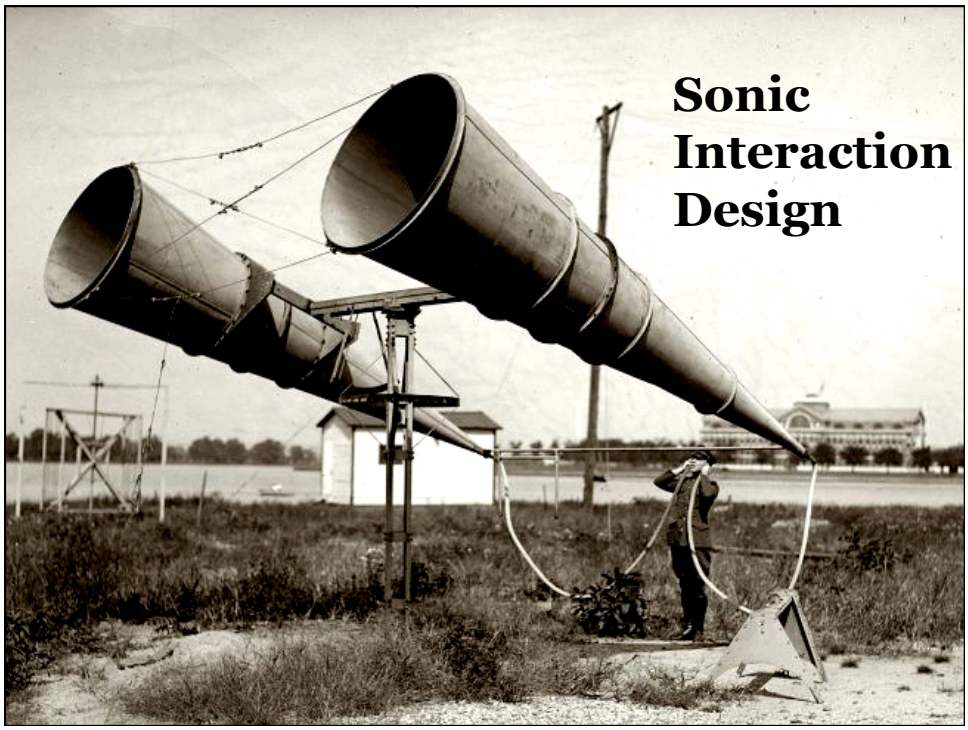


Sonic Interaction Design

Topics of this Workshop

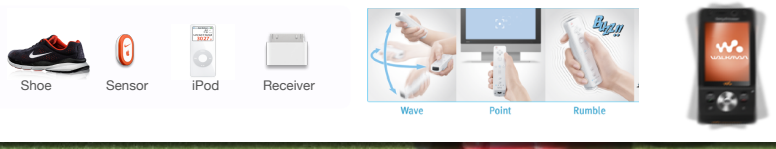
- Focus on Innovative Future Scenarios with Everyday Artifacts
  - working out interpretational aspects
- Inspiration and theoretical background
- Semantic Analysis & Soundmaking
  - builds on narrative & performative strategies
- „Spotting“ of Artifact in use, audio research
  - Narrative aspects
  - Performative qualities
  - Situational criteria (and maybe some branding criteria as well)
- Experience mockup (Wizard of Oz)
- Presentation & Evaluation as part of design process

A New Generation of Commodities

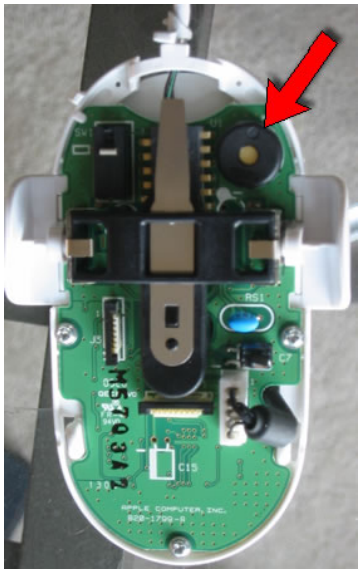
- Everyday objects meet Information & Communication Technologies -> INTERACTIVE COMMODITIES
  - Devices get **smaller**, screens lose importance, **overload** of the visual channel
  - Sound conveys **information**, **meaning**, supports **performance** and affects the **experience** of interactive artifacts or systems

Exploring narrative and performative design strategies

Fast and inspiring iterative prototyping



An „authentic“ mouse?



