ECDPM 2005

"Music and Development – Challenges for Music Education"

THE PROCEEDINGS OF THE FIRST EUROPEAN CONFERENCE ON DEVELOPMENTAL PSYCHOLOGY OF MUSIC

17–19 November 2005

University of Jyväskylä

Department of Music

FINLAND

"Music and development – Challenges for Music Education"
The Proceedings of The First European Conference on Developmental Psychology of Music 2005

Program Committee	Maija Fredrikson (chair) Pirkko Paananen Jaakko Erkkilä
Editors	Pirkko Paananen Maija Fredrikson
Year	2006
Publisher	Department of Music, University of Jyväskylä, Finland
ISBN:	951-39-2415-7
314 pages	
Photo:	Kari Laine
Cover:	Pirkko Paananen
URL:	http://www.jyu.fi/hum/laitokset/musiikki/projektit/ecdpm2005/proceedings.pdf
Supported by:	Academy of Finland University of Jyväskylä City of Jyväskylä

University of Jyväskylä

PREFACE

In recent years, developmental psychology of music has become a growing research area with interesting issues concerning music across lifespan. Developmental research reports have usually been presented at such multidisciplinary conferences as ICMPC (International Conference for Music Perception and Cognition) and ISME (International Society for Music Education) world conferences and commission seminars. However, we felt that European researchers lacked a forum for developmental and educational discussions. In January 2005, we began to outline *"The First European Conference on Developmental Psychology of Music"*. The main theme *"Music and Development – Challenges for Music Education"* included the following three sub-themes: a) *cognitive and social development in music,* b) *musical explorations in research and educational contexts,* and c) *music education and music therapy: common ground;* these sub-themes being closely linked to the three disciplines in the Department of Music, University of Jyväskylä: cognitive musicology, music education and music therapy. For keynote speakers we had an opportunity to welcome some of the most important international experts in the developmental psychology of music, such as Professor Sandra Trehub from Toronto University, Canada, Dr. Alexandra Lamont from the University of Keele, United Kingdom, Dr. Stefanie Stadler Elmer from the University of Zürich, Switzerland, as well as Dr. Minna Huotilainen from Helsinki Collegium for Advanced Studies, University of Helsinki, Finland representing developmental neuropsychology, and Professor Jaakko Erkkilä from our home university representing music therapy point of view.

The Proceedings of ECDPM2005 includes the five keynote PowerPoint-presentations in PDF-format, without audio and video examples, and fifteen papers in alphabetical order.

Enjoy your reading!

Jyväskylä 23 March 2006

Editors

CONTENTS

KEYNOTE PRESENTATIONS (PowerPoint, PDF)

PAPERS

Early Meanings of Music – A Music Therapy Point of View

Prof. Jaakko Erkkilä
University of Jyväskylä
Finland

Content

- Some ideas about normal and abnormal development
- Why music in/as therapy? Some clinical and theoretical claims
- About symbolization
- case examples: different approaches for improvisation
- New ways of [clinical] improvisation analysis: the MTTB

Normal versus pathological development

normal development

straight upward development (according to developmental age)

Normal versus pathological development

normal development

physical, psychic, sosial, emotional, cognitive...

straight upward development (according to developmental age)

Normal versus pathological development

normal development

from simple to complex
from concrete to abstract
from dependent to independent

physical, psychic, sosial, emotional, cognitive...

straight upward development (according to developmental age)

Normal versus pathological development

normal development

‘A fully functioning human being’

from simple to complex
from concrete to abstract
from dependent to ‘independent’

physical, psychic, social, emotional, cognitive...

straight upward development (according to developmental age)

Normal versus pathological development

abnormal development

distorted development due to illness, handicap, developmental disorder, psychiatric problem...

Normal versus pathological development

abnormal development

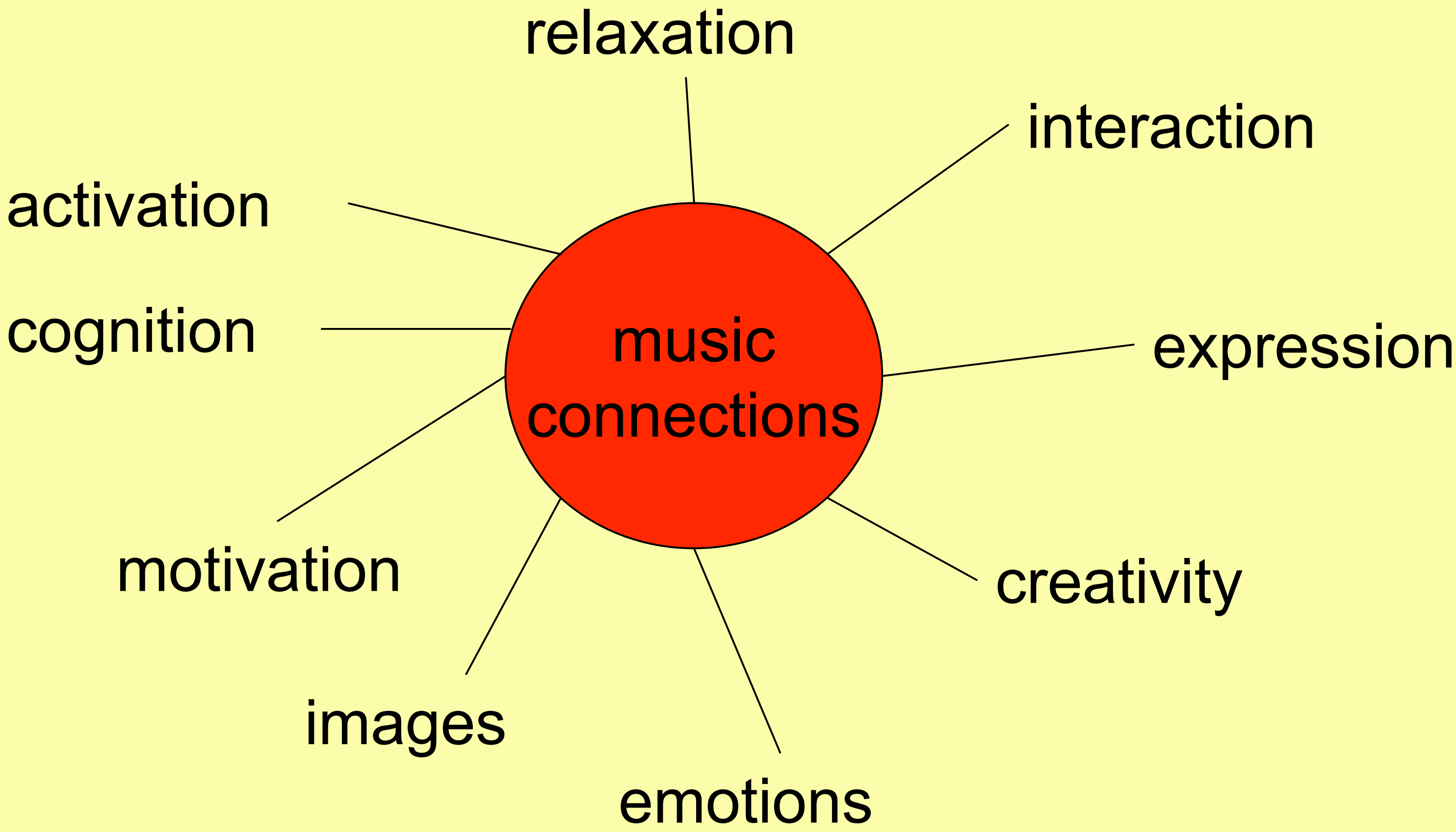
- reduced ability in one or several levels of functioning (physical, psychic, social, emotional,cognitive)
- constant (e.g. innate disorders) or provisional (e.g. some psychiatric disord.)

developmental age does not follow biological age

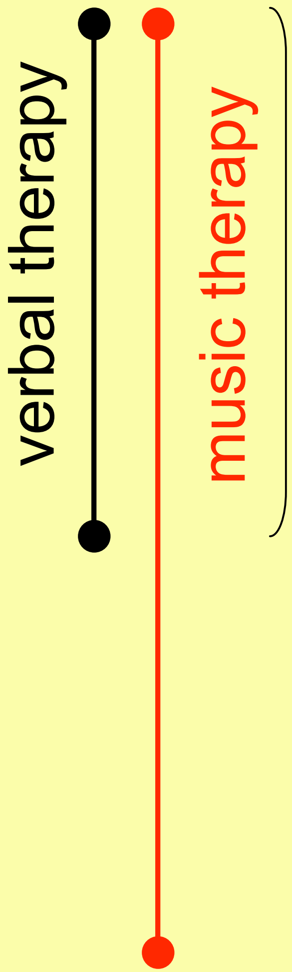
distorted development due to illness, handicap, developmental disorder, psychiatric problem...

