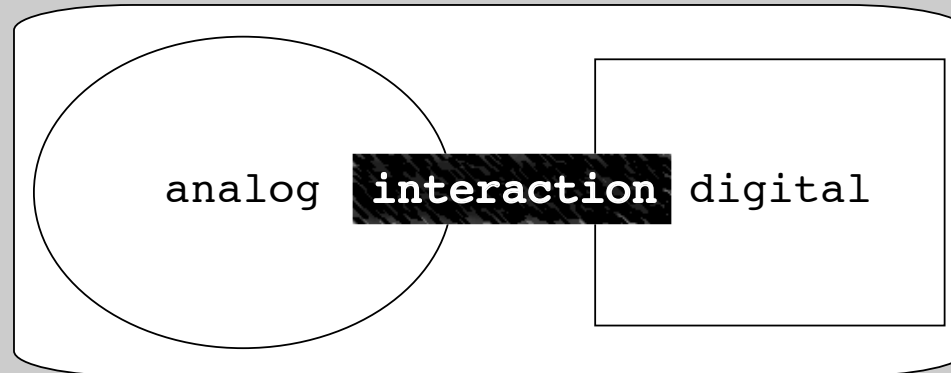




The challenge

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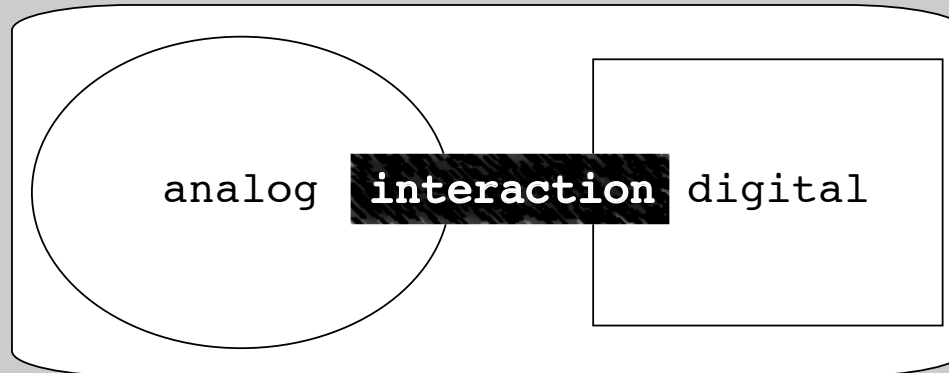
The mode of interaction becomes critical



The challenge

A musician playing an instrument is an analog system.

A computer is a digital system.



The mode of interaction becomes critical

The terms *analog* and *digital* are only valid as metaphors.



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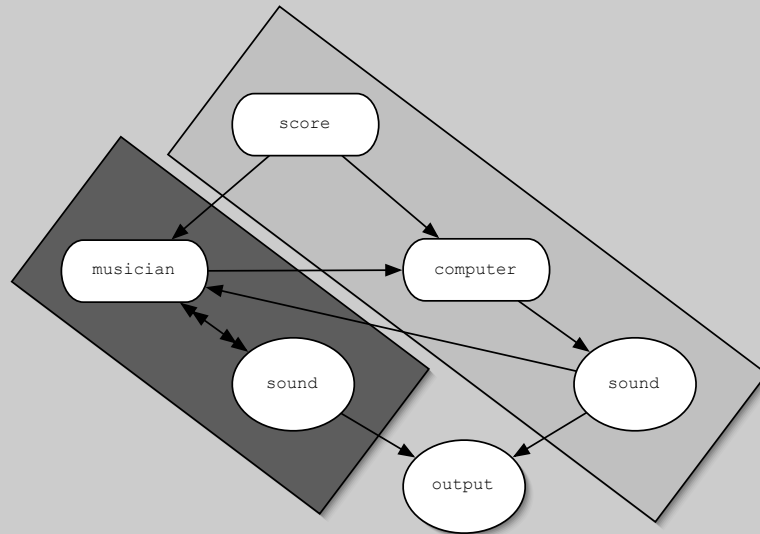
Perspicio - an example

