EXPÉRIENCES IN ART AND SCIENCE

Olivier Perriquet

1. WEAK AND STRONG ART-SCIENCE INTERACTIONS

2. SCIENTIFIC IMAGERY VS. NON-VISUAL SCIENTIFIC THINKING

    + *PRÉLUDE À TRANSFORMATION NATURELLE*

    + *S'IL PREND APPUI AU SOL LA VERTICALE DE SON CENTRE DE GRAVITÉ TOMBE DANS LE POLYGONE DE SUSTENTATION*

    + *VOLATILES ~ VOADORES VOLÁTEIS*

    + *COMME VOUS JE CONNAIS L'OUBLI*

3. DESIGNING AN EXPéRIENCE

WEAK AND STRONG ART-SCIENCE INTERACTIONS

some art and science differences

+ scientists work in communities
+ science = internal assessment by peers («peer reviewing») and conformity to implicit rules («objectivity»)
(Thomas Kuhn uses the word «normal science» → this normality makes science so efficient)

+ artists work individually and their works are received / criticized externally (exhibitions, art critics)
+ singularity is expected

+ budgets are 1000 times greater in science (millions .. milliards) than in art (0 .. millions)

art ↔ science is a dissymmetric relation

→ pseudo-science: there is no thing such as pseudo-art (an artist can claim: «this is an artwork» // an artist is «coopted»)
→ no example of a scientist in residency within an «art laboratory»

art + science gatherings, examples
artist in residency in a scientific lab
artists and scientists working together (IRCAM)

weak interaction = often unidirectional relation (can be bi-unidirectional) + (mutual) instrumentalisation
art reduced to creative and design skills («artist rendering of» or «state of the art»)
science reduced to technical skills or technological productions

strong interaction = mutual understanding of each one's specificities → gain in culture (each field has its own culture and history)

SCIENTIFIC IMAGERY VS. NON-VISUAL SCIENTIFIC THINKING

fascination, mystery and beauty of scientific or technological imagery
aspect of the image caracteristic and recognizable (visual enhancements, etc.)

two possible destinations for the image

(1) scientific community → public (mise-en-scène)
(2) scientific community → scientific community

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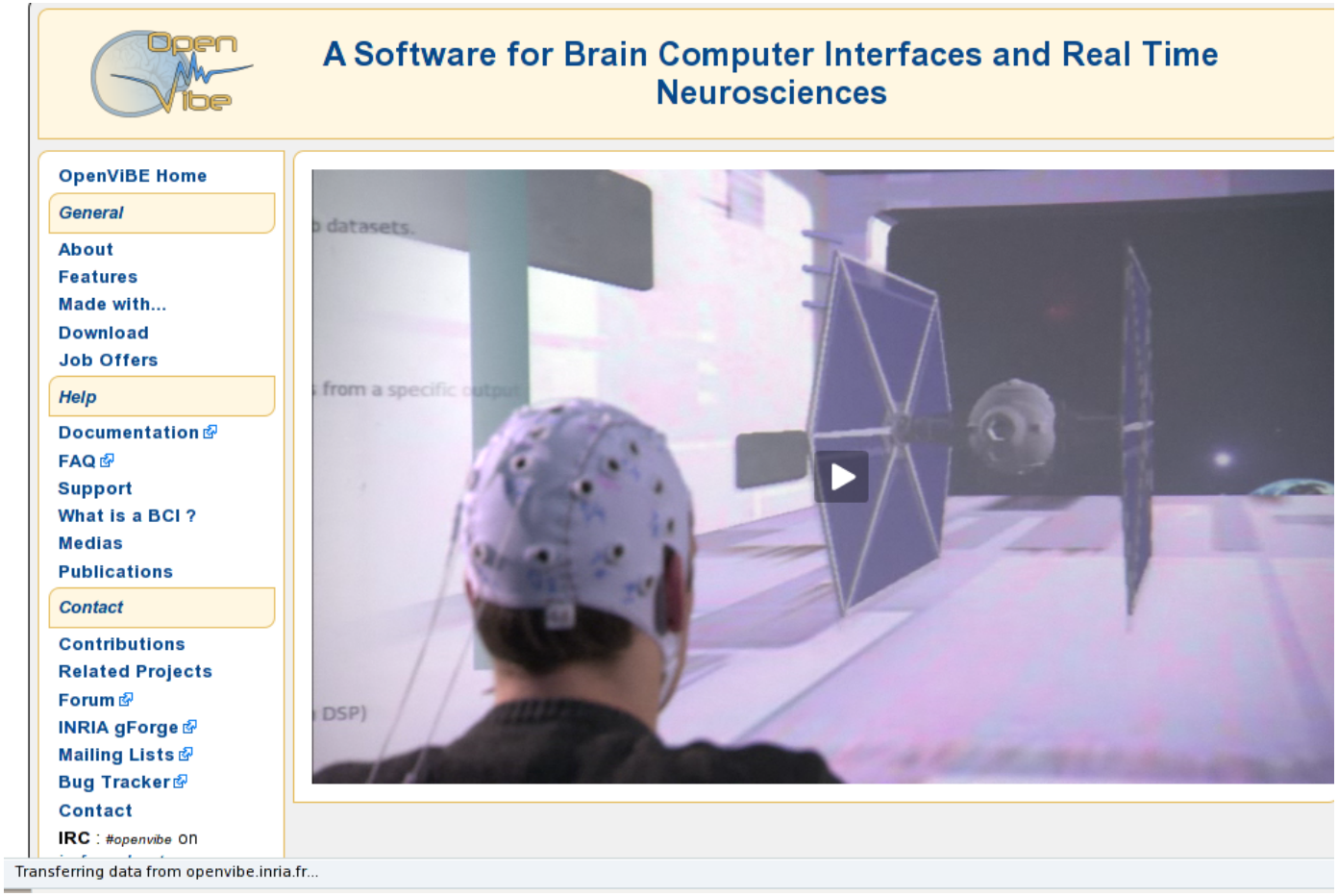

