Sonification vs. Knowledge Representation

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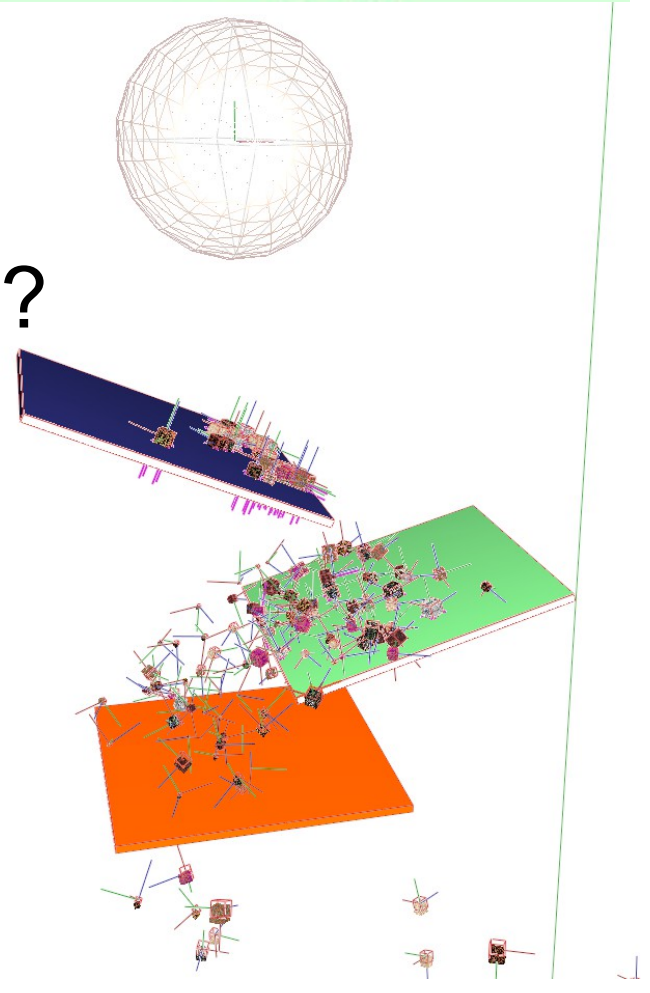
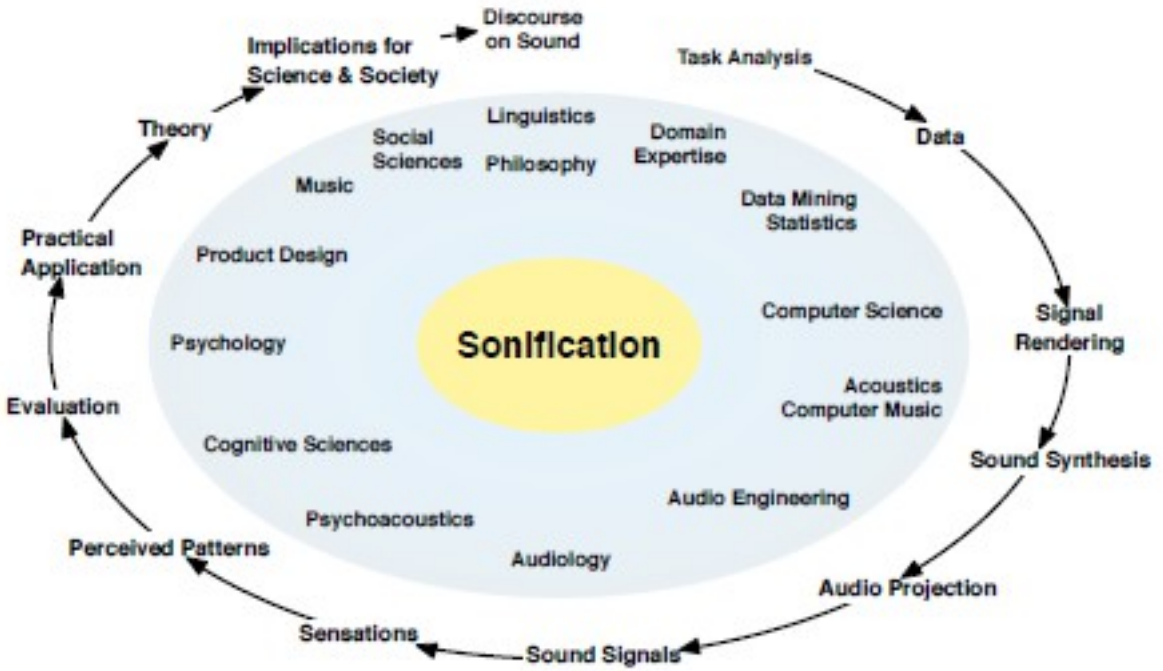
- What is Sonification?
- What is Knowledge Representation?
- Conceptual Framework
- Tool Demonstration
- Current Conclusions