play



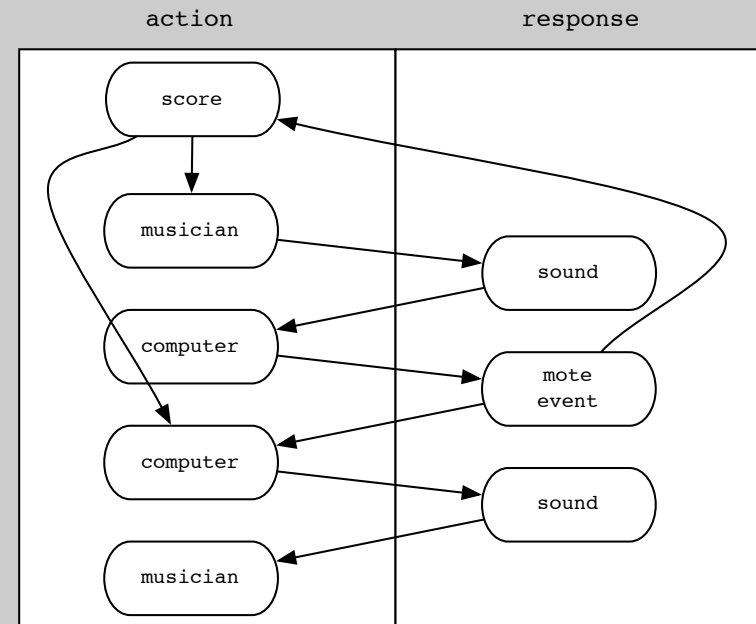
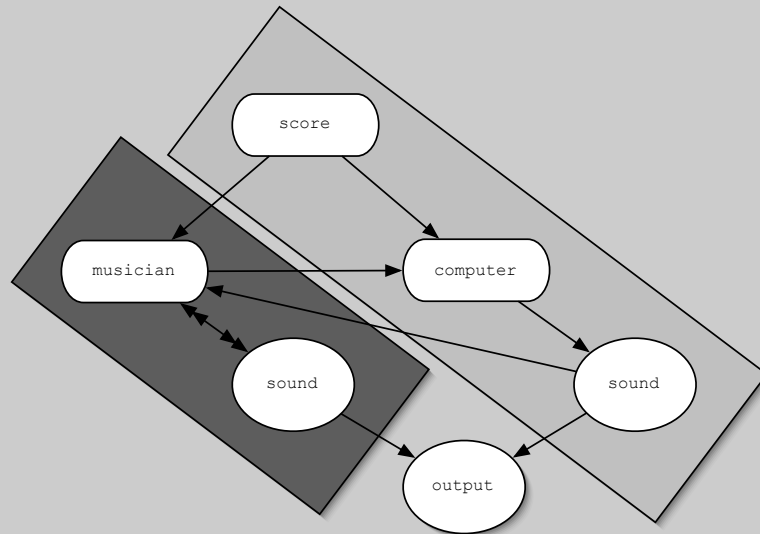
Perspicio - an example