Why music in/as therapy?

Why music in/as therapy?

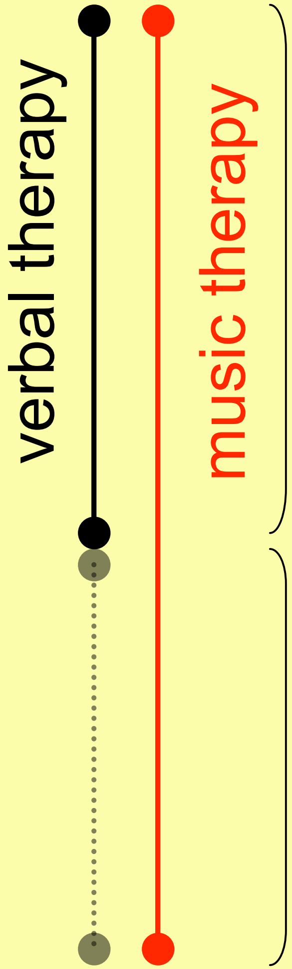


Why music in/as therapy?



world of words

Why music in therapy?

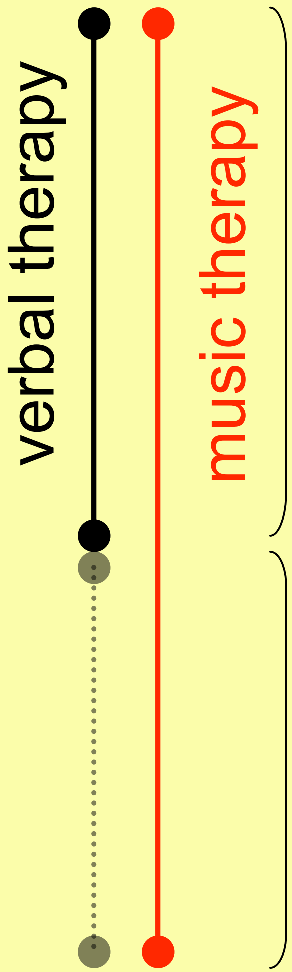


world of words

+

world of nonverbal expression

Why music in therapy?



world of words

•Attachment ideas (Bowlby) •Mother-infant interaction; Early interaction (Stern,Kristeva, etc.) •Early ways of thinking (Basch-Kahre •thinking of symbolization and development of self (Lacan) •sign-symbol ideas (Langer) •growth of knowledge and modes of thinking (Piaget) •object relations theory (Klein, Winnicott) •unconscious and preconscious (Freud...)

Music therapy with retarded people/infants/children: some claims

- in spite of the cognitive capacity of the client, music enables meaningful expression and interaction
- the fundamental basis of music is based on primitive (innate) forms of meaning such as:
  – vitality affects (Stern)
  – dynamic forms (Pavlicevic)
  – 'semiotic' (Kristeva)
- free musical expression (i.e. clinical improvisation) is not primarily playing music – it is communication through sounds

Music therapy with retarded people/infants/children: common claims

- Target-oriented working through sounds in a therapeutic relationship by the trained music therapist enables improvement and growth on
  - social,
  - cognitive,
  - emotional,
  - and psychic levels
- In particular with the target groups in question, music therapist is often associated with the primary object [mother] by the client

Challenges of music therapist

- What techniques/methods with different diagnostic groups?
- How to adjust oneself to the developmental stage/condition of the client?
- What kind of psychological interpretations are possible/adequate with clients with various stages of retardation/limitations?

Some theoretical assumptions on the non-verbal relationship/play in therapy

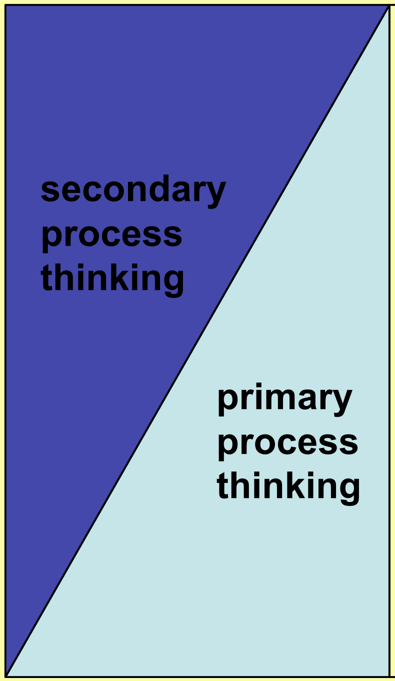
- Winnicot/De Backer: Playing music (improvising) as the transitional space
  - A mental state, which can include thinking and fantasizing and where the inner images can originate.
  - Essential in order to achieve the state of musical play
- The three core concepts (De Backer): sensorial play, synchronicity, musical form
- The transitional space is not possible at the level of the sensorial play
  - i.e. random playing, repetitive and/or fragmented play, significant lack of phrasing, dynamics, and variation, absence of silence in the music, no sense of interaction

Some theoretical assumptions on the non-verbal relationship/play in therapy

- The ‘musical form’ in improvisation
  - one step further from the ‘transitional space’ towards symbolisation

Some theoretical assumptions on the non-verbal relationship/play in therapy

FREUD → **EVA BASCH-KAHRE (1985)**



operational thinking → tangible and logical thinking with no room for emotions, metaphors, or symbols

emotional sensory-motor thinking → typical thinking in early stages of life with focal factors like sensual impressions, motor and spatial experiences, and strong emotions

chaotic thinking → typical for a newborn child when she encounters the overwhelming inner and external stimuli

Some theoretical assumptions on the non-verbal relationship/play in therapy

Adaptation (by Erkkilä)

operational *playing*

emotional sensory-motor *playing*

chaotic *playing* →

typical playing of a severely regressive/psychotic client when (s)he encounters the overwhelming inner and external stimuli ≈ *fragmented music without comprehensible meaning (no communication)*

Levels of meaning in improvisation

Adaptation (by Erkkilä)

operational *playing*	
emotional sensory-motor *playing*	typical playing in an open and intensive improvisational process where agents like sensual impressions, motor and spatial experiences, and strong emotions are present
chaotic *playing*	typical playing of a severely regressive/psychotic client when (s)he encounters the overwhelming inner and external stimuli ≈ fragmented notes without comprehensible meaning

Levels of meaning in improvisation

Adaptation (by Erkkilä)

operational *playing* → ‘cognitive’ and logical playing with no room for emotions, metaphors, or symbols

emotional sensory-motor *playing* → typical playing in an open and intensive improvisational process where factors like sensual impressions, motor and spatial experiences, and strong emotions are present

chaotic *playing* → typical playing of a severely regressive/psychotic client when (s)he encounters the overwhelming inner and external stimuli ≈ fragmented notes without comprehensible meaning

Levels of meaning in improvisation

Adaptation (by Erkkilä)

operational *playing*	'cognitive' and logical playing with no room for emotions, metaphors, or symbols
emotional sensory-motor *playing*	typical playing in an open and intensive improvisational process where factors like sensual impressions, motor and spatial experiences, and strong emotions are present
chaotic *playing*	typical playing of a severely regressive/psychotic client when (s)he encounters the overwhelming inner and external stimuli ≈ fragmented notes without comprehensible meaning

musical form?

Levels of meaning in improvisation

Adaptation (by Erkkilä)

operational *playing* → 'cognitive' and logical playing with no room for emotions, metaphors, or symbols

emotional sensory-motor *playing* → typical playing in an open and intensive improvisational process where factors like sensual impressions, motor and spatial experiences, and strong emotions are present

chaotic *playing* → typical playing of a severely regressive/psychotic client when (s)he encounters the overwhelming inner and external stimuli ≈ fragmented notes without comprehensible meaning

synchronicity?

Basic question: Ability to symbolise

no or limited

yes

Basic question: Ability to symbolise?

no or limited

yes

clients

Examples: mentally retarded, some neurological groups, psychotics, clients with degenerative illness, etc.

Examples: clients with behavioral and/or emotional disorders, neurotic clients, trauma clients, etc.

clients

Basic question: Ability to symbolise?

	no or limited	yes
clients	Examples: mentally retarded, some neurological groups, psychotics, clients with degenerative illness, etc.	Examples: clients with behavioral and/or emotional disorders, neurotic clients, trauma clients, etc.
music	Temporal (rhythmic) aspects in front, obvious lack of/limitations in harmony and melody, music is fragmented, lack of musical form	tonal aspects forefront, melodic patterns and phrases, sense of form, sense of dynamics, sense of autonomy

Basic question: Ability to symbolise?

	no or limited	yes
clients	Examples: mentally retarded, some neurological groups, psychotics, clients with degenerative illness, etc.	Examples: clients with behavioral and/or emotional disorders, neurotic clients, trauma clients, etc.
music	Temporal (rhythmic) aspects in front, obvious lack of/limitations in harmony and melody, music is fragmented, lack of musical form	tonal aspects forefront, melodic patterns and phrases, sense of form, sense of dynamics, sense of autonomy
interpretation	should not be overinterpreted, inter-pretations often music-centered, 'mother-infant'-metaphors	extra-musical interpretations typical, emotions, images, associations, memories, object relationships (transference issues)

Symbolising as the goal of therapy?

no or limited → yes

WITH WHOM?