NZZ am Sonntag • 23. November 2008

Summ-summ macht der Sportwagen

Der Tesla-Zweisitzer fährt schnell und mit Strom. Eine Testfahrt mit dem «Auto der Zukunft»

Der Anlasser hält die erste Überraschung bereit. Eine kurze Melodie lässt erkennen, dass man den Zündschlüssel in die richtige Richtung gedreht hat und der Wagen startbereit ist. Die

solche Ladung im Niedertarif in der Stadt Zürich 4 Franken 30 – ein Schnäppchen, verglichen mit den derzeitigen Preisen an den Tankstellen. Das Batteriepaket soll laut den Tesla-Herstellern erst nach 150 000 Kilometern ausgewechselt werden müssen.

Der Strom für ihr derzeit einziges Modell soll wenn immer möglich aus erneuerbaren Quellen wie Sonne, Wind und Wasser kommen, heisst es bei Tesla. Die Firma hat denn auch vorgerechnet, dass man mit 25 Quadratmetern Solarzellen eine Strommenge produzieren kann, die für jährlich 20 000 Kilometer Fahrt mit dem Tesla genügen soll. Das Unternehmen plant, seinen

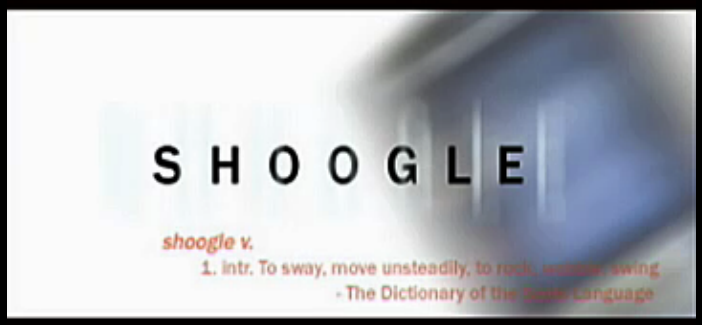
Audioshaker (Jenkins 2005)

Dining Table / Gamelunch (Stefano Delle Monache, Stefano Fumagalli, Paolo Polotti, Davide Roccheso, Uni Verona, 2007)