play



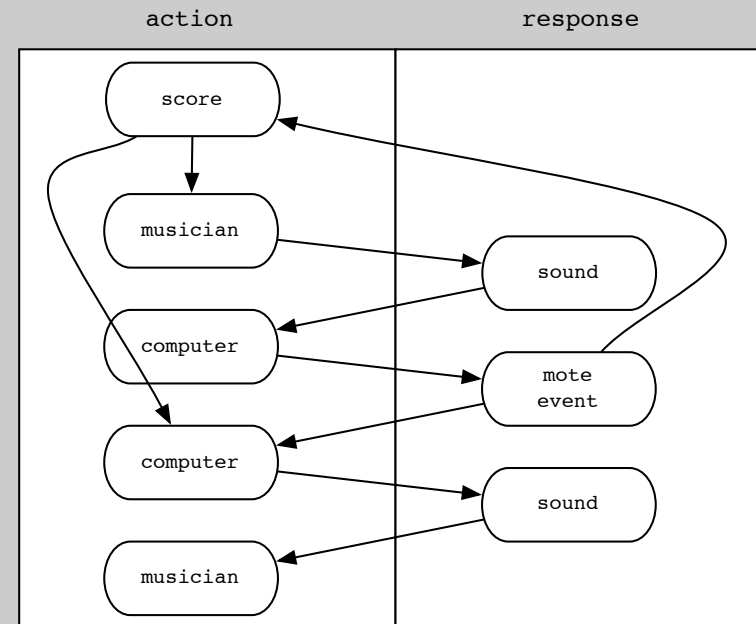
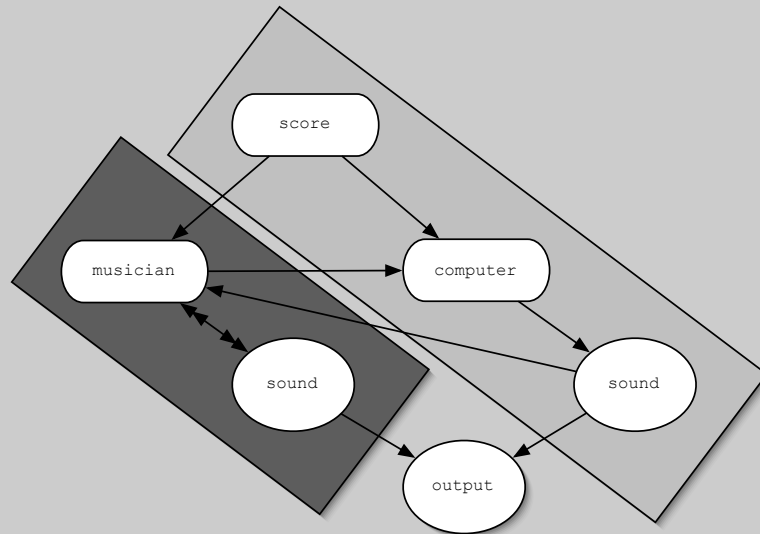
Perspicio - an example

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Perspicio - an example

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error in logical typing^[1]



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Logical types

Contrast between...



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Logical types

Contrast between...

...learning about the particular



Logical types

Contrast between...

...learning about the particular

...learning about the general



Logical types

Contrast between...

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the larger case is of a totally different nature from that of the particular[1]



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the larger case is of a totally different nature from that of the particular[1]

- note event (particular information about one event)



Logical types

Contrast between...

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...learning about the general

the larger case is of a totally different nature from that of the particular[1]

- note event (particular information about one event)
- sound (general information about a class of events)



Logical types

Contrast between...

...learning about the particular

...learning about the general

the larger case is of a totally different nature from that of the particular[1]

- note event (particular information about one event)
- sound (general information about a class of events)

Needs more research and more thinking...



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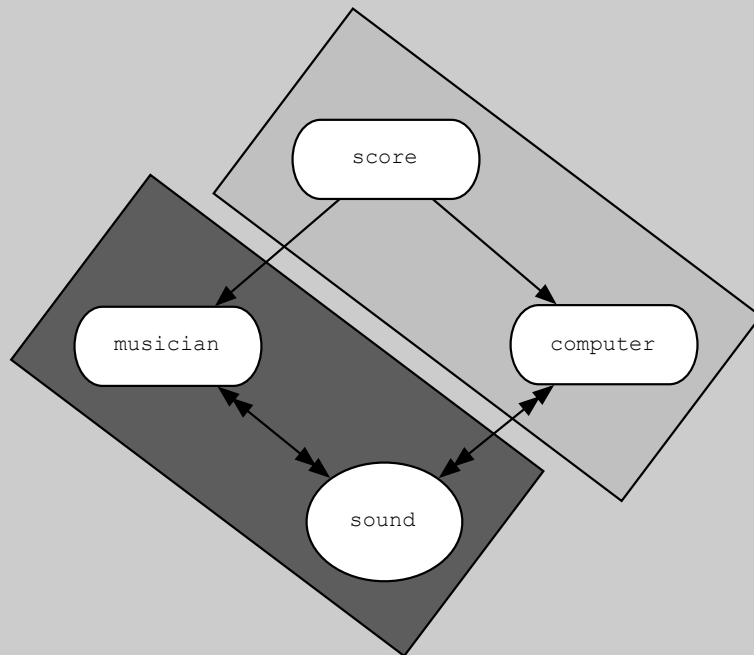
Suggested solution