- with the clients with provisional or 'sleeping' inability to work with symbols (psychotics, borderline patients...)
- with the clients with *developmental* capacity to work with symbols but who need special support (several diagnostic groups -> also mature issue)

Case 1 – the girl

- What to look at and listen to:
  - the ways/techniques how the therapist adopts her playing and attitude to the (developmental) level of the client
  - the basic ways of the girl to express herself through improvised music

Case 1 – the girl

- What to look at and listen to:
  - the ways/techniques how the therapist adopts her playing and attitude to the (developmental) level of the client
  - the basic ways of the girl to express herself through improvised music
- What can we conclude?
  - musical approach of the therapist?
  - developmental age of the girl?
  - ability to symbolise?
  - communication through sounds/playing music?

Case 2 – the boy

- What to look at and listen to:
  - the ways/techniques how the therapist adopts her playing and attitude to the (developmental) level of the client
  - the basic ways of the boy to express himself through improvised music

Case 2 – the boy

- What to look at and listen to:
  - the ways/techniques how the therapist adopts her playing and attitude to the (developmental) level of the client
  - the basic ways of the boy to express himself through improvised music
- What can we conclude?
  - musical approach of the therapist
  - developmental age of the boy?
  - ability to symbolise?
  - communication through sounds/playing music?

the data source for analysis of the process?

no/limited ability to symbolise

ability to symbolise

- the therapy is mostly based on musical expression and communication
- the most relevant source material for the analysis is the music (improvisation)
- improvement typically slow

the data source for analysis of the process?

no/limited ability to symbolise

- the therapy is mostly based on musical expression and communication
- the most relevant source material for the analysis is the music (improvisation)
- improvement typically slow

ability to symbolise

- the therapy is based on musical expression and communication AND symbolic (extra-musical) meanings triggered by the music (improvisation)
- both the music and the extra-musical meanings are potential source material for the analysis
- improvement can be fast

from where to analyse the improvement in therapy?

no/limited ability to symbolise

ability to symbolise

the meaning of music analysis is very important

the musical analysis is often only a part of the analysis protocol

New ways of improvisation analysis

- the Music Therapy Toolbox (MTTB)
  - a computational method for the analysis of clinical improvisations
  - only MIDI data can be analyzed
- the MTTB is a powerful tool for analysing the musical/interactive micro-processes
  - in particular suitable for tracing the evolution in the therapy processes where improvement is slow

Basic facts of the MTTB

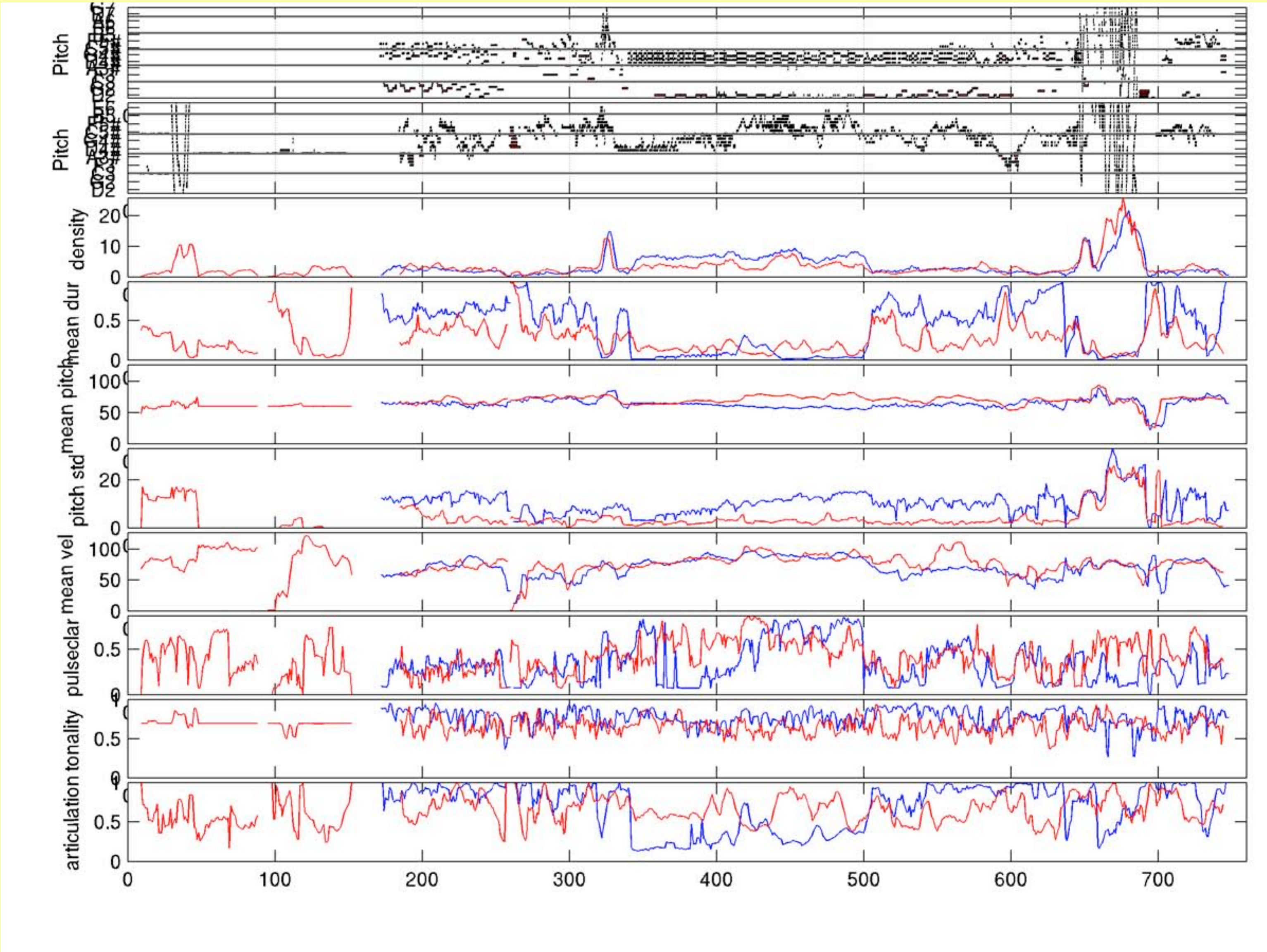
is based on the MIDI Toolbox but has been further developed for MT purposes together with music therapy unit of UJy

originally developed by the Music Cognition group (UJy) (www.jyu.fi/musica/cognition/)

a software for mathematicians and engineers; toolboxes are kind of applications that run in the MATLAB