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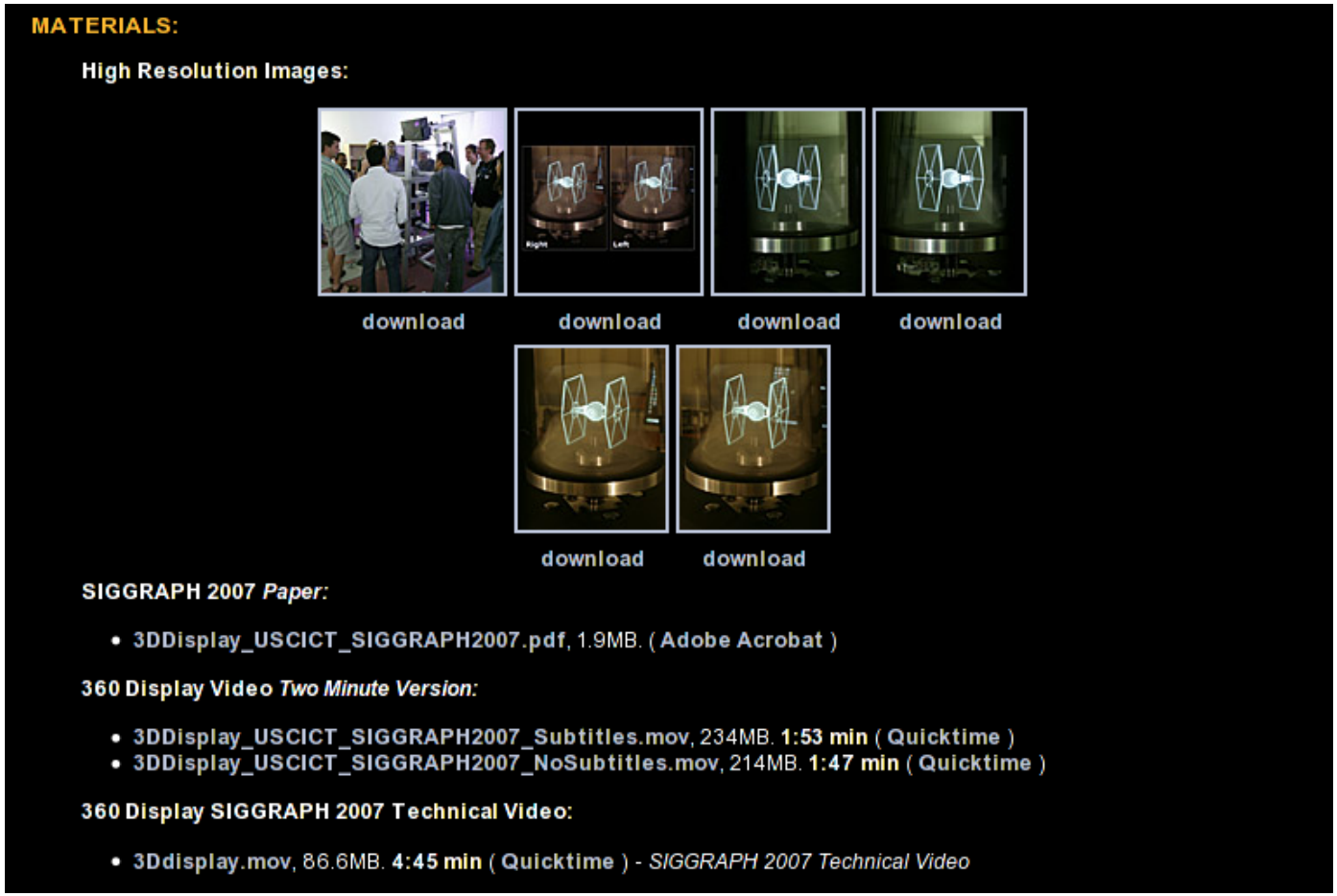

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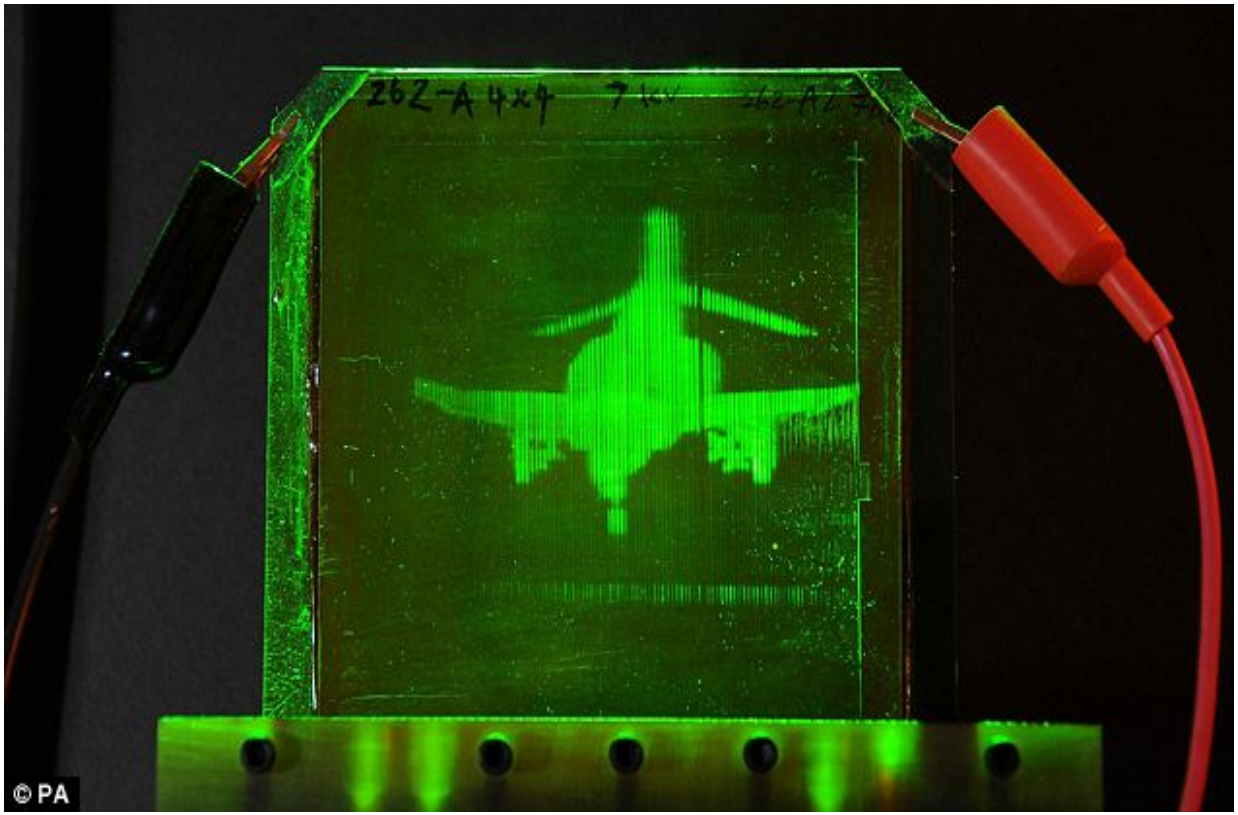

→ there is no special reason to have these objects in this context, this is a visual choice performed by the researchers

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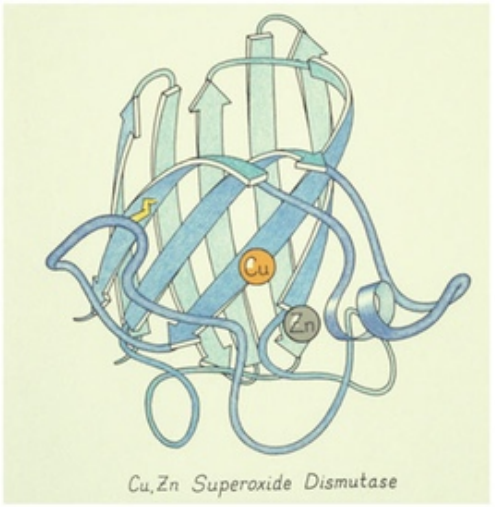
A Visual Language for Proteins: Jane Richardson

Robert Kosara; March 24, 2010 blog



Proteins are among the most complex structures we know. They consist of thousands of atoms, and fold into complex shapes to perform a variety of functions. Understanding how they work is not possible from looking at single atoms, but rather at the overall, three-dimensional structure. The visual language for doing this was developed by Jane

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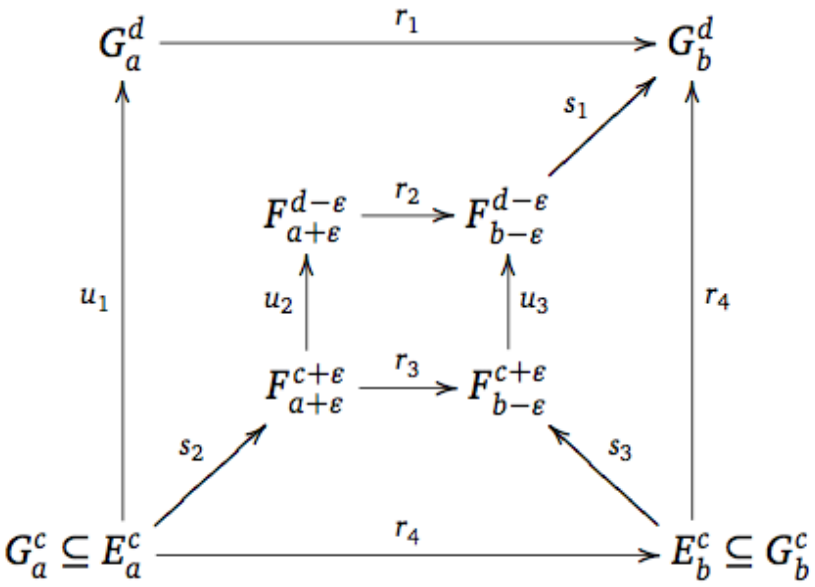
this abundance of images hides the daily reality of science