Interacting with the sound itself



Suggested solution

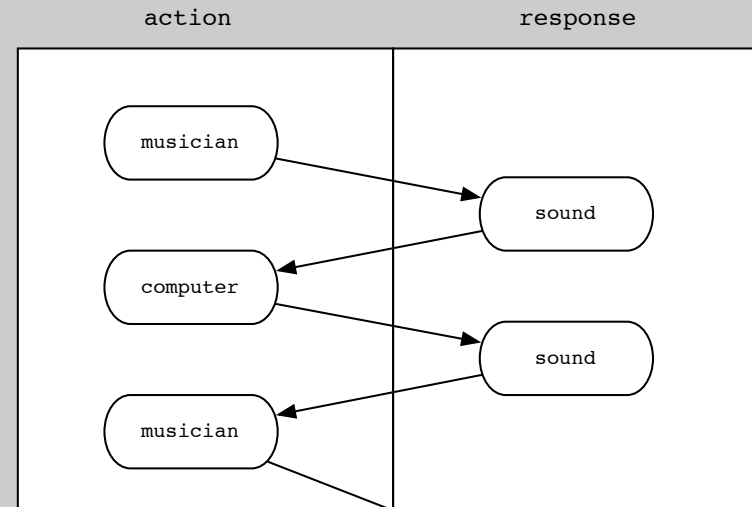
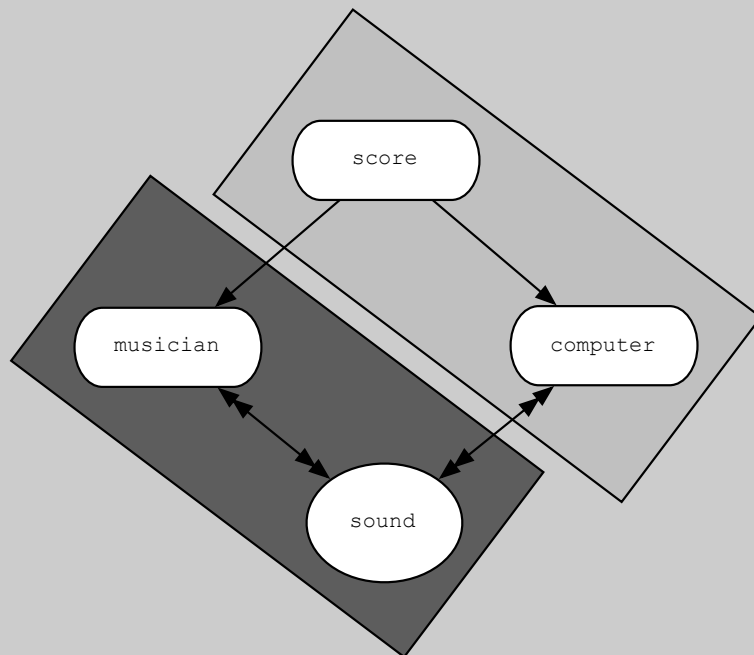
Interacting with the sound itself





Suggested solution

Interacting with the sound itself





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Implications

- The sound is the object



Implications

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- The computer-listening interface should model human listening



Implications

- The sound is the object - Dahlhaus: the *score* is the object[2]
- Integration is desired
- The computer-listening interface should model human listening psycho-acoustic, cognition, machine learning, ANN, AI...