What is Sonification?

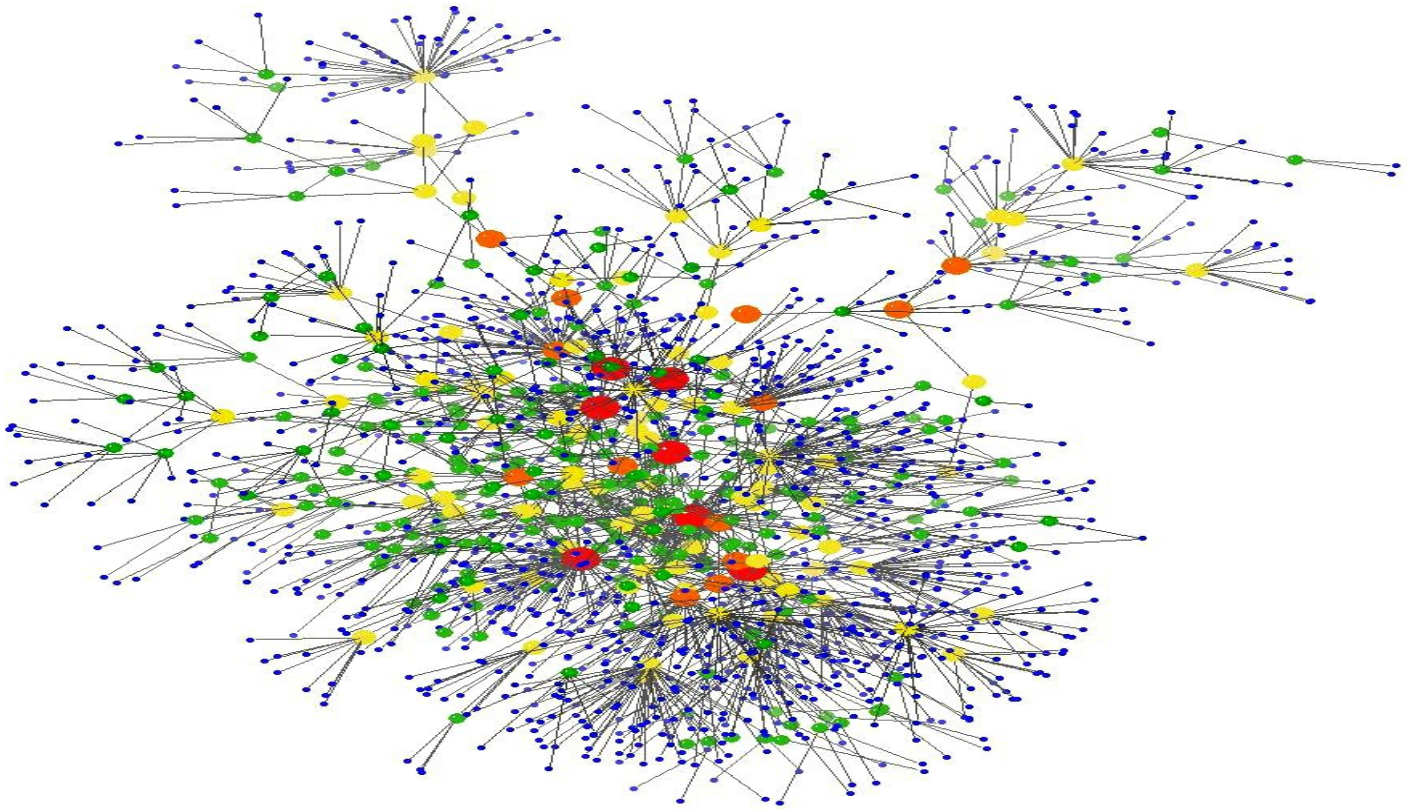
- Auditory display
- Sound as a primary interface channel