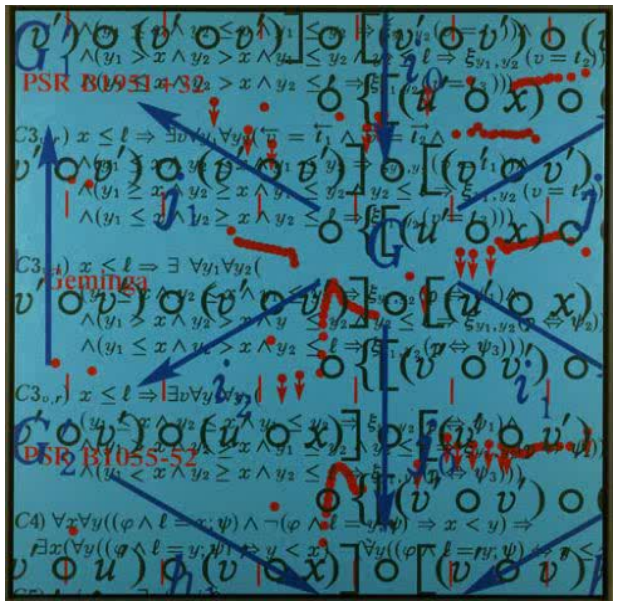
during the 19th century, mathematical and physical sciences moved away from traditional visualization and became more abstract
it's only since ~1970 that we observe a proliferation of image, produced by increasingly performant technological devices

sometimes visual representations are used but this is not always the case
visual thinking may be reduced to abstract diagrammatic reasoning, especially when problems are complex



← diagrammatic reasoning in mathematics

Bernar Venet →



Venet shows signifiers emptied of their signified object

SIGN = SIGNIFIER ⟶ SIGNIFIED

one can sometimes hardly even read what is written if he is not initiated (mix of natural language and formal language)

Automorphisms of Chevalley groups of types A_l, D_l, E_l over local rings without $1/2$[1]

E. I. Bunina

Abstract.

In the given paper we prove that every automorphism of a Chevalley group of type A_l, D_l, or E_l, $l \geqslant 3$, over a commutative local ring without $1/2$ is standard, i. e., it is a composition of ring, inner, central and graph automorphisms.

Introduction

Let G_π be a Chevalley–Demazure group scheme associated with an irreducible root system Φ of types A_l ($l \geqslant 3$), D_l ($l \geqslant 4$), E_l ($l = 6, 7, 8$); $G_\pi(\Phi, R)$ be a set of points G_π with values in R; $E_\pi(\Phi, R)$ be the elementary subgroup of $G_\pi(\Phi, R)$, where R is a commutative ring. In the given paper we describe automorphisms of the groups $G_\pi(\Phi, R)$ and $E_\pi(\Phi, R)$ over local commutative rings where 2 is not invertible.

Similar results for Chevalley groups over fields were proved by R. Steinberg [52] for the finite case and by J. Humphreys [38] for the infinite one. Many papers were devoted to description of automorphisms of Chevalley groups over different commutative rings, we can mention here the papers of Borel–Tits [9], Carter–Chen Yu [18], Chen Yu [19]–[23], E. Abe [1], A. Klyachko [42].

In the paper [13], it is shown that every automorphism of an elementary Chevalley group of

PRÉLUDE À TRANSFORMATION NATURELLE

PRELUDE OF A NATURAL TRANSFORMATION

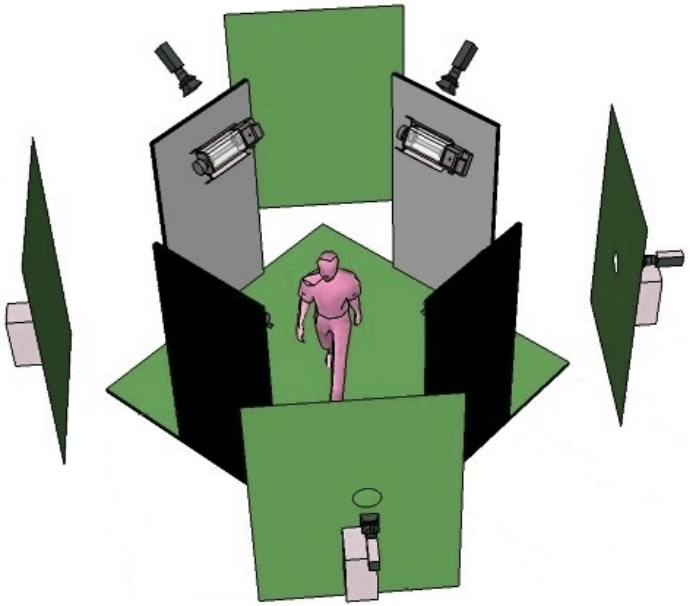
Castle of Bostz, France, May 2008

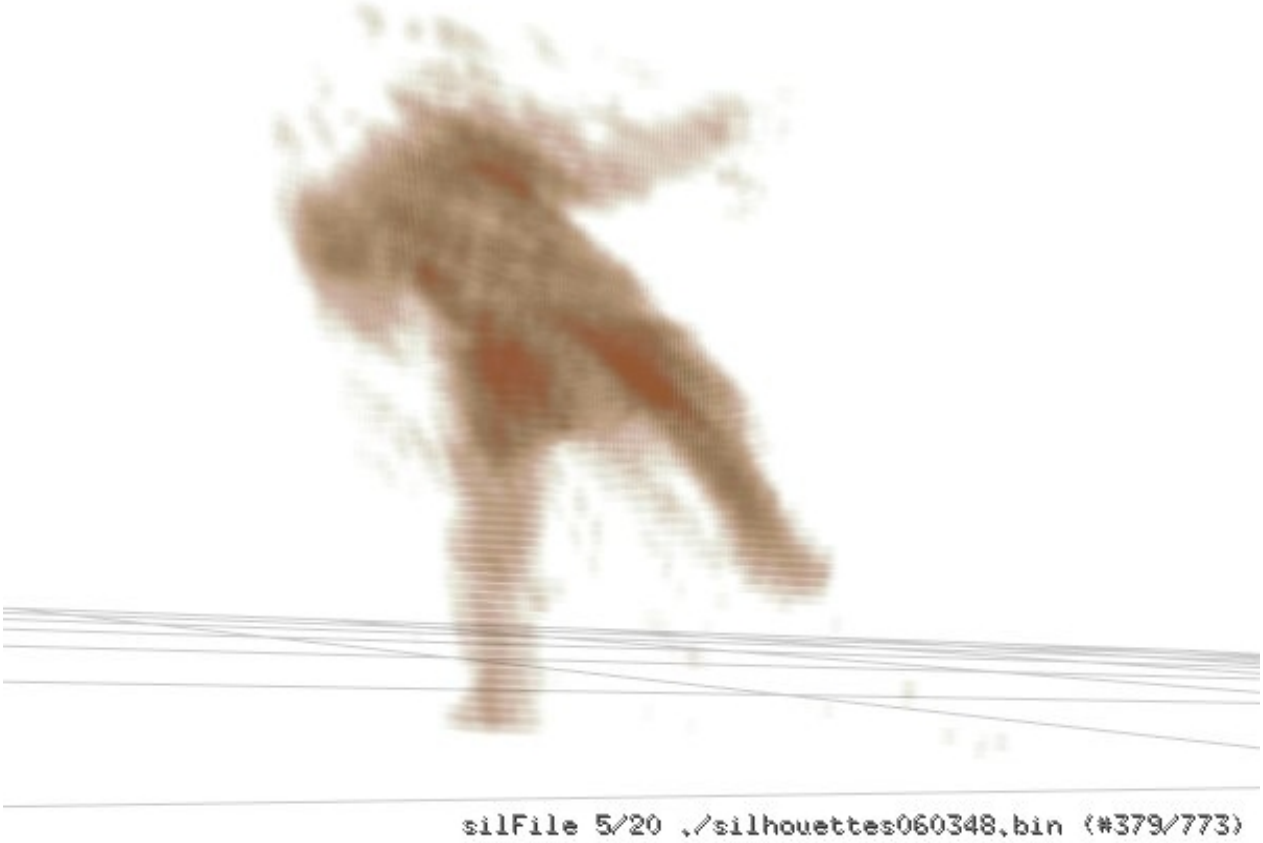
Actors: Sémir Badir, Paul-Victor Duquaire, Alessio Moretti, Marc Perrin, Anne Wambergue, Sandrine Willems.