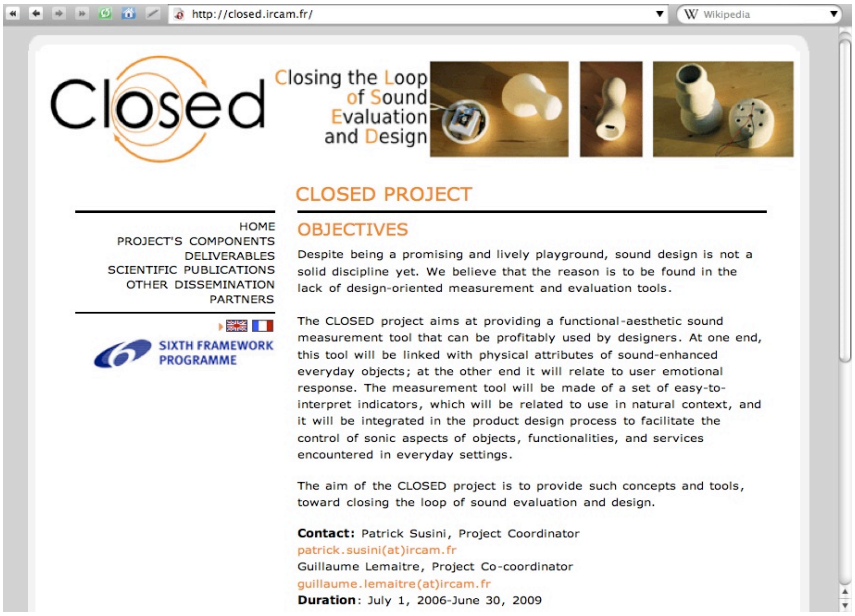
Gamelunch

A Sonic Dining Table

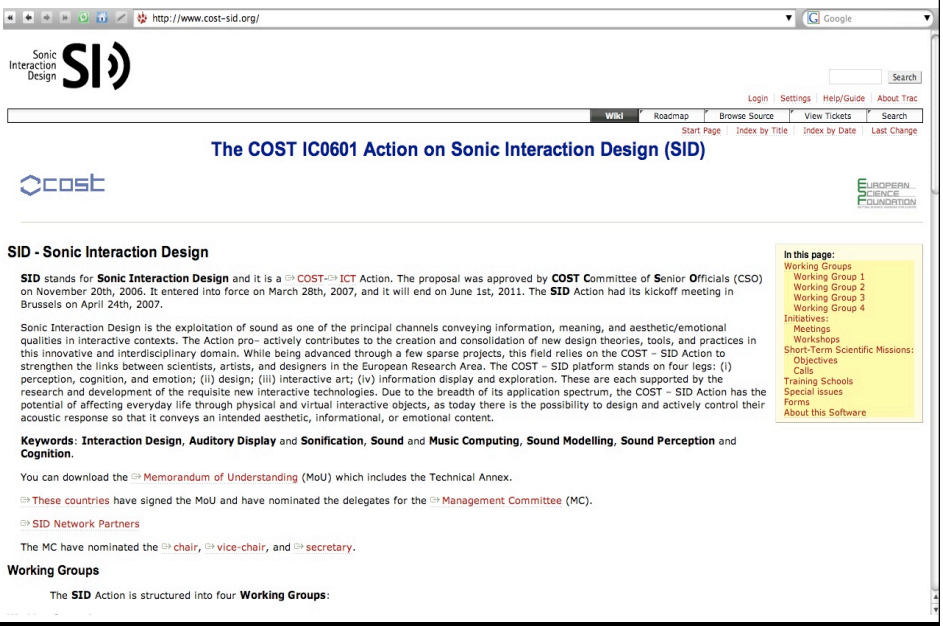
La Moccha Sensibile (Davide Roccheso et al., 2008)



Example Project: CLOSED (NEST-Fp6) closed.ircam.fr



COST-Action Sonic Interaction Design: www.cost-sid.org



Roles of Sound in SID (Franinovic, Hug, Visell 2007)

Supports new functions or display possibilities for products

- Displaying new informational possibilities (e.g. Nike+)
- Displaying invisible affordances of an ICT-enhanced artifact
- Providing the possibility of displaying more information using multimodal channels

Shape the sonic "appearance" of an artifact

- Improving the aesthetic experience and sonic quality
- Extending the emotional aspects of the design
- Enhancing the interplay between material, form and action

Improve the performance in interaction processes

- Feedback supports the use/control of interfaces, device, tool or a physical activity
- Sonification of processes and states
- Improvement of focus and flow during task execution

Surrounded by Objects

The Bourgeois Way of Rocking

Hot Chili or Retro Chic?

