Different Levels of Perception of Prosodic Categories in Music and Language

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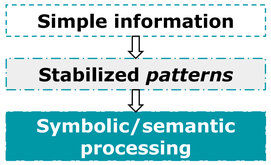
Introduction

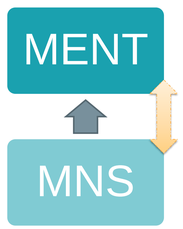
Background for this presentation is my definition of music: 'sound produced with the *main* intention to produce sound'. Within the evolutionary model of prosodic "musilanguage", music relies on cognitive faculties initially selected for a common ancestor; it can respond to several functions simultaneously. We distinguish between music and language even when the sound is the same, perceiving the relevance of different intentions attributed to sounds.

- I propose a model to investigate whether this can happen in immediacy
- Innateness of musicality as the ability to perceive music as music
- Twofold meanings: denotative/presentative + connotative (context)
- The distinction does not *require* meaning nor knowledge of the code
- Presentative meaning: not requiring cogitation; presence of intentions, not requiring arbitrary/cultural semantics (code) → synchronization
- Is music identified at the level of basic cognition?

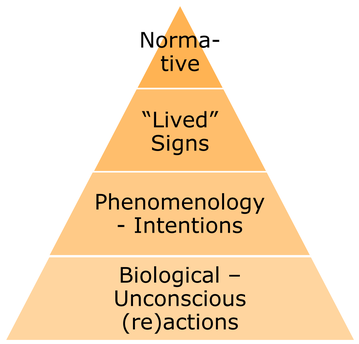
Perception Model

- Dual perception: basic cognition and higher-order consciousness;[1] tripartition, dual step before semantics[2]





- Perception of intentions can depend on context: mentalizing system (MENT), higher-order cognitive function; achieved also in immediacy in the Mirror Neurons System (MNS)[3]
- Lateralization: tendency to specialize between language (left) and music (right). Affective prosody mainly in the right hemisphere
- Unaware listener: no context, no code → tool to evaluate distinction. Specific cognitive faculties allow for perception
- Cognitive semiotics → Levels of meaning: biological (unconscious reactions), phenomenological (intention), significational (lived signs) and normative (conventional representations).[5] Identification as basic meaning, before consciousness?

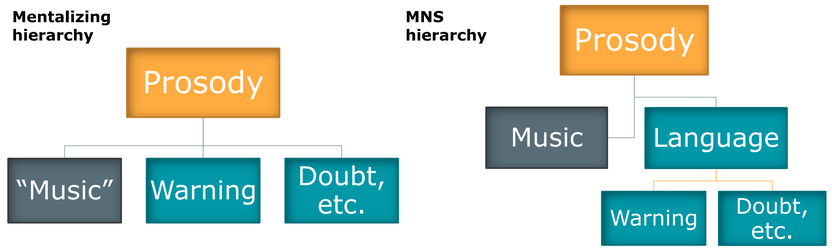


- Prosody conveys intentions: sound alone is sufficient to identify

Prosody: Hierarchies

I mean to compare the perception of musical prosody and linguistic prosodic categories. Recent studies have shown the role played by the perception of prosody in understanding the speaker's communicative intention in utterances.[5] This role is attributed mainly to MENT areas, with relative rightward asymmetry.[6]

- Linguistic prosodic categories convey specific communicative intentions - identified trans-culturally, through MENT (higher-order function)
- Distinction between music and language might pertain to a more generic level (following evolutionary separation of musilanguage); distinction derives from perceived intentions
- Goal: verifying whether the latter distinction is related to the MNS or MENT
- "Degrees" of intentions: evaluation (MENT) or pre-wired/major responses (MNS)?



Experiment

Implementing music to tests similar to those by Hellbernd & Sammler (2018; 2016):

- Testing consistency of evaluation of music ≠ language
- fMRI on participants asked to distinguish between music and language, while perceiving de-semanticized auditory signals (non-words), as opposed to sung analogous utterances
- Brain areas involved in the identification and evaluation of the nature of the signal should be revealed: comparison of elicited MNS (and MENT) areas
- Complementarily, verifying the extent to which prosodic categories can be modified before losing specific reference: modification ("precision" – "order" and habit) of acoustic features should result in enhanced perceived focus on sound – thus, perception of music
- If similar modifications across different prosodic categories homogeneously lead to the perception of music, we can assume that musical prosody is not related to specific linguistic categories; therefore, the distinction would pertain to a different level

Discussion

- Focus: vocal utterances → perceived intentions, not sound source; distinguishable instances → *post quem* analysis of cognitive capacity, not "grey areas"
- Expected outcome: different MNS areas for music vs. language; different MENT areas for linguistic categories
- De-semanticized utterances reduce the influence of conscious elaboration in the perceiver
- Identifying different MNS areas does not require phenomenological self-evaluation by participants – consistency in distinguishing music ≠ language suffices
- Sung utterances are usually/firstly perceived as "musical": perceived enhanced focus on sound? Possible relation to affection/emotional reward? Cognitive consonance/synchronization?

Prosodic Categories

Better scenarios for investigating the perception of degrees of intentions?

- How to define prosodic categories: intention (production, agency – functions) or affection/emotion (perception, reaction)?
- Categorisation of intentions and/or emotions?
- Hierarchical levels: different MNS, same MENT → pre-wired to distinguish on a general level, but communicative intentions evaluated normally; same MNS → "music" category(-ies), interpreted. (Different MENT?)
- MENT option: requires either absorbed "concept" (development) or other components (still, sound alone, in narrow time-spans)
- Different *communicative* intentions = different prosodic categories? Could the identification of degrees of intentions rely on a less strict connection?
- Within musilanguage model, what tools/components would have been involved? "Communication" evolved through (basic) intentions/functions in early prosody, **before MENT**? → Early stage of pre-wired?

Discussion Points for Comparing Music and Language

Re-conceiving prosody from an evolutionary perspective:

- General intended vocalization of sound; acoustic features do not define
- Continuous or discrete quantity? → Within perception, pre-wired (discrete, relevance of MNS) or infinite possible combinations (continuous, more relevance of MENT)?
- Possible to apply categories to music? Emotions vs. intentions.

General idea prosody-'meaning': int./ext. interaction, synchronization:

- Scruton's "double metaphor"; multi-sensory mimicry?
- Intention/emotion: understanding/communicating beyond immediate reaction. Specific reference (lack of phatic function)

Why maintaining music after language got separated?

Thank you!

References

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