S'IL PREND APPUI AU SOL LA VERTICALE DE SON CENTRE DE GRAVITÉ TOMBE DANS LE POLYGONE DE SUSTENTATION

STANDING ON THE GROUND, THE VERTICAL OF HIS CENTRE OF GRAVITY FALLS INTO THE POLYGON OF SUSTENTATION

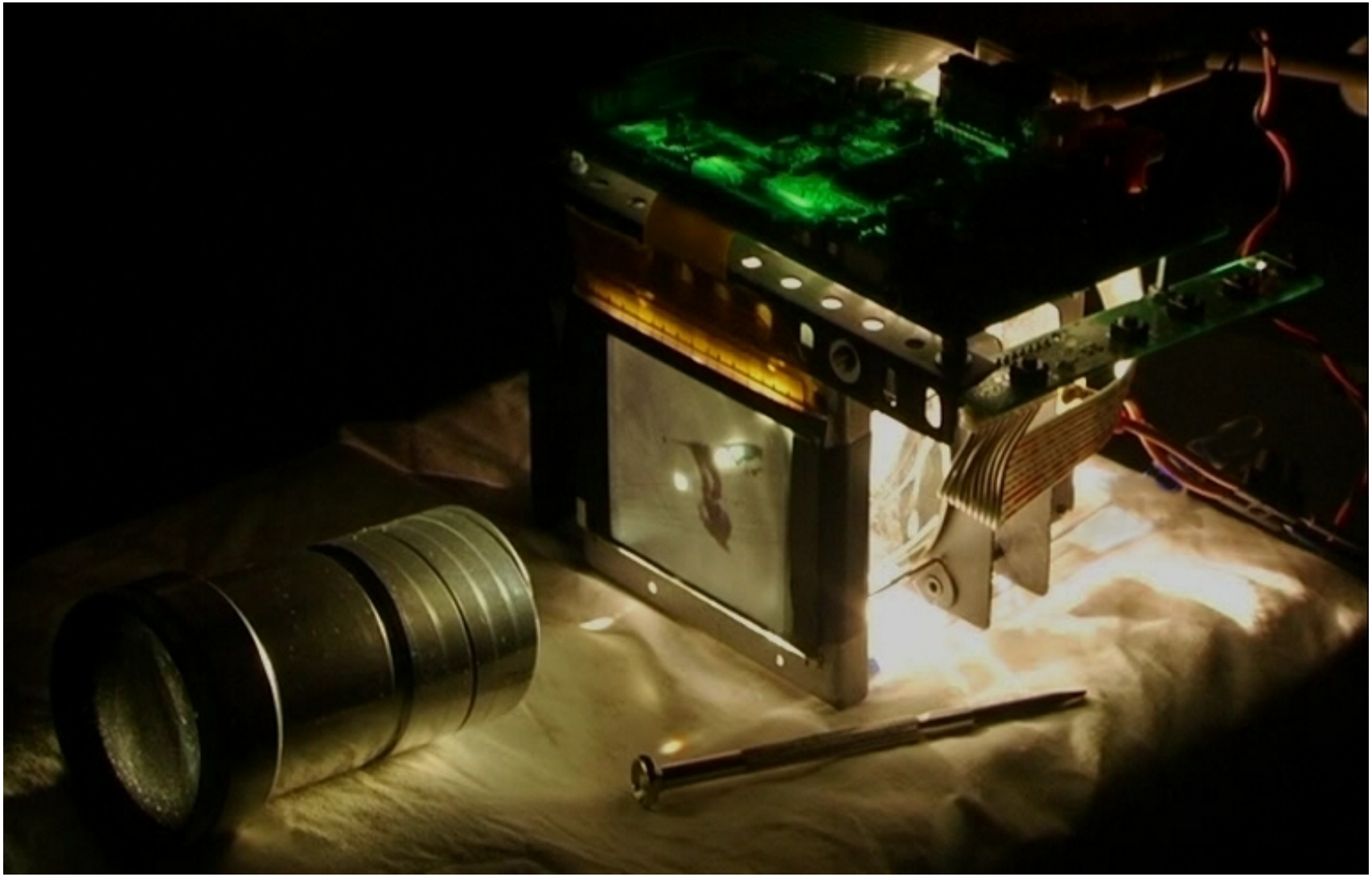
Software conception – Jean-Marc Hasenfratz
Software development – Marc Lapierre
Production – Le Fresnoy + INRIA - 2006





VOLATILES (VOADORES VOLÁTEIS)

National Pantheon of Lisbon – 2008



COMME VOUS JE CONNAIS L'OUBLI
LIKE YOU I KNOW WHAT IS TO FORGET , I KNOW HOW TO FORGET , I EXPERIENCED WHAT MEANS BEING FORGOTTEN