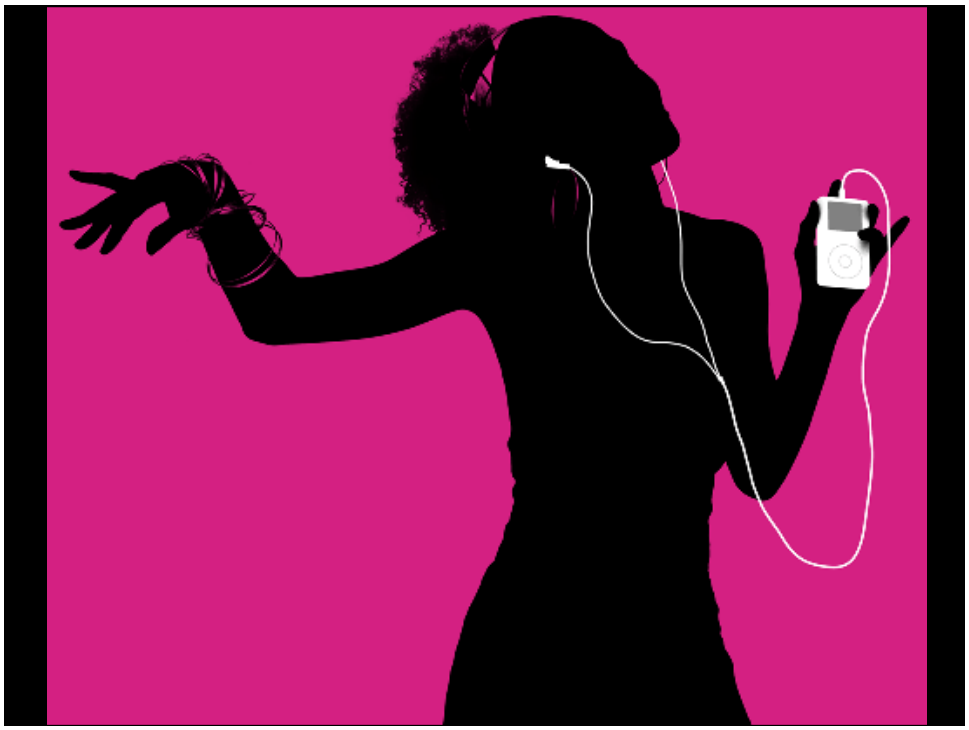
PBB201 Quite White

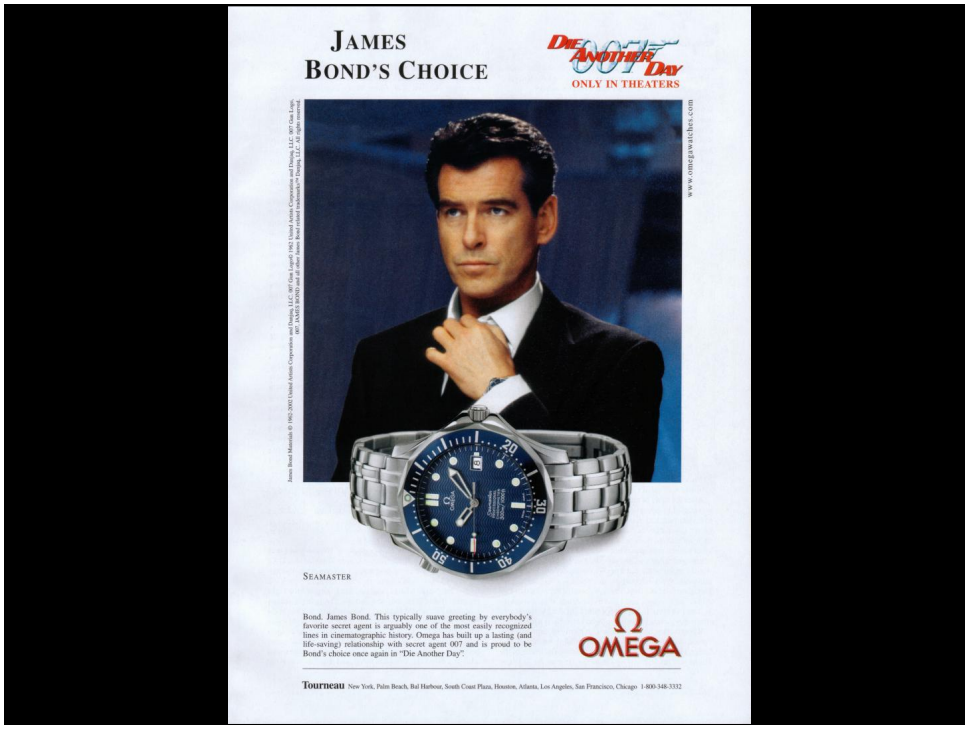
PBB204 Chili Red

PBB209 Ebony

PBB212 Retro Green

Fly Me to the Moon

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Dialogical Object Identities

„Cadeau Audace" by Man Ray (1921)

„Object" by Meret Oppenheim (1936)

Animated Knocker

The Car-nivore

Christine, John Carpenter, 1983

Blendie (Dobson 2003)

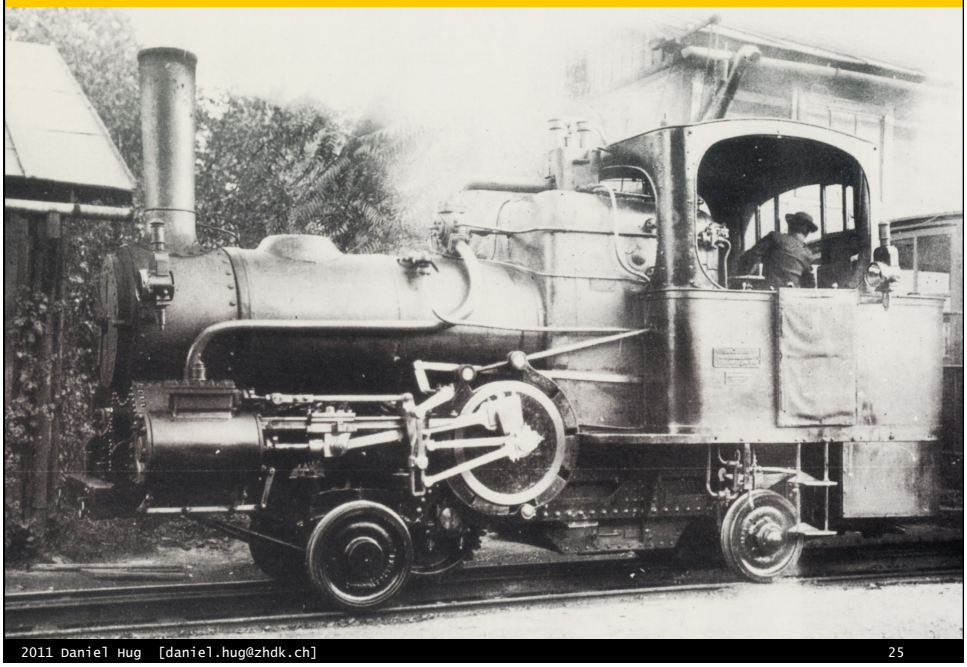
Video Documentation of
Blendie (2004)