Alternate approach



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Alternate approach

Redefining the **problem**



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Alternate approach

Redefining the **problem**

The musician - the intuition, the body



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Alternate approach

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The musician - the intuition, the body

The computer - the reflection, the mind



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Becomes a special case of a structure contained within the system



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Alternate approach

Redefining the **problem**

The musician - the intuition, the body

The computer - the reflection, the mind

Becomes a special case of a structure contained within the system

Implication:

The computer is NOT a performer

Theory map

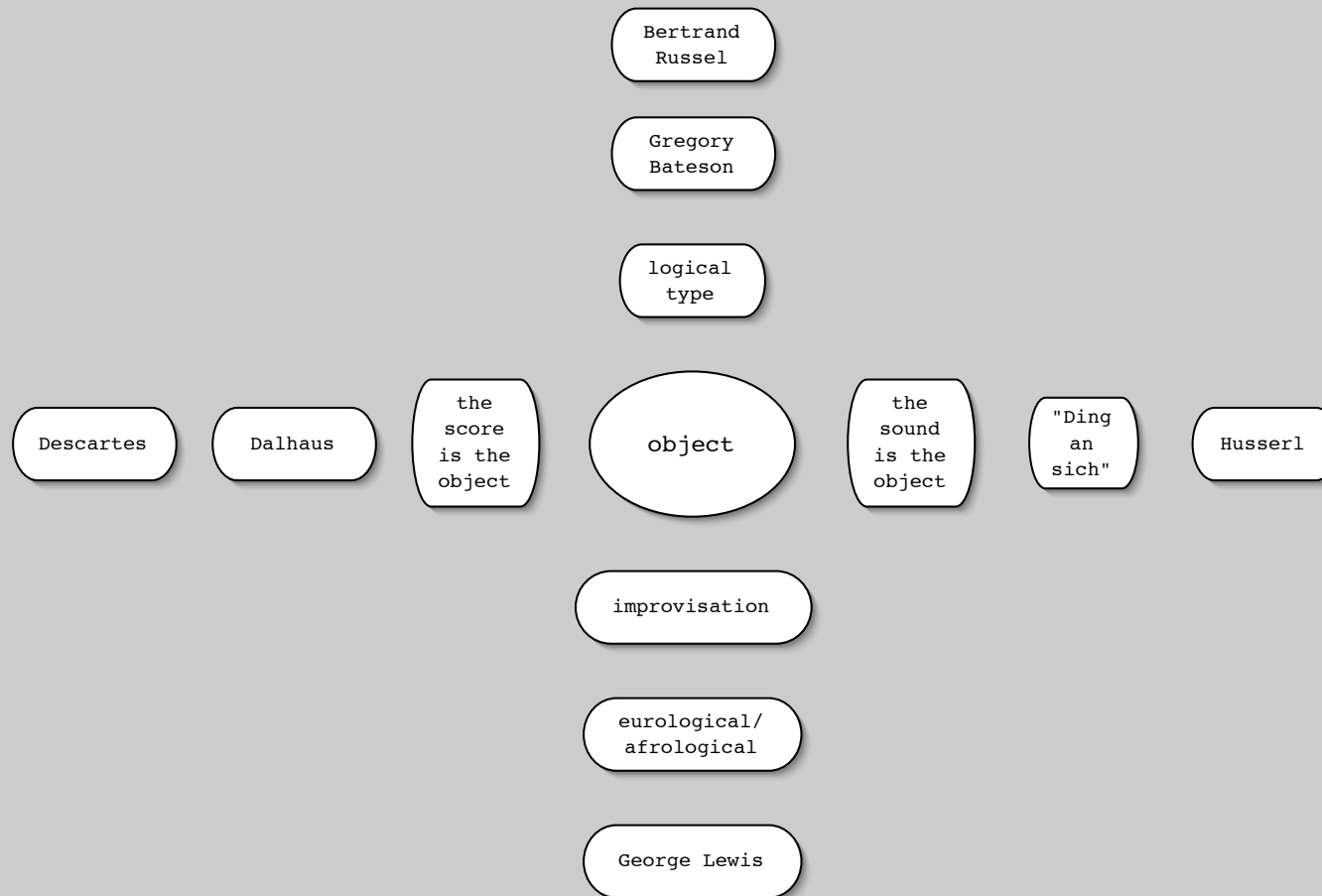


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Theory map



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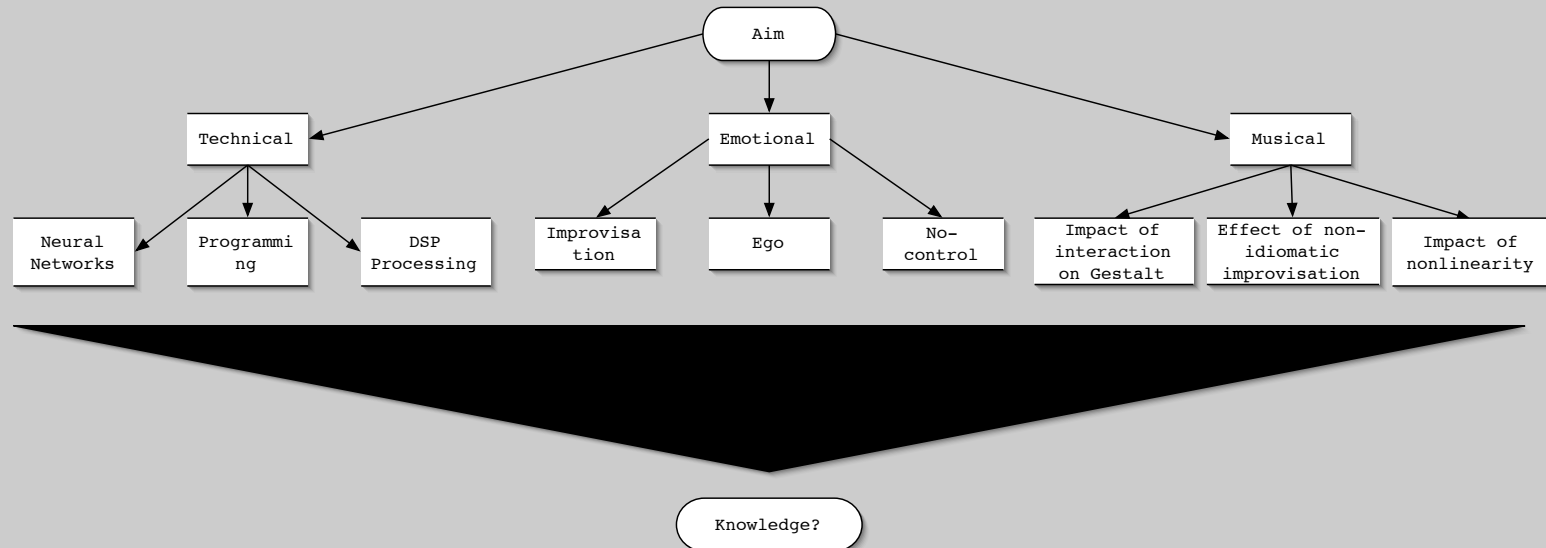
Knowledge



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Knowledge



drive

for electric viola grande and computer

dedicated to Henrik Frendin



Henrik Frisk
june-oct 2003

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4' 00" 0' 00" sempre ad lib.

mp *mf* *senza vib.* *slow vib.*

0' 20"