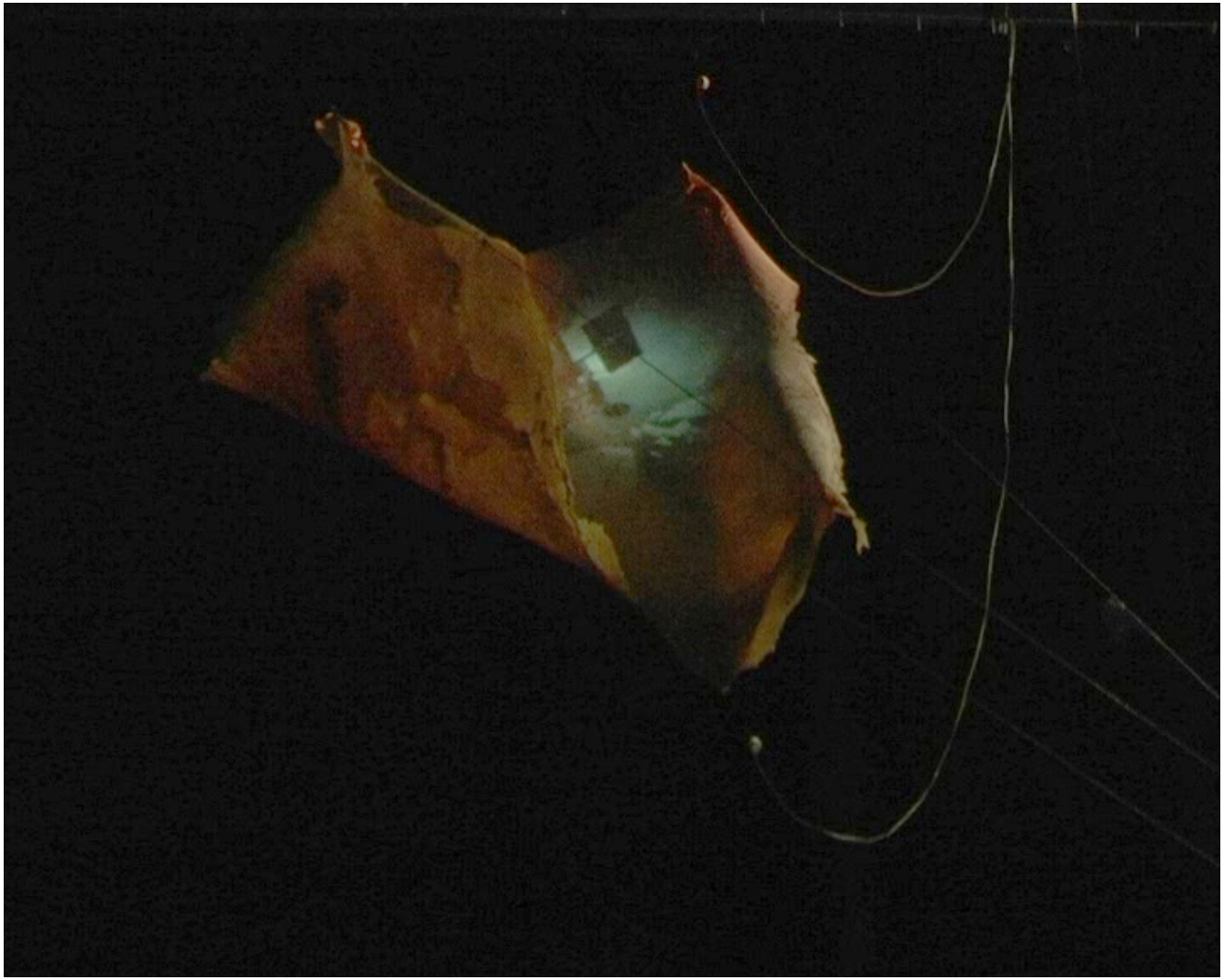
Scenography – Fabianny Deschamps

Sound – Julien Clauss

Informatics – Pierre Jullian

Production / curation – Maurice Benayoun
CITU lab. (universités Paris 1 / Paris 8)

Context – http://www.citu.fr/in-out/wiki
– http://theartcollider.org



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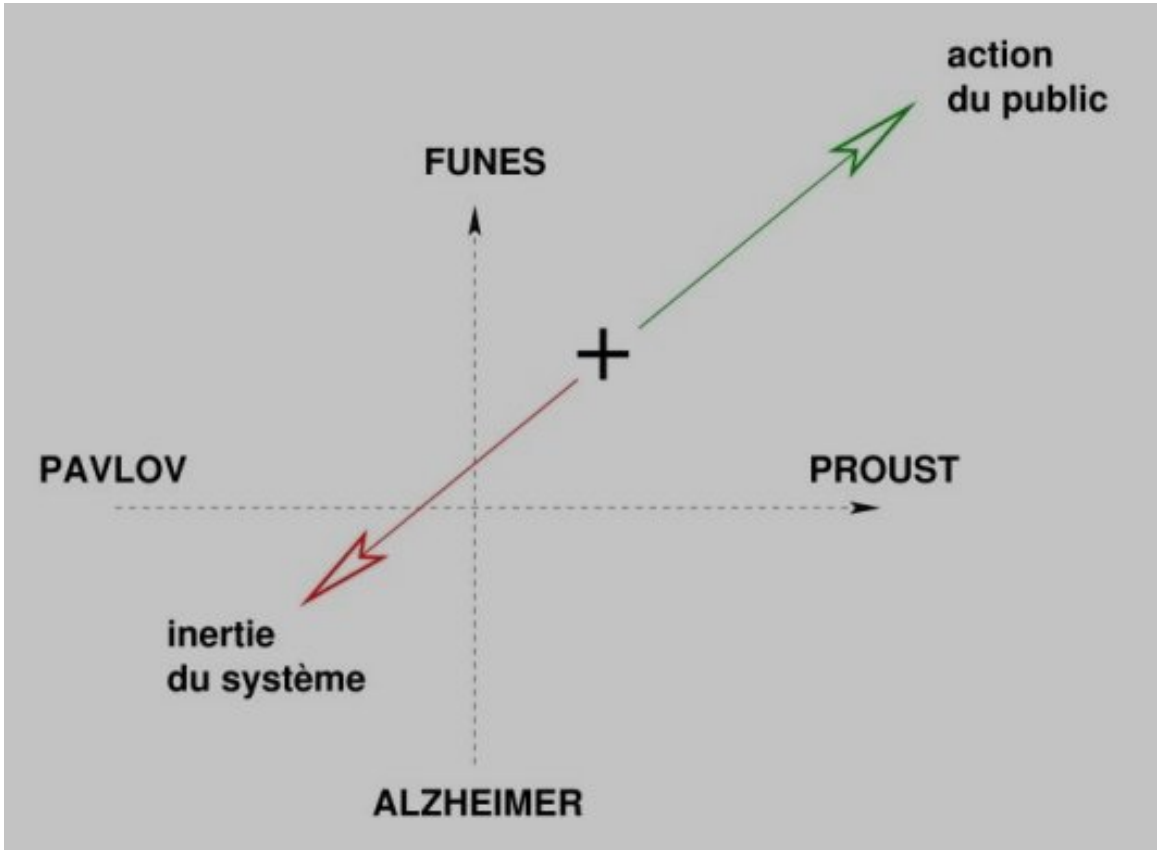