Hermann, Thomas, Andy Hunt, and John G. Neuhoff. ed. *The Sonification Handbook.* Berlin: COST. 2011.

What is Knowledge Representation(KR)?

- Symbolic Taxonomy and Grammar
- Expressivity vs. Completeness/Consistence



Thinktek. 2010. http://www.thinktek.com (accessed May 1, 2013).

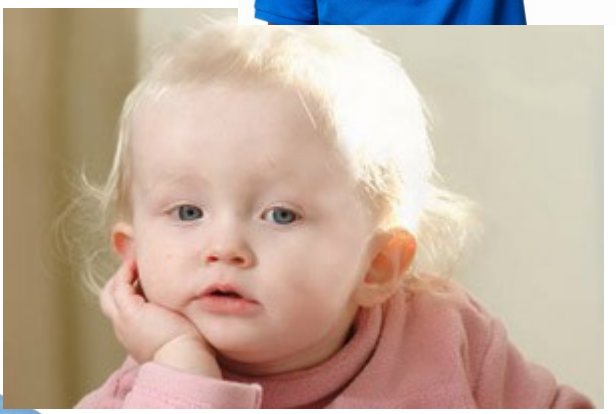
Do those things sound familiar?

- Music/Art?
- Filter Transforms
- Goal Identification/Completion



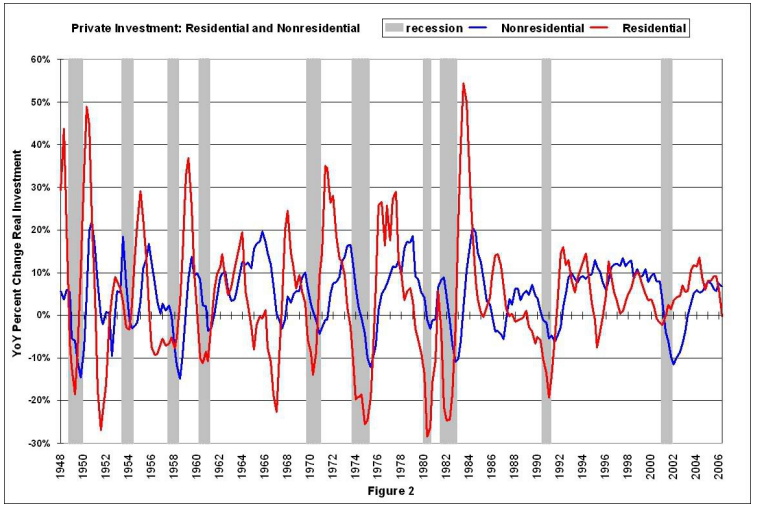






Sonification Task Types

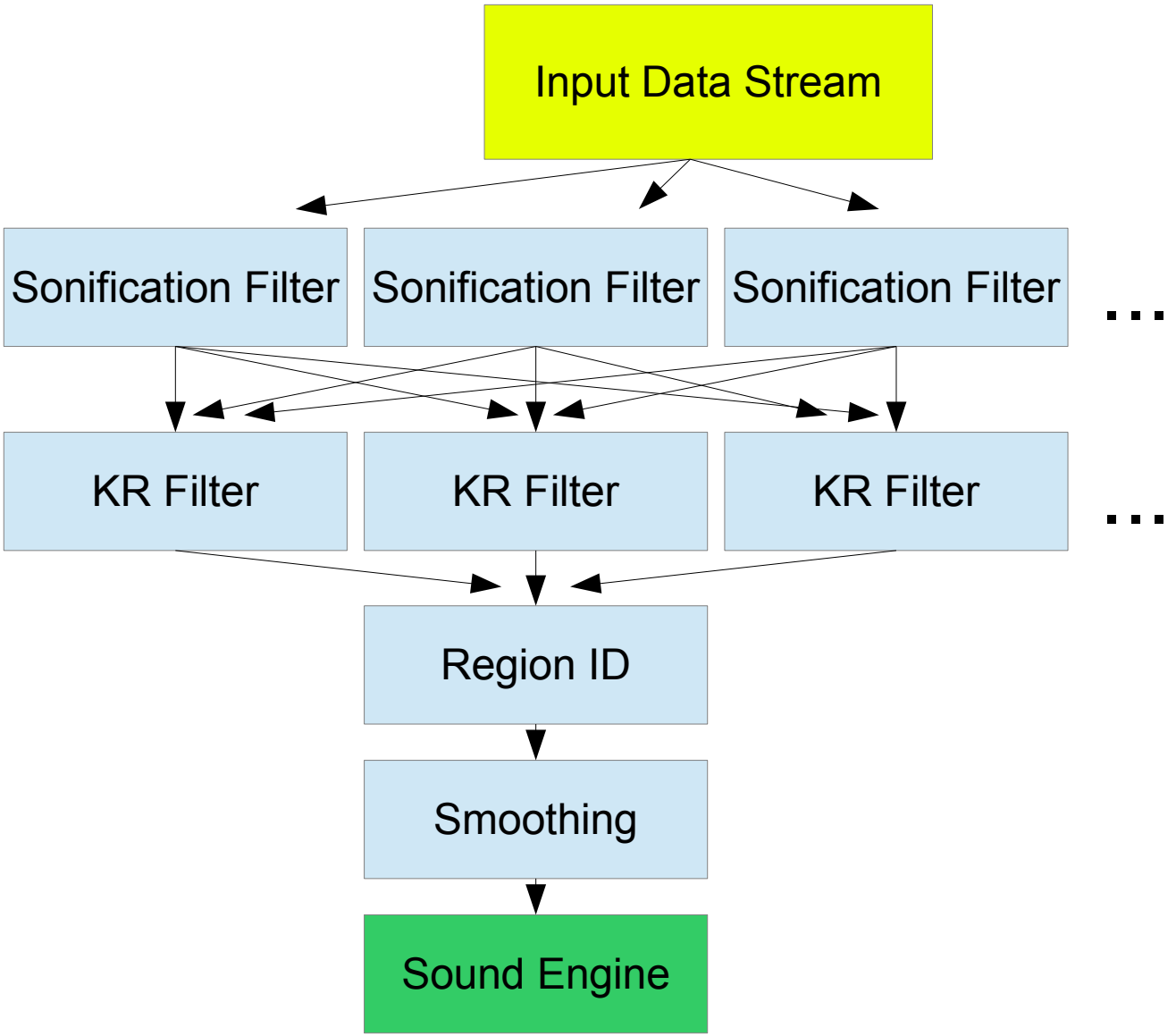
- Monitoring
- Awareness of process / situation
- Data exploration
- Point estimation / comparison
- Trend identification
- Data structure identification
- Exploratory inspection
- Multimodal tasking performance