Harry Potter's Wii - Mote out of Control?

Meaningful, Active, Animated Artifacts

- **Semiotic approach: Objects as signs, representational function, pragmatic aspects**
  - Referential as well as pragmatic & use oriented aspects
  - Secondary meaning levels (connotative, aesthetic)
- **Sociocultural Objects**
  - Artifacts make culture (Csikszentmihalyi & Rochberg-Halton 1981)
  - Sharing identities and meanings
  - Objects as sings for social systems (Baudrillard 1996)
- **Beyond semiotics: Meaning in Action**
  - Non-Representational, meaning in agency, ongoing cultural process
- **Animated & Magic Artifacts**
  - From autonomous motion to psychological autonomy, projection of life and will (Turkle 2004), anthropomorphization
  - Complex technology more than the sum of its parts -> Magic
  - Immaterial control and communication

Sounds of Progress, Sounds of Working Class



Hightech Becomes Nostalgic

Screaming Blenders

Relationship of Sound and Objects

- **Sound and physical properties**
  - Direct link to artifact's physical properties and physical processes
  - Sonic and haptic notions very close
  - Sound evokes an object (and its meaning potential)
- **Beyond sonic causalism and naturalism**
  - Sound can give presence to a inexistent object or process & remind of physical processes - mental models
  - Upon recording, sound develops a quality independent from it's original source)
  - Listening to the *sighing door*...
- **The sonic "metaphysics" of objects**
  - Association of sounds with soul or voice of things (Connor, Fischinger, Cage)
- **Goodbye authenticity, welcome schizophonia**

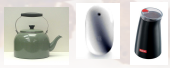
Mashing Up Object-Sound Relationships

in a bottle, lamp, or anywhere else...

> DESIGNING EXPERIENCES WITH COMPLEX AGENTS

Typology of Interactive Commodities *(Hug 2008)*

- Developed along aspects of morphology and degree of abstraction of sound and object
  - Sound is closely related to physical, material processes & plays a core role in communicating „hidden" qualities of an object (stability, solidity, etc.)
- **Authentic** commodities
  - E.g. kitchen tools: Simple, self-contained.
    Sound: comply with expectations, fit with existing sonic identity



- **Extended** commodities
  - E.g. fitness devices, smart watch: Simple object with add-on. Sound not necessarily related to object's sonic identity, communicates extension quality

- **Placeholders**
  - E.g. Wii mote or TUIs: Proxys of a virtual object. Sound defines the virtual object, within gestural and formal constraints

- **Omnivalent** commodities
  - E.g. smartphones: Defined through software rather than physical configuration. Sound defines the artifact