Symbolizing the interaction with the public

Alzheimer forgets everything
Funes forgets nothing

Pavlov: memorizing what is repeated
Proust's Madeleine: memorizing

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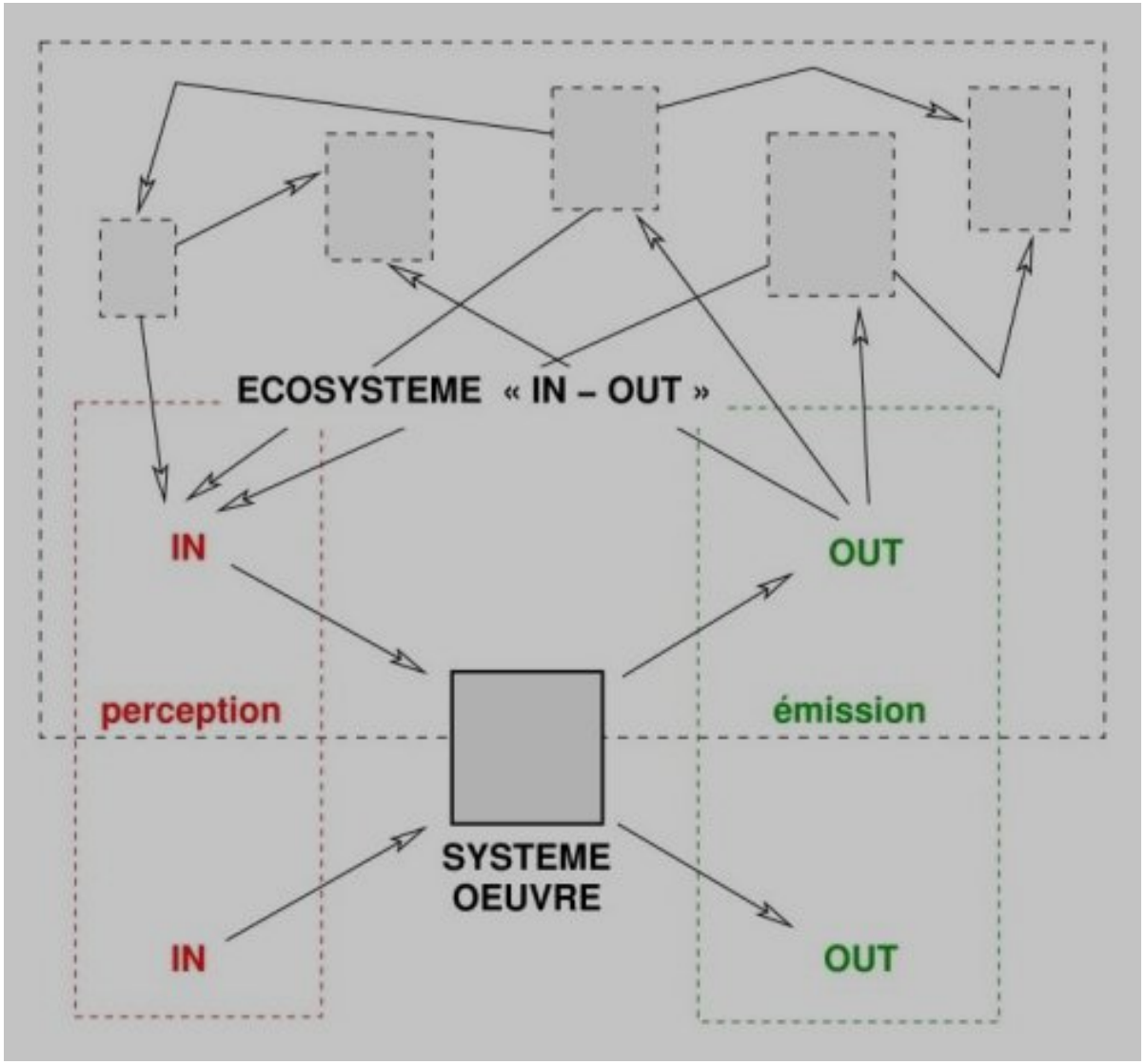

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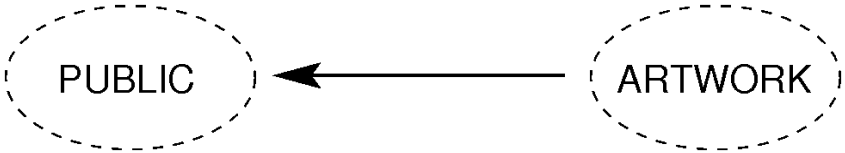
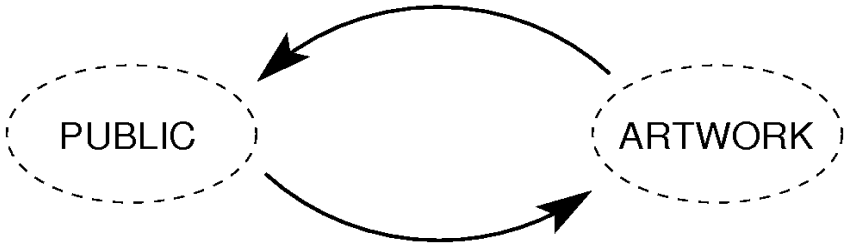
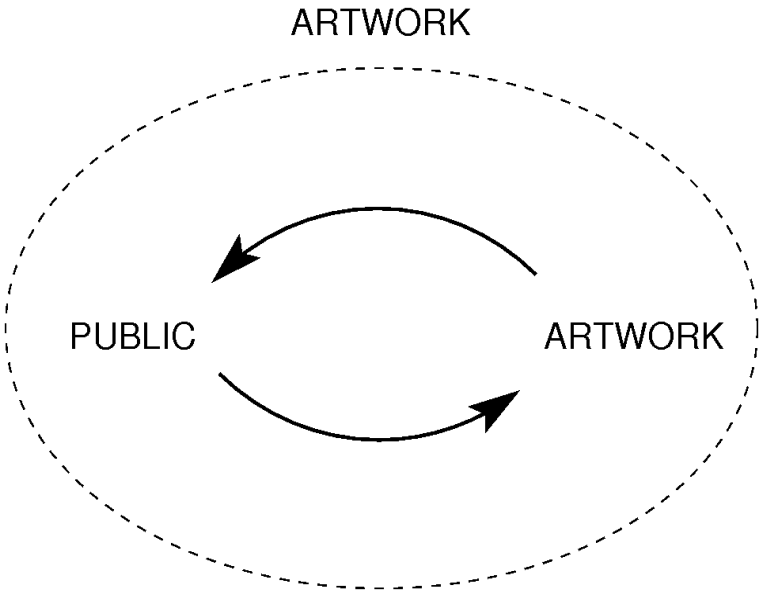
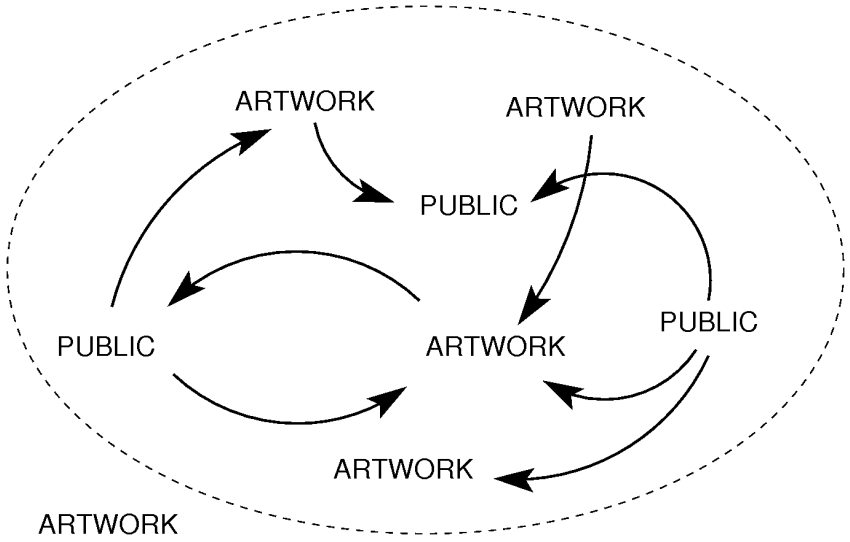
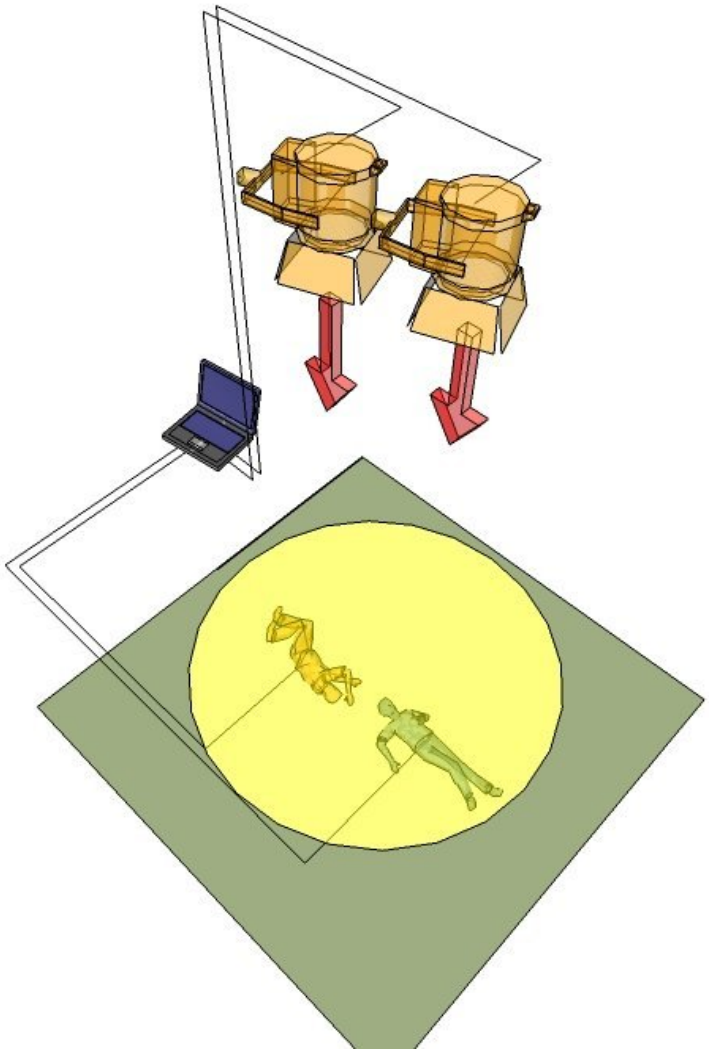