MTTB

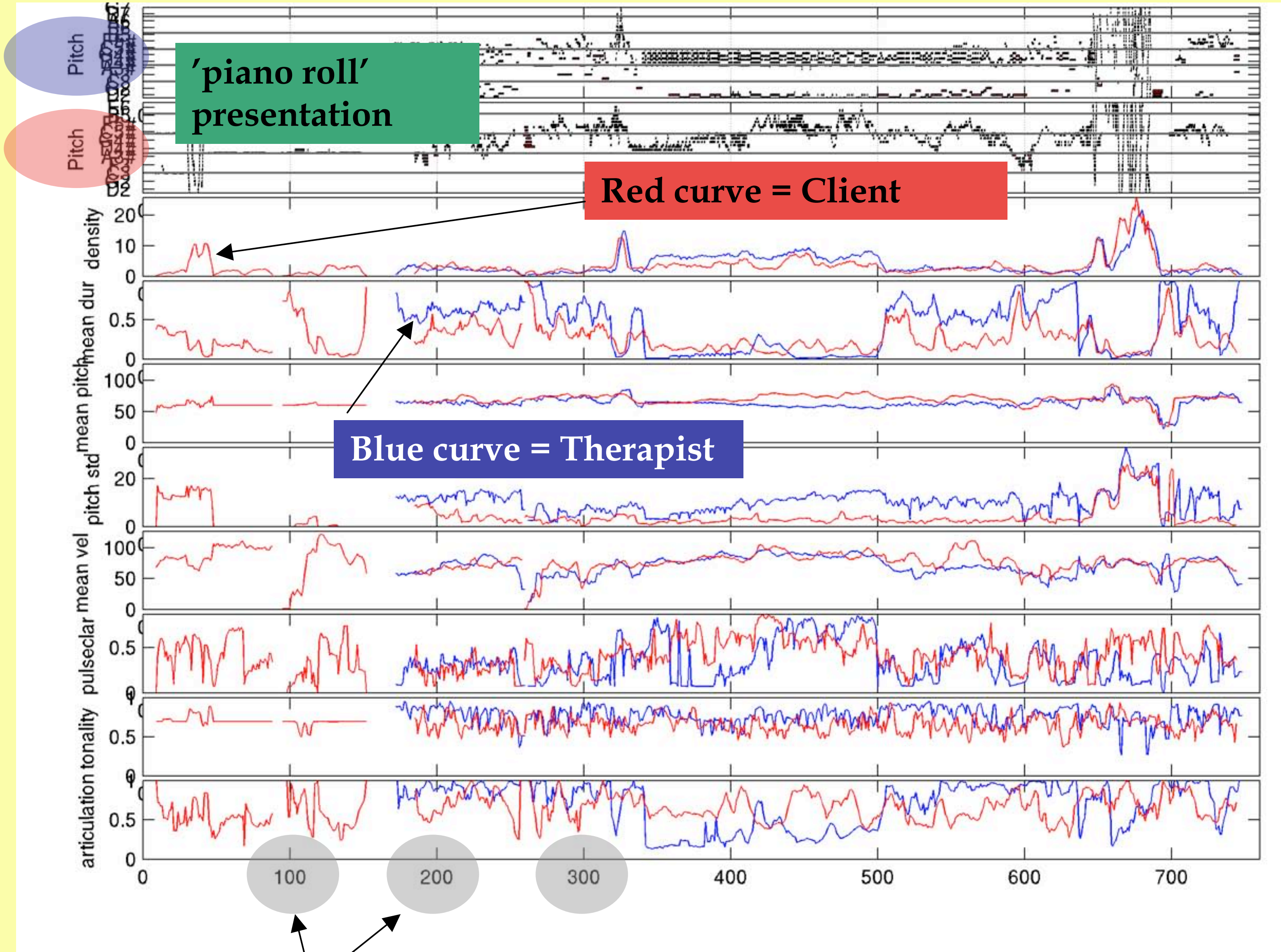
notation



MTTB
graphs

Therapist

Client



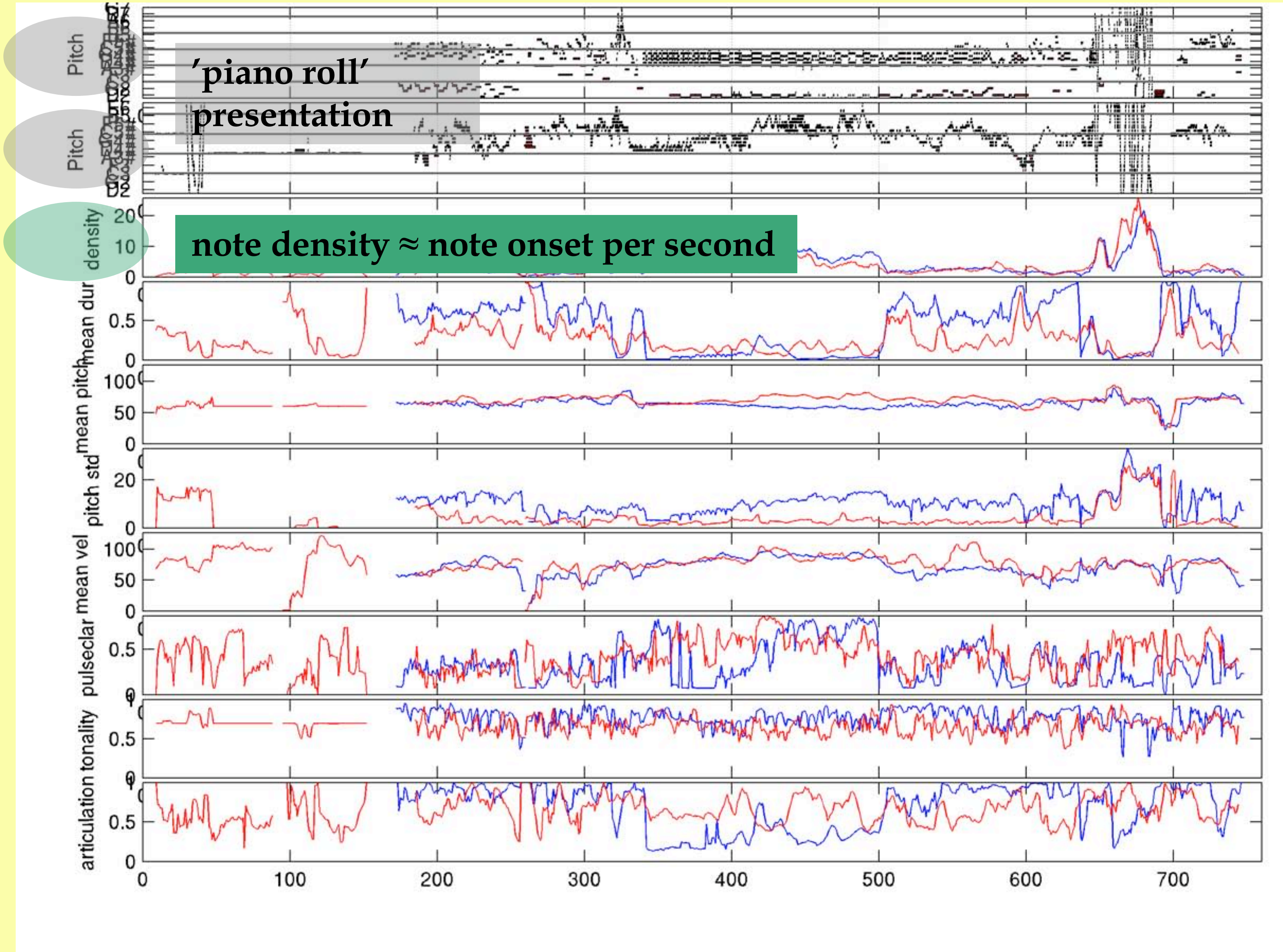
Time line as seconds

MTTB

graphs

Therapist

Client

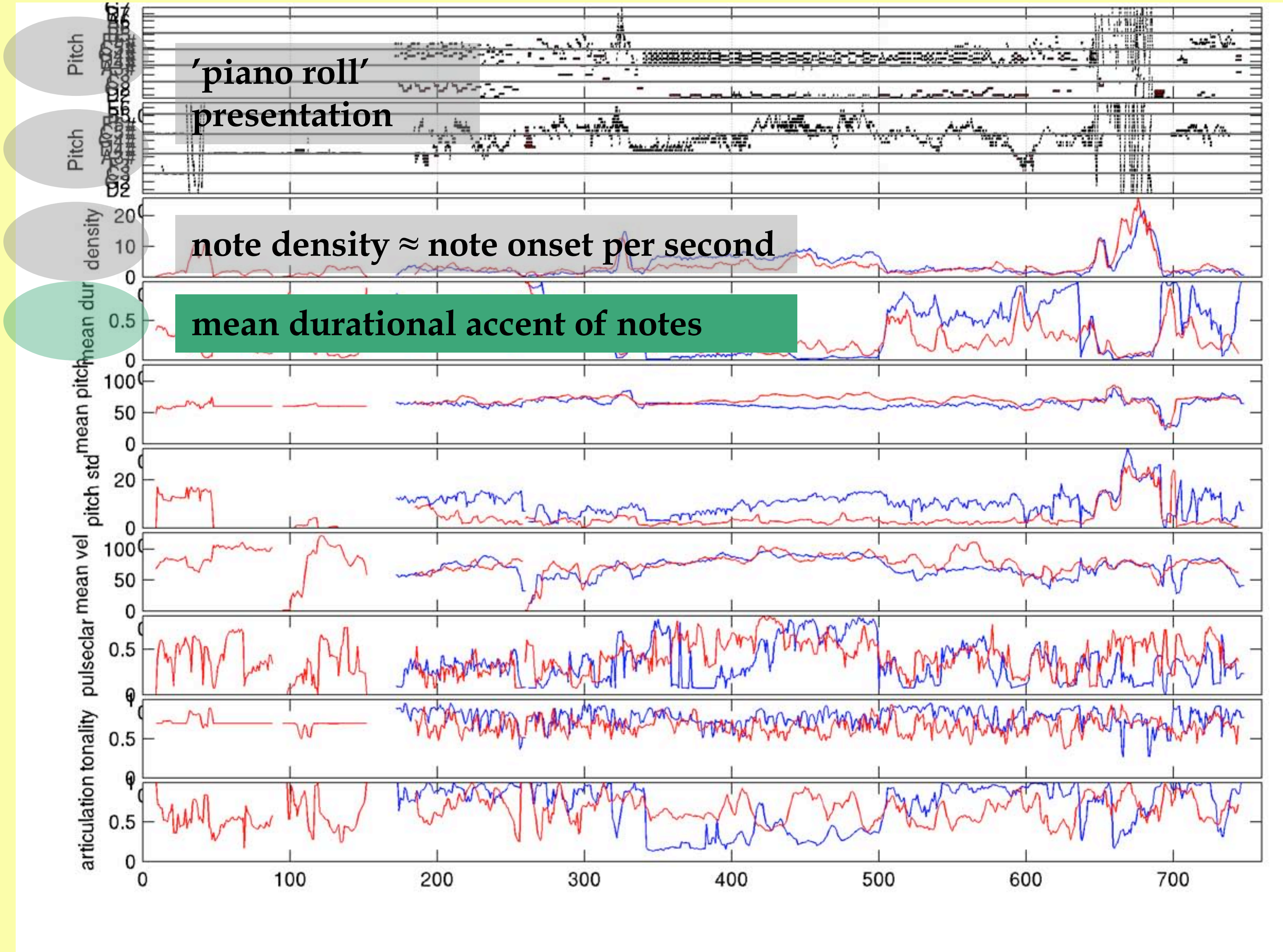


MTTB