0' 40"

1' 00"

2' 00"

3' 00"

Instructions for viola part:
The part contains three basic ideas; (1) a gliss from low D to low G, (2) an arpeggio reflecting a continuously changing harmony and (3) melodic fragments reflecting the current harmony. These three patterns evolve constantly, whether they are being played or not. (1) and (2) are reflected in the computer part, (2) is a cross synthesis between the live input of the viola and the computer. The resonating strings are set into vibration when a note is played at the same pitch as the string, at its octave or its fifth. All patterns except the first bass note can be played freely and any pattern can be skipped and patterns can be reordered. However, improvisation should be limited to the basic pitch content of each pattern and care should be taken to keep the integrity of each of the three ideas.

el. viola grande
computer

glissando

resonating strings

5702, 6586, 7804, 7952

5386, 5840, 6200, 6498

5550, 6518, 7136

5200, 6168, 6786, 7240

5768, 6386, 6840, 7200

5318, 5936, 6390, 7048

ppp *f*

ad lib.

ff

1/8

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recorded in Stockholm, October 28, 2003
for Phono Svecia on "Viola con forza"

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References

- [1] Gregory Bateson. *Mind and Nature*. Hampton Press, 1979.
- [2] Carl Dalhaus. *Analyse und Werturteil*. B. Schott's Shne, Mainz, 1970.