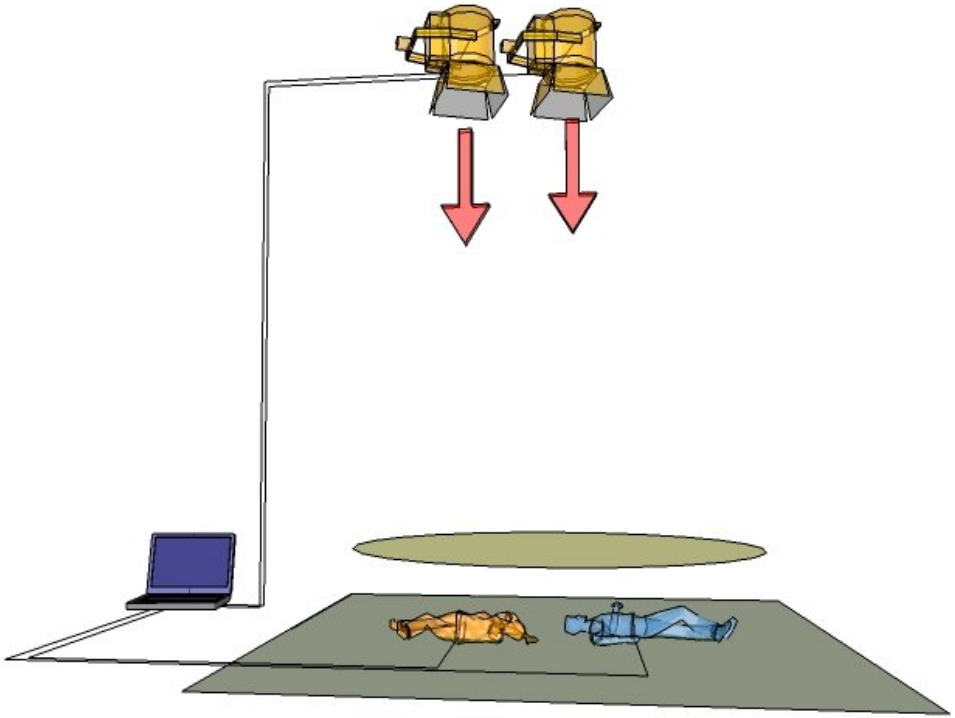
"All in all, the creative act is not performed by the artist alone; the spectator brings the work in contact with the external world by deciphering and interpreting its inner qualifications and thus adds his contribution to the creative act. This becomes even more obvious when posterity gives its final verdict and sometimes rehabilitates forgotten artists." – M.Duchamp