graphs

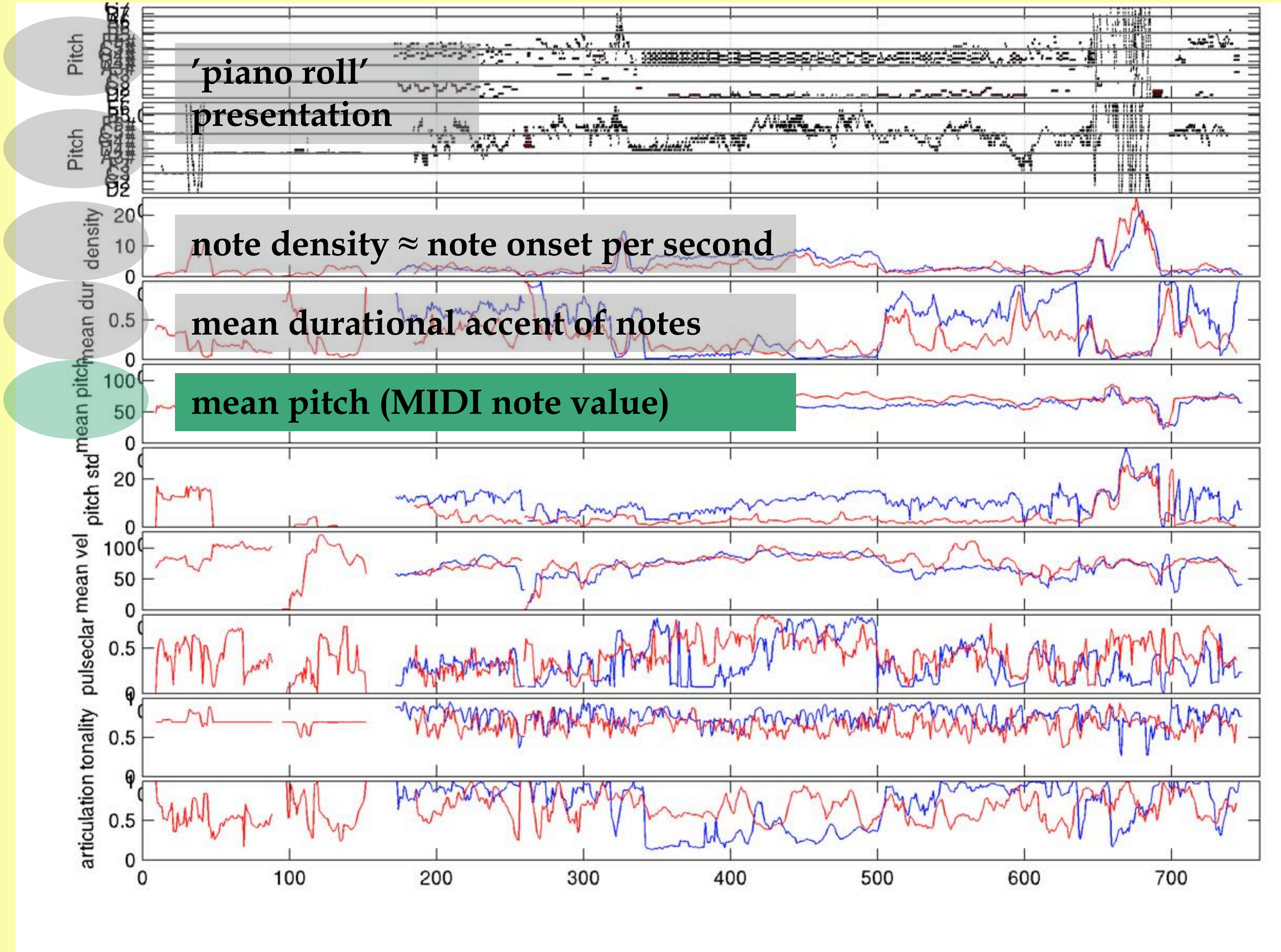
Therapist

Client

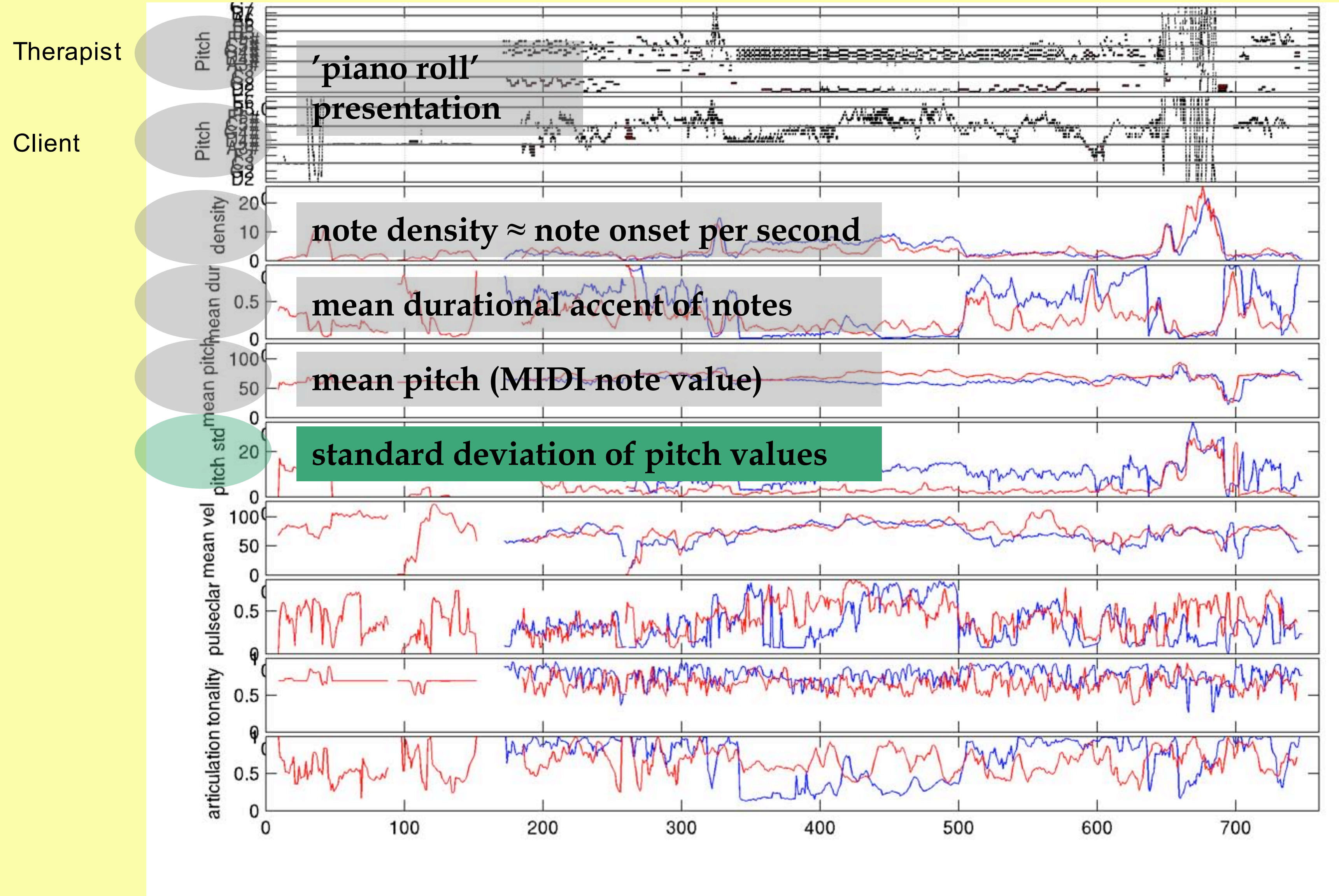


Therapist

Client



MTTB
graphs



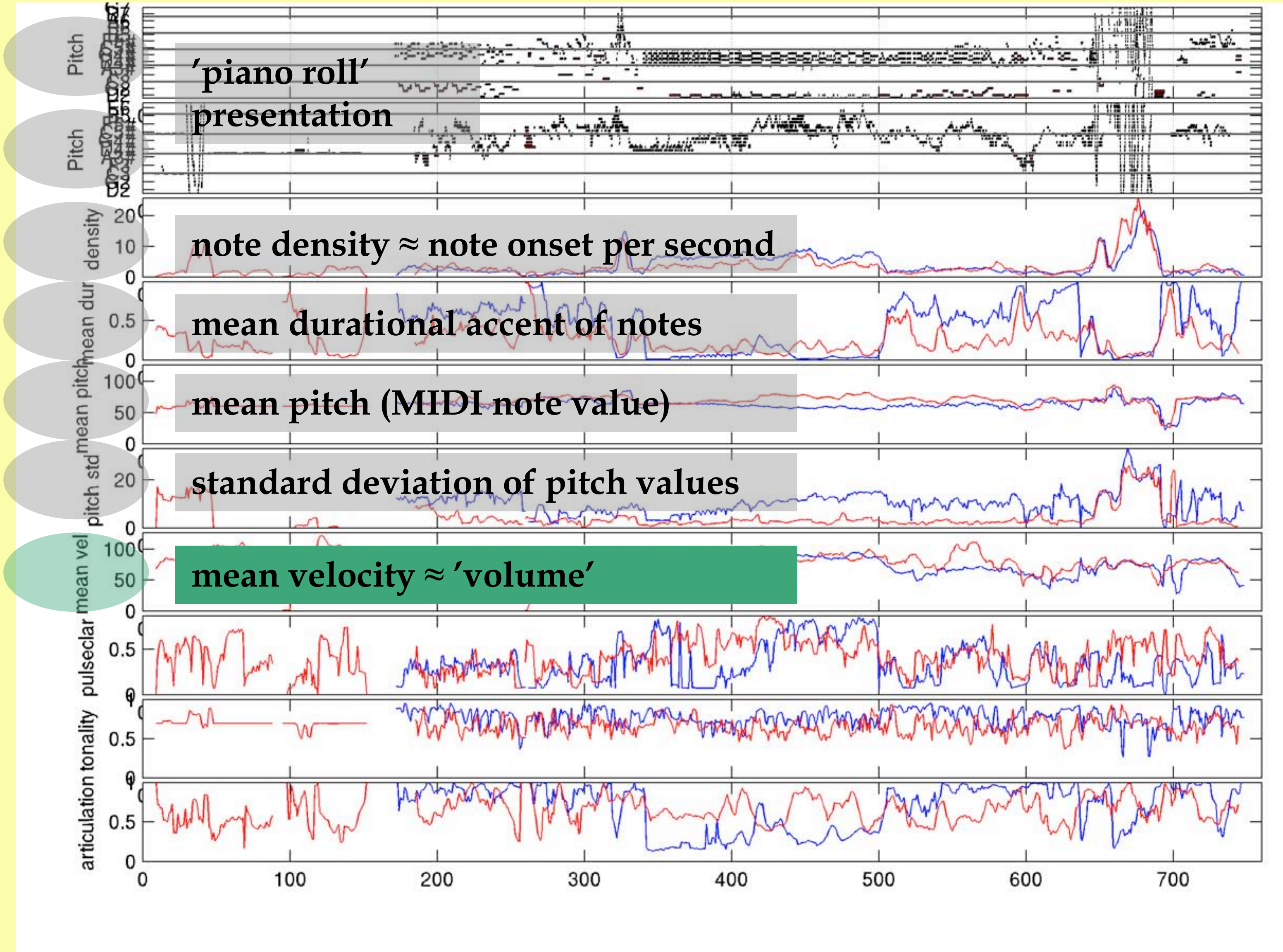
Therapist
Client
Pitch
Pitch
'piano roll' presentation
note density ≈ note onset per second
mean durational accent of notes
mean pitch (MIDI note value)
standard deviation of pitch values
density
mean dur
mean pitch
pitch std
mean vel
pulseclar
tonality
articulation
0
100
200
300
400
500
600
700