Narrative and Performative Aspects of Schizophonic Objects

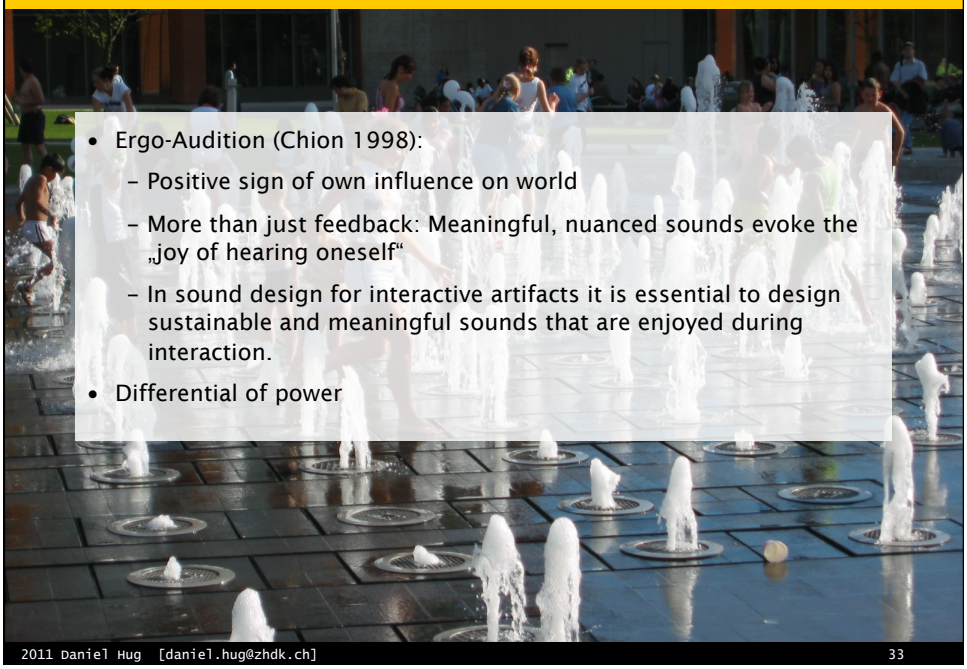
Narrative aspect

- Experiences and the involved sounds are reframed to *narratives*, which we try to interpret
- Sound is very powerful to convey „*micro narratives*"
- Fictional media provide a rich source of „*templates*" for narrative sound design

Performative aspect

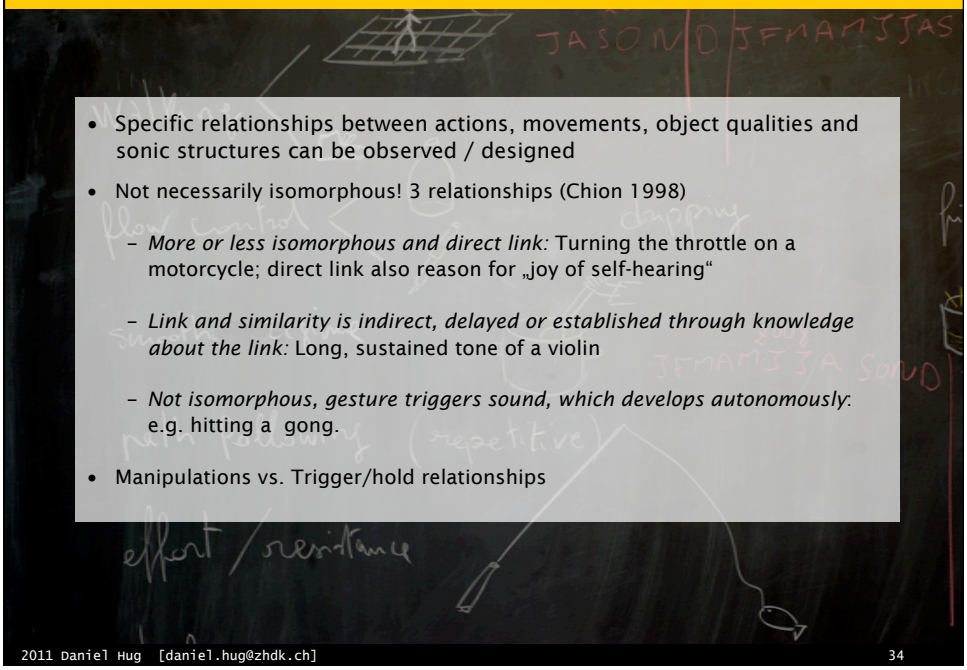
- In interaction we *do* things in realtime: *What*, *how*, by *whom* and *what for* matters!
- A core design question: WHO does? Location of agency
- Specific relationships between actions, movements, functions, object qualities and sonic structures can be observed / designed
- Expressive, communicative quality, expression (of self)
- Variation and modulation of a given sonic identity
- Functional system of action
  - Simple, extended, failed action
  - Patterns and repetition
  - Relationship to state changes....
- Sounds are performative, too! (example from Stockhausen: **Kontakte**)

Expressive Performance



- Ergo-Audition (Chion 1998):
  - Positive sign of own influence on world
  - More than just feedback: Meaningful, nuanced sounds evoke the „joy of hearing oneself“
  - In sound design for interactive artifacts it is essential to design sustainable and meaningful sounds that are enjoyed during interaction.
- Differential of power