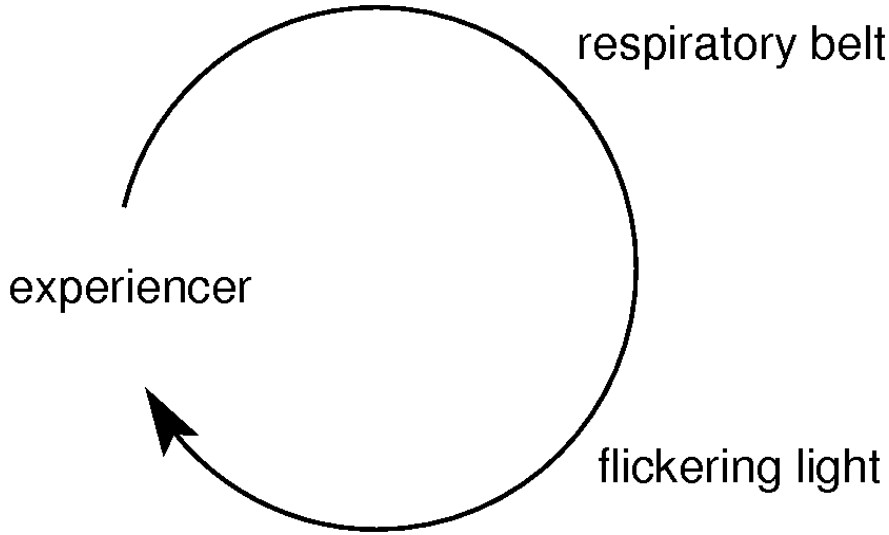




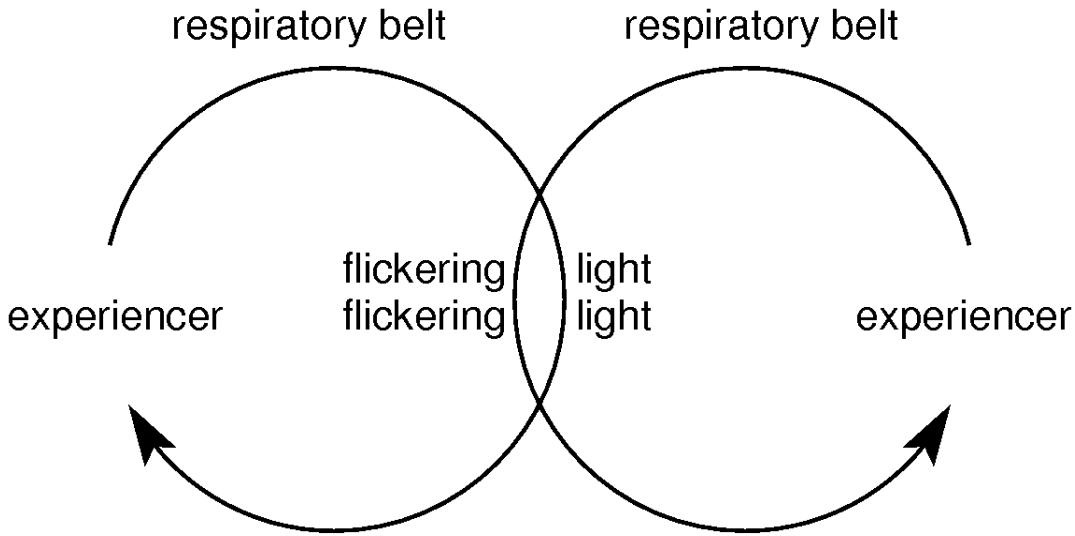




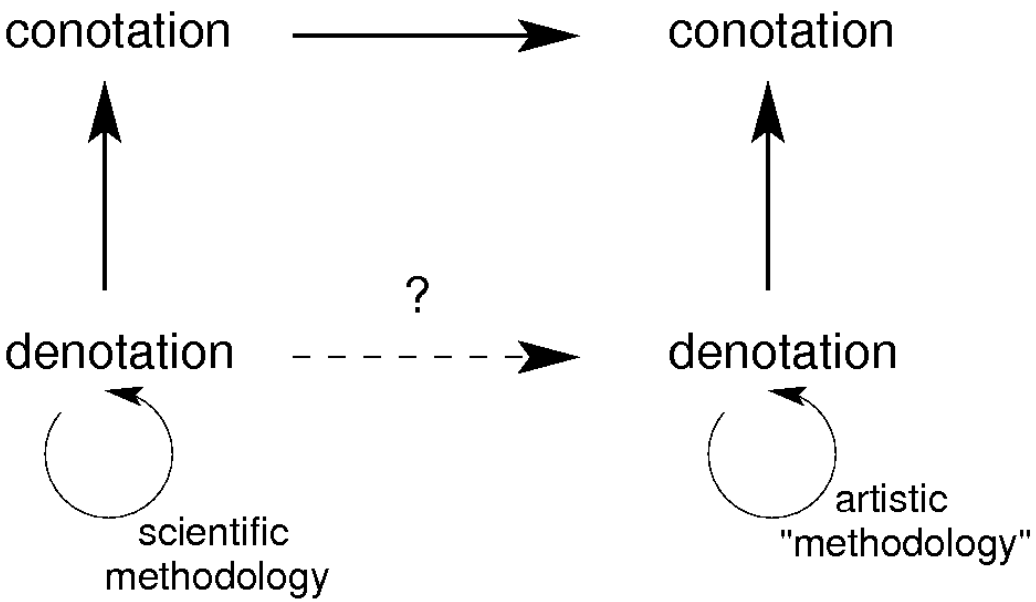




BIOFEEDBACK LOOP

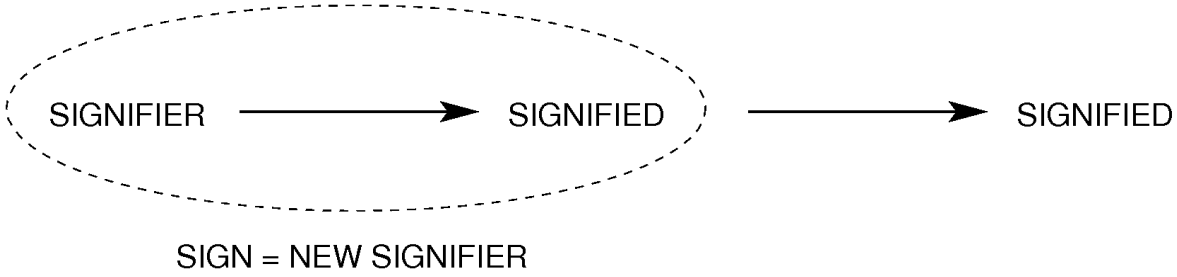


INTRICATION OF TWO BIOFEEDBACK LOOPS



BACKWARD STRATEGY:
FROM CONOTATIONS BACK TO DENOTATIONS

CONOTATION:



DESIGNING AN EXPéRIENCE

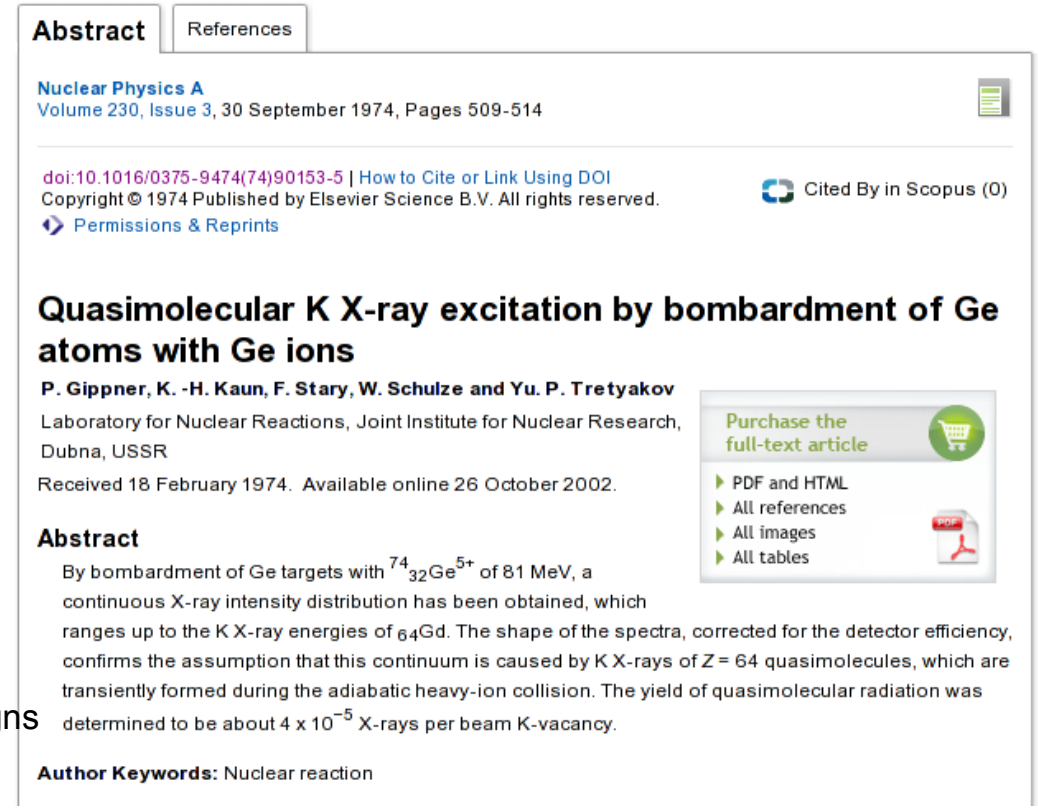
I do not aim at dismanteling an inspirational process but trying to verbalize the intuition at work
just evoking some conotations and let them circulate freely + let anyone's imagination work on it (again extend the system's boundaries)

exchange of breathings

intense light conotations
- 'x-ray bombarding'
- nuclear bomb / irradiation
- cancer therapy
- flicker = internal bio-rhythms (heart pulse, cell divisions....)

science = importance of the denotation, often default conotations

art is often inverting the importance of conotative and denotative lines
weakening the denotation by cancelling logical approaches
working directly at the conotative level, finding new organizations of signs



Abstract | References

Nuclear Physics A
Volume 230, Issue 3, 30 September 1974, Pages 509-514

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Quasimolecular K X-ray excitation by bombardment of Ge atoms with Ge ions

P. Gippner, K. -H. Kaun, F. Stary, W. Schulze and Yu. P. Tretyakov
Laboratory for Nuclear Reactions, Joint Institute for Nuclear Research, Dubna, USSR

Received 18 February 1974. Available online 26 October 2002.

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Abstract

By bombardment of Ge targets with $^{74}_{32}Ge^{5+}$ of 81 MeV, a continuous X-ray intensity distribution has been obtained, which ranges up to the K X-ray energies of $_{64}Gd$. The shape of the spectra, corrected for the detector efficiency, confirms the assumption that this continuum is caused by K X-rays of $Z = 64$ quasimolecules, which are transiently formed during the adiabatic heavy-ion collision. The yield of quasimolecular radiation was determined to be about 4×10^{-5} X-rays per beam K-vacancy.

Author Keywords: Nuclear reaction

art + **science** = rehabilitating the coexistence of the two levels ?