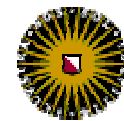

Meaningful Music Retrieval (MMR)

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Main message

- music is meaningful to people
- musical meaning as foundation of MIR research
- subjectivity of musical meaning can be managed
- model the process of *meaning generation* within MIR



Why not in paradise yet?

- there is *a lot* in MIR to be happy about
- but there are unfortunate tendencies
 - anatomical view of music
 - static objects, information extracted
 - where is time?
 - type of musical knowledge involved
 - traditional, production-oriented
 - measurement of similarity only
 - other candidates: relevance, surprise, etc.
 - few interesting applications for end-users
 - solution in search of a problem?
 - bad fit to present-day musicological themes
 - new (cultural/critical) musicology
- I think these tendencies are related



Why not in paradise yet?

Research is inspired by...		Considerations of use?	
		No	Yes
Quests for fundamental understanding?	Yes	Pure basic research (Bohr)	Use-inspired basic research (Pasteur)
	No		Pure applied research (Edison)

- separates two worlds
 - **given** musical domain knowledge
 - computer science
- no true interdisciplinarity
 - ground truth to be emulated, not to be understood
- does not lead to musical understanding

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		<i>Considerations of use?</i>	
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- how to extend MIR to the top row
 - understanding musical understanding (Herrera et al.)
 - music only becomes music by its processing by the human mind (ISMIR 2010)
- relates to key challenges for MIR (Downie, Byrd & Crawford)
 - embracing users
 - digging deeper into the music itself

Music is meaningful

- underlying personal motivation of most MIR researchers
- what is MIR unless it aims at delivering meaningful results?
- how to make musical meaning a (*the?*) foundation of the discipline?



Isn't meaning just too subjective?

- meaning in musicology
 - traditionally, taboo subject
 - the central issue in 'the new musicology'
- subjectivity
 - not about individual as 'private monad'
 - an individual's disposition to engage in social and cultural practices (Lawrence Kramer)
 - this process can be studied scientifically

How musical meaning emerges

- meaning is result of listener's negotiation of musical 'text' and context
- placing music in context is crucial
 - music is highly deceptive in its sheer universality: everyone thinks they 'understand' music..., yet explaining it to other people is often impossible. *Context is (almost) everything, and that's what "musicology" is about.* (Tim Crawford)

- Nicholas Cook (2001)
 - 'potential meaning' actualised by listening
 - structural aspects act as cues