Relationship Sound - Action

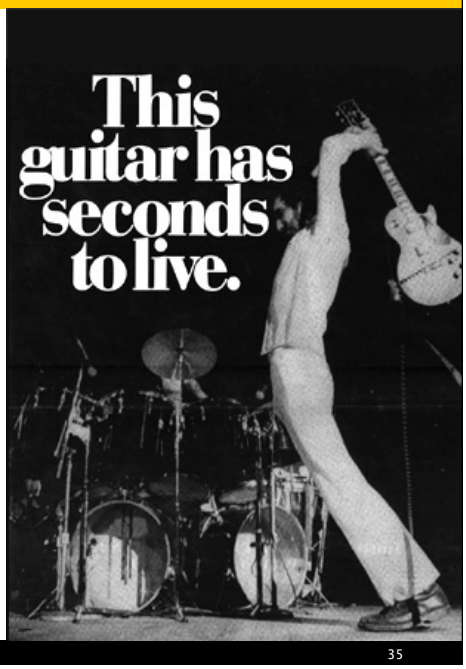


- Specific relationships between actions, movements, object qualities and sonic structures can be observed / designed
- Not necessarily isomorphous! 3 relationships (Chion 1998)
  - *More or less isomorphous and direct link:* Turning the throttle on a motorcycle; direct link also reason for „joy of self-hearing“
  - *Link and similarity is indirect, delayed or established through knowledge about the link:* Long, sustained tone of a violin
  - *Not isomorphous, gesture triggers sound, which develops autonomously*: e.g. hitting a gong.
- Manipulations vs. Trigger/hold relationships

Relationship of Schizophonic Objects and Situation of Use

How do artifact and users (or any „agent) relate to each other in a given situation?

- **Social situation:**
  Private --- Public, Personal --- Shared
- **Level of intimacy:**
  "Objectified" - Pocketeable - Wearable - Implant
- **Relationship to user and task:**
  Assistant --- Tool
- **Type of use:**
  Casual --- Professional



Narrative & Performative Sound Design for Experience Prototyping:

Design Process Overview

Design Process

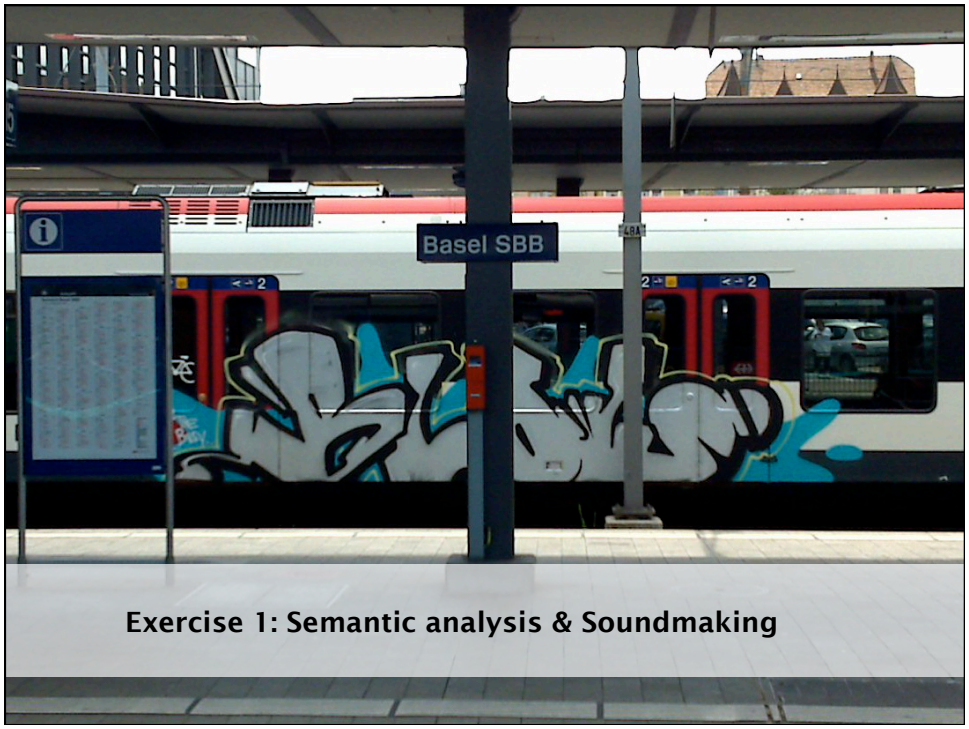
Core question:

How can we design sounding interactive artifacts?
What interpretative strategies occur?