KR Designations

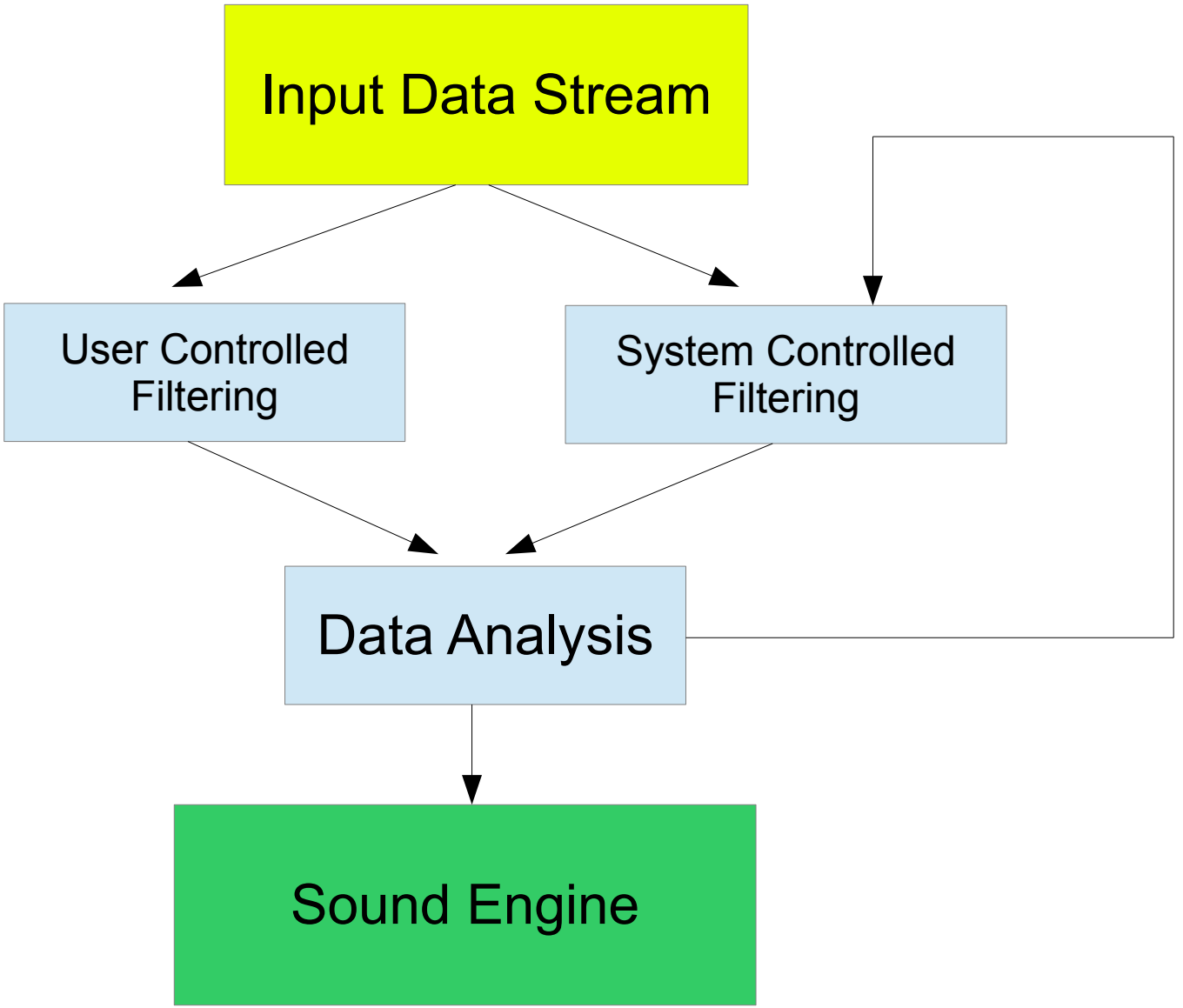
- Surrogacy within the viewer
  - Stand in for the external.
- Set of ontological commitments
  - Accumulation of layers (semantic network)
- Fragmentary theory of intelligent reasoning
  - Conception of inference
- Medium for efficient computation
  - Event frames and taxonomic hierarchies
- Medium of human expression

Signal Flow for Sonification Model



Is this a Knowledge Representation?

“Adaptive” Filtering Flow



Tool Development

- Max/MSP Environment
- Filter Design
- User Interface
- Granular Synthesis Engine

DEMONSTRATION!

Current(?) Conclusions

- Unified Theory vs. Unified Technique
  - Learning Curve
  - Data vs. Content Mapping
  - Immediate Knowledge Acquaintance
  - Temporal Proximity Weight
  - Aesthetic Intentions
  - (Possible) Multiplicity of Views
- Relevance of Electronic Instrument Models