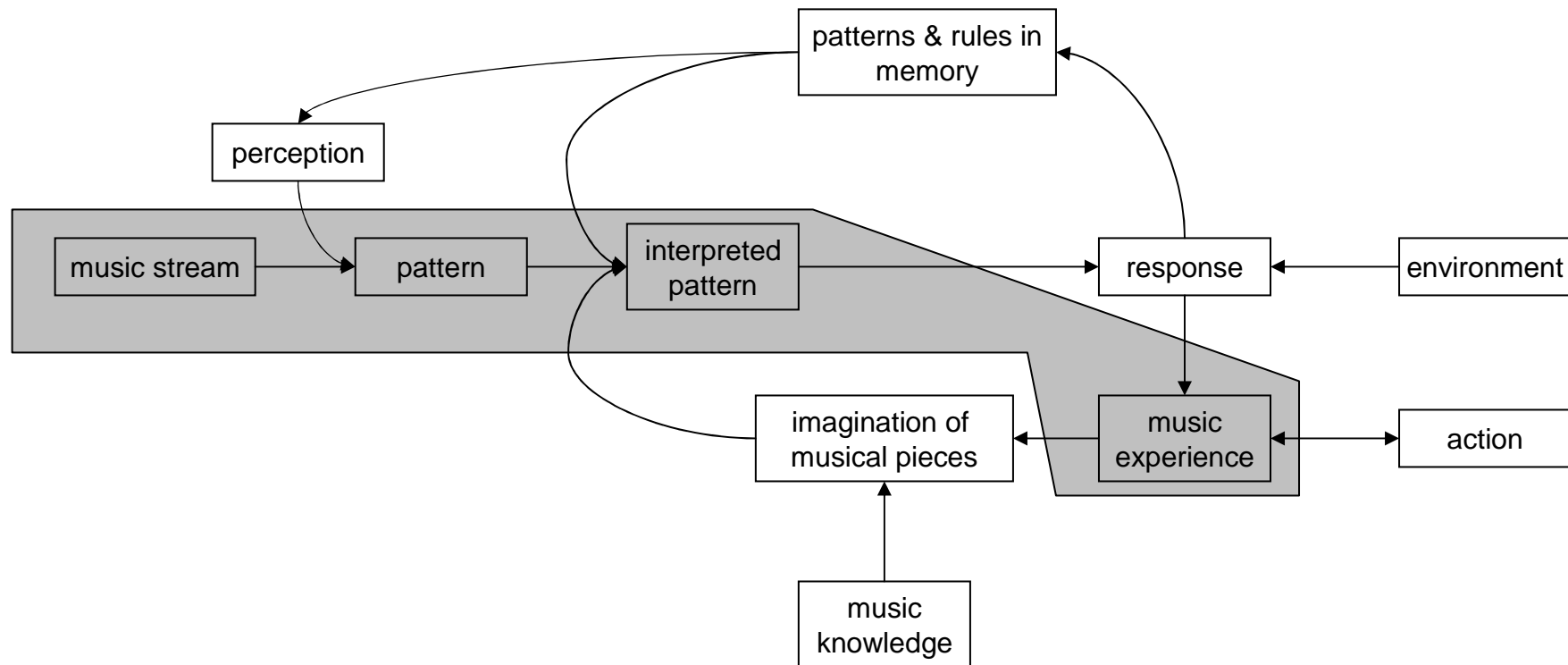
- is this *potential meaning* what MMR should try to capture?
-

The meaning generation process

- here, music cognitions comes in
- long-term memory for music
 - developed by exposure and training
 - constrained by biological limitations
 - can be seen as a 'Pattern Wikipedia'
- meaning generation
 - perception as pattern decoding game
 - neurological rewards (meaningful)
 - secondary association with external meanings



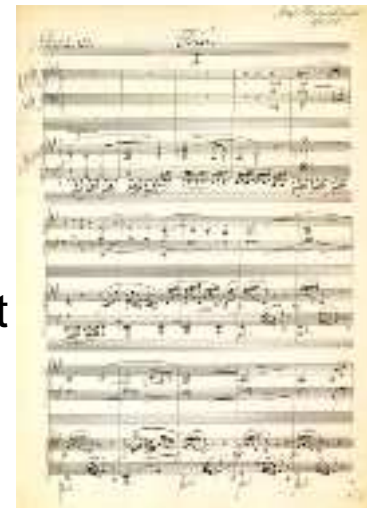
A model for meaning generation



essence: potential meaning is realised by means of human pattern matching

Mendelssohn's Musical Mind

- thought experiment
 - we have endless documentation of his life and music
 - we know what he listened to/played/studied/wrote/painted and when
 - musical development can be reconstructed over time
 - what if we could recreate Mendelssohn's evolving Pattern Wikipedia?
- potential
 - approximate his perception of others' works
 - place each composition in proper context
 - retrieve related works
 - retrieve works with similar contexts



Towards a research agenda for MMR

- theoretical framework for musical meaning
- quantifying musical context
- model the long-term memory for music
- creating computational models that treat music as a process in time
- focused models of similarity/relevance
- personalised MIR
- ecologically valid evaluation methods

Discussion

- can musical meaning provide the 'big story line' for MIR?
- what other thought experiments could be imagined?
- can these be broken down into realistic research projects?
- what other topics should be added to the research agenda?
- ***ideas: -> ISMIR 2010 papers***