Design Steps

1. Warm-up: Skills for improvisational interactive soundmaking
2. Creation of scenarios of everyday interactions based on proposed themes
3. Formulation of concept, providing design hypotheses for the aspects mentioned using theoretical framework
4. Embodiment of scenarios in mockups and prototypes (Wizard-of-Oz)
    1. Foley Mockup
    2. Final electroacoustic prototype

GOAL: Evaluation of findings about design and interpretation strategies from prototypes against formulated ***design hypothesis***



Exercise 1: Semantic analysis & Soundmaking

Foley as Design & Prototyping Method

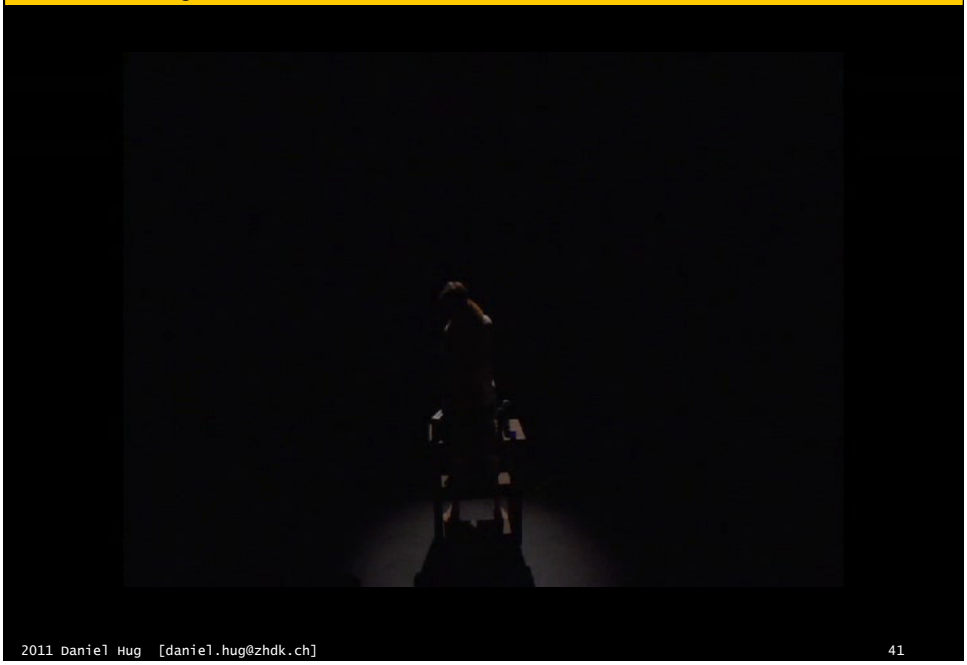
Vocal Sound Design

Michael Winslow
(Police Academy, Spaceballs...)

Steff la Cheffe
(current beatbox champion of Switzerland)

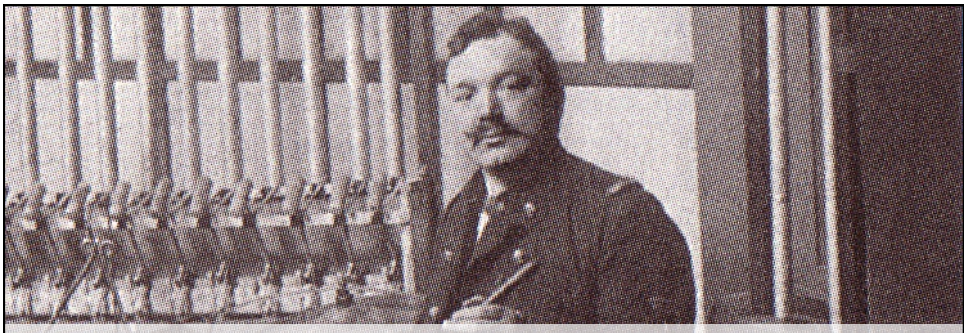
Working With Actors on Stage: SID Workshop 09

(Pauletto, Hug, Barras, Luckhurst)



Working With Actors on Stage

A Leap of Faith Into the World of Soundmaking



Exercise 2: Integrating Narrativity & Performativity: Mimicking Film Sound