MTTB

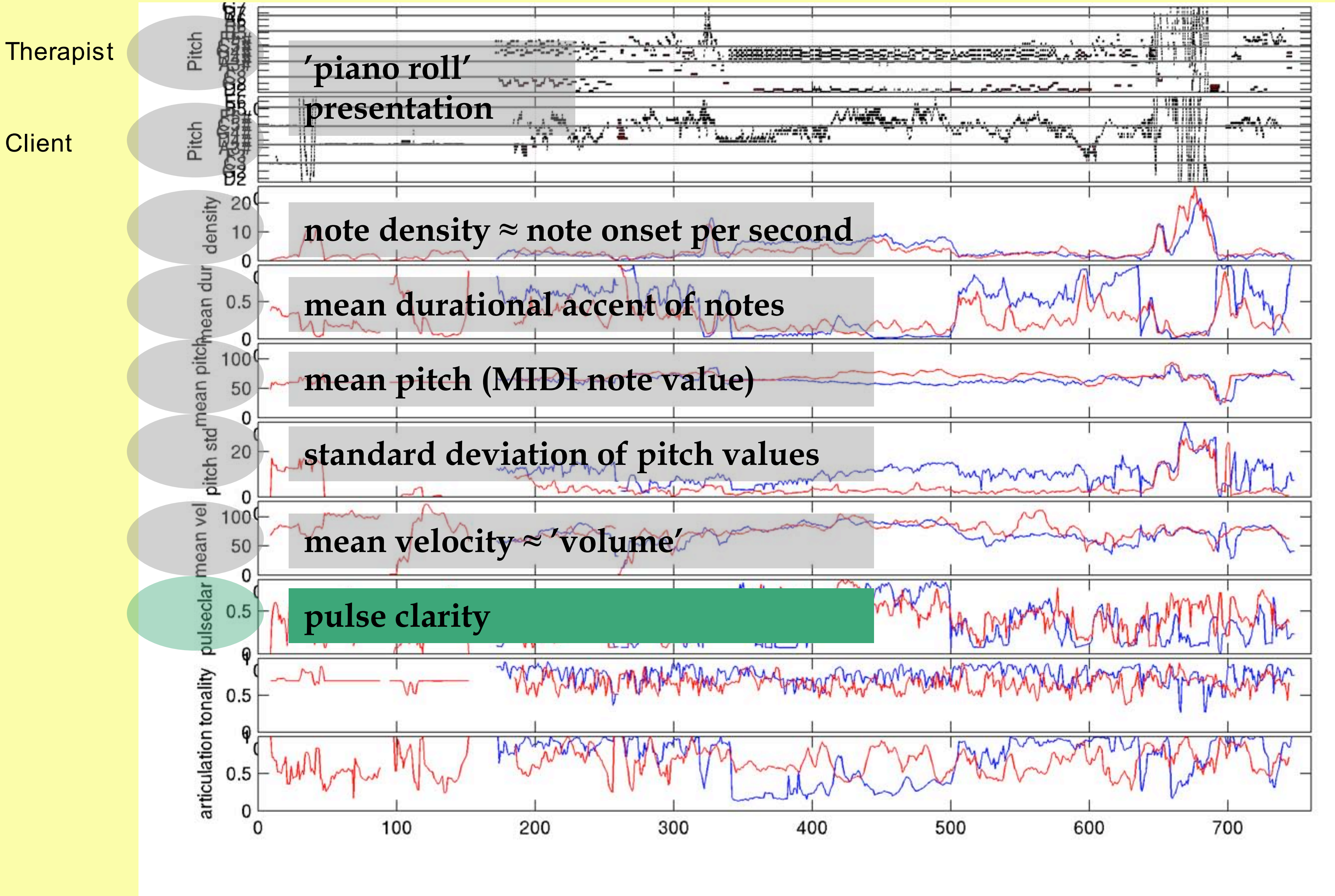
graphs

Therapist

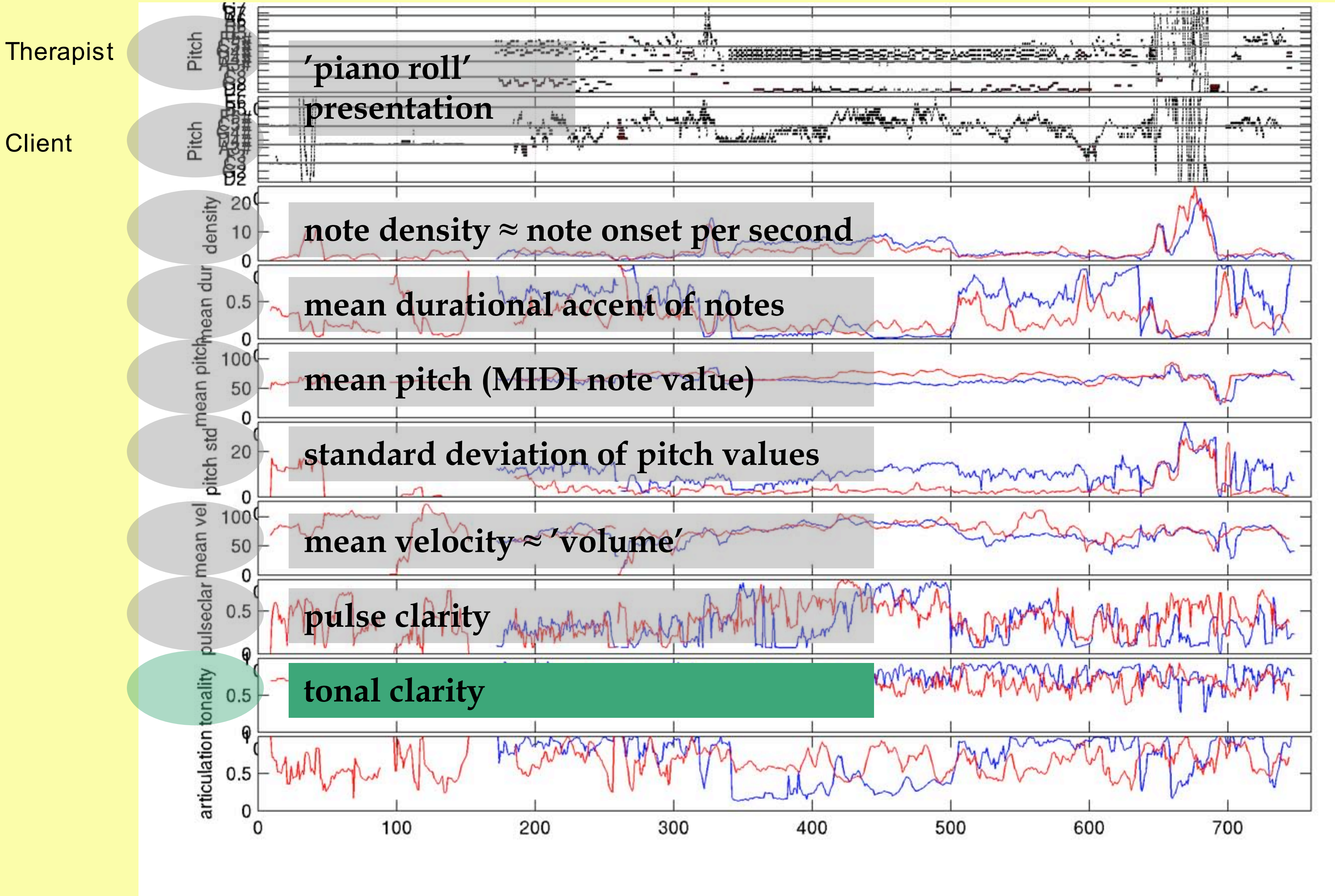
Client



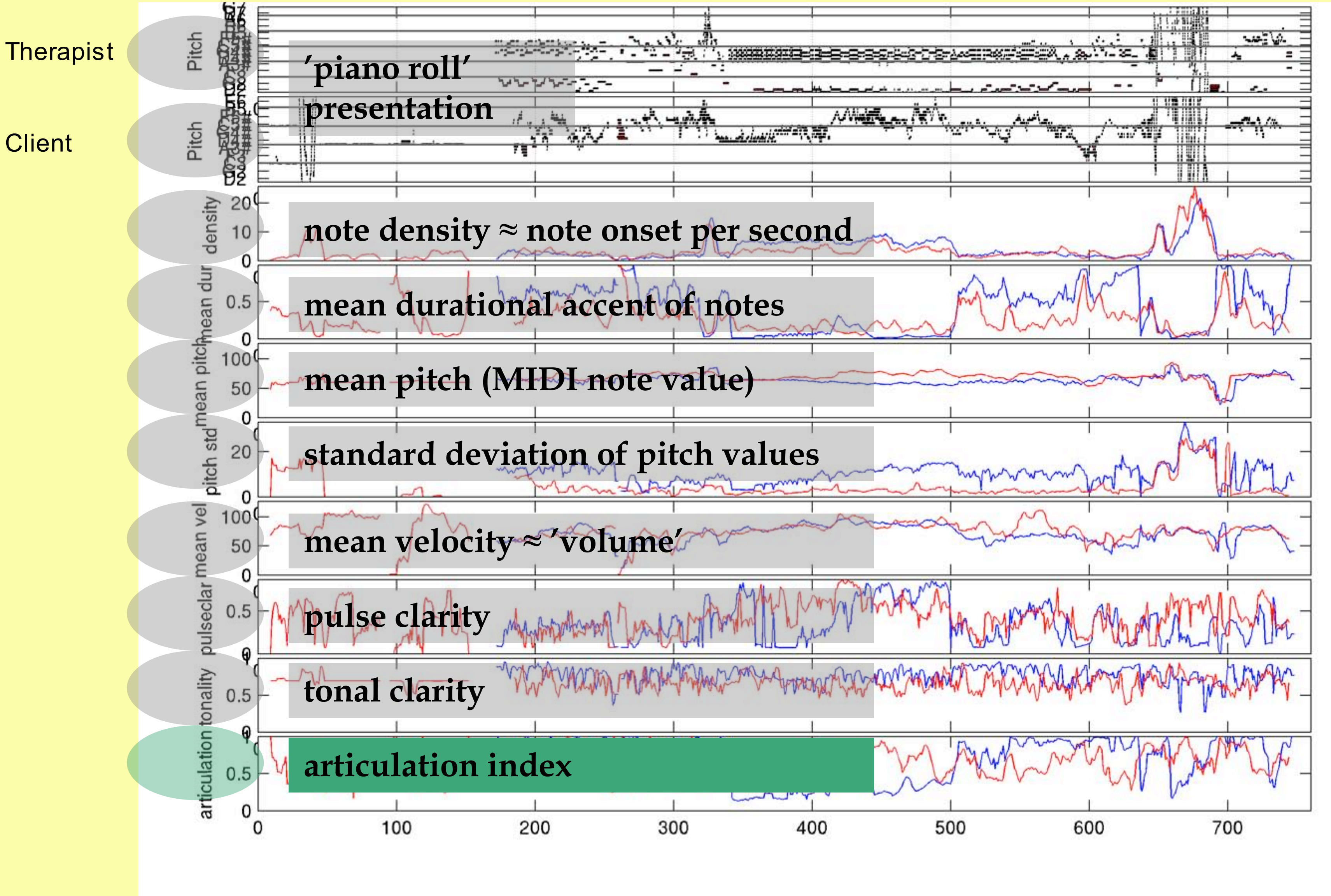
MTTB
graphs


Therapist
Client
'piano roll' presentation
note density ≈ note onset per second
mean durational accent of notes
mean pitch (MIDI note value)
standard deviation of pitch values
mean velocity ≈ 'volume'
pulse clarity
Pitch
density
mean dur
mean pitch
pitch std
mean vel
pulseclar
tonality
articulation
0
100
200
300
400
500
600
700

MTTB
graphs

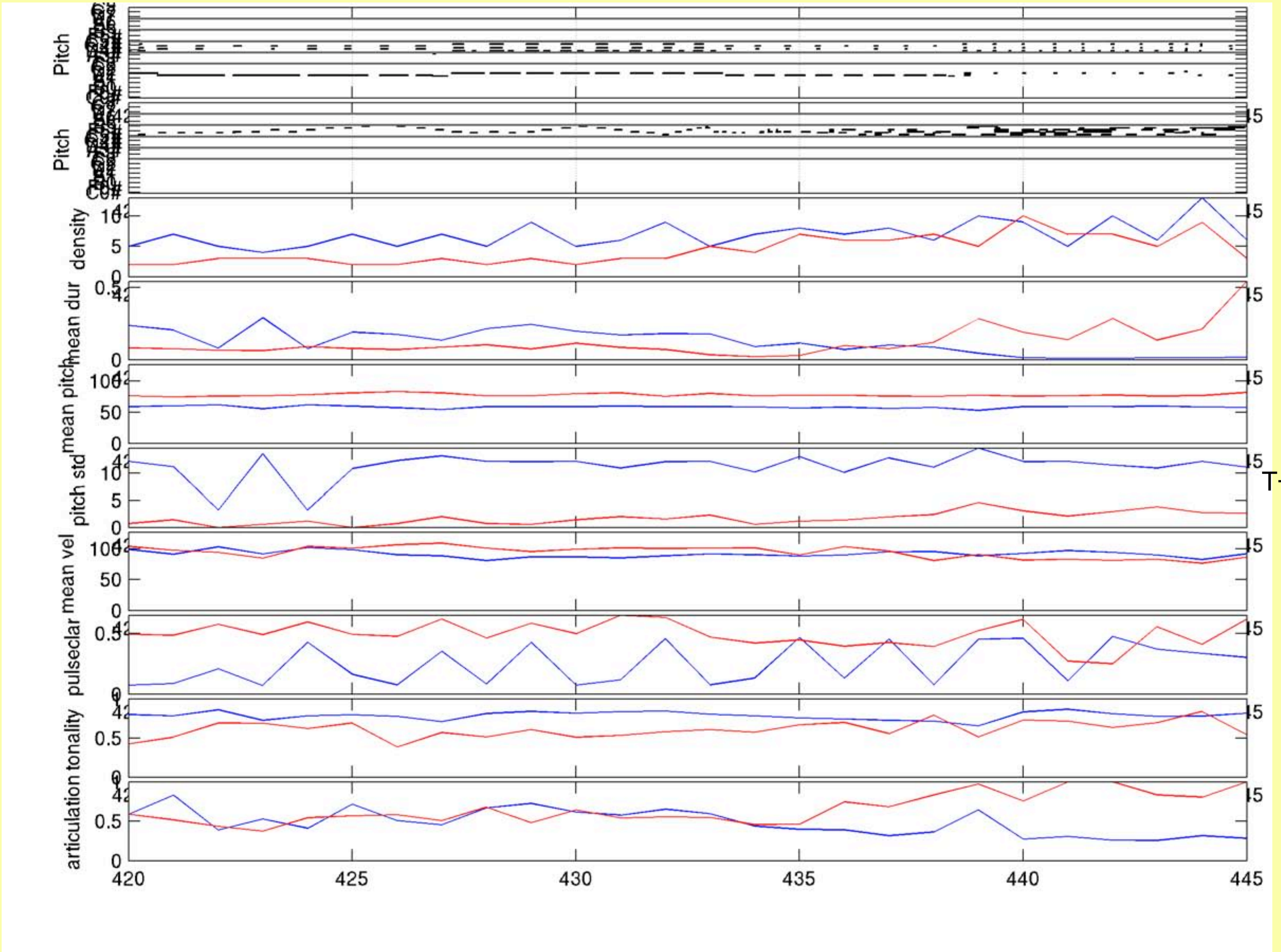

Therapist
Client
Pitch
Pitch
'piano roll' presentation
density
note density ≈ note onset per second
mean dur
mean durational accent of notes
mean pitch
mean pitch (MIDI note value)
pitch std
standard deviation of pitch values
mean vel
mean velocity ≈ 'volume'
pulseclar
pulse clarity
tonality
tonal clarity
articulation
0
100
200
300
400
500
600
700

MTTB
graphs


Therapist
Client
'piano roll' presentation
note density ≈ note onset per second
mean durational accent of notes
mean pitch (MIDI note value)
standard deviation of pitch values
mean velocity ≈ 'volume'
pulse clarity
tonal clarity
articulation index
Pitch
Pitch
density
mean dur
mean pitch
pitch std
mean vel
pulseclar
tonality
articulation
0
100
200
300
400
500
600
700

Case 1 ’melodic’	Case 2 ’rhythmic’
• F92.0 Behavioral dysfunction with depressive disorders; F70.1 Mild mental handicap • Therapist’s comments: problems with recognizing, naming, controlling and expressing emotions; capable to melodic expression and phrasing in some extent; musically very expressive/motivated; skills clearly above average within the institution’s client population	• F84.8 Wide developmental disorder with Asberger features; F71 Retardatio mentalis moderata; G40.2 Epilepsia • Therapist’s comments: somewhat social/interactive skills; not able to melodic expression, nor creating phrases; musical communication is based on rhythm and dynamic changes; impulsive; concrete; skills above average within the institution’s client population

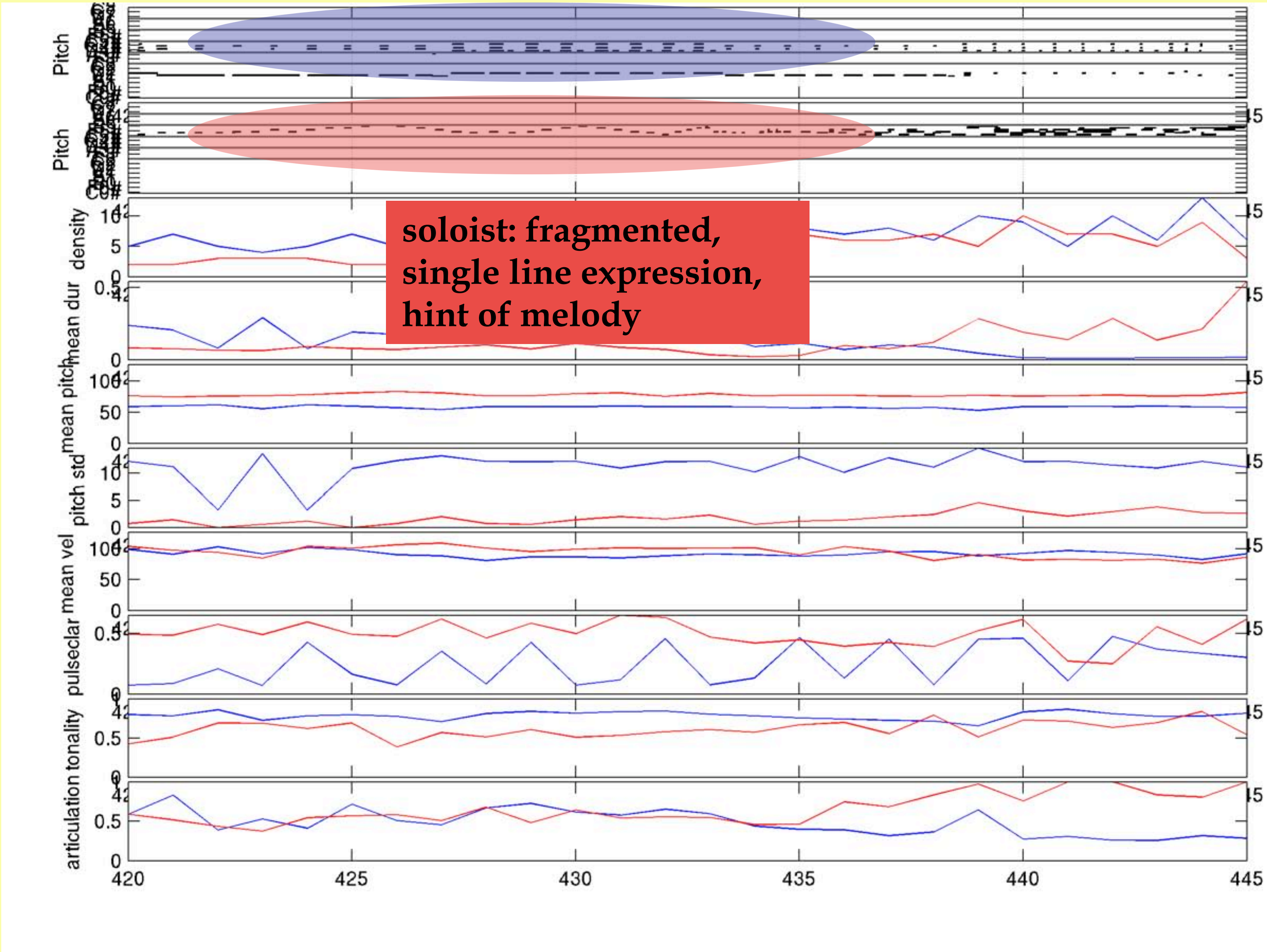
case 1	A	B
case 2	A	



T+C

case 1	A	B
case 2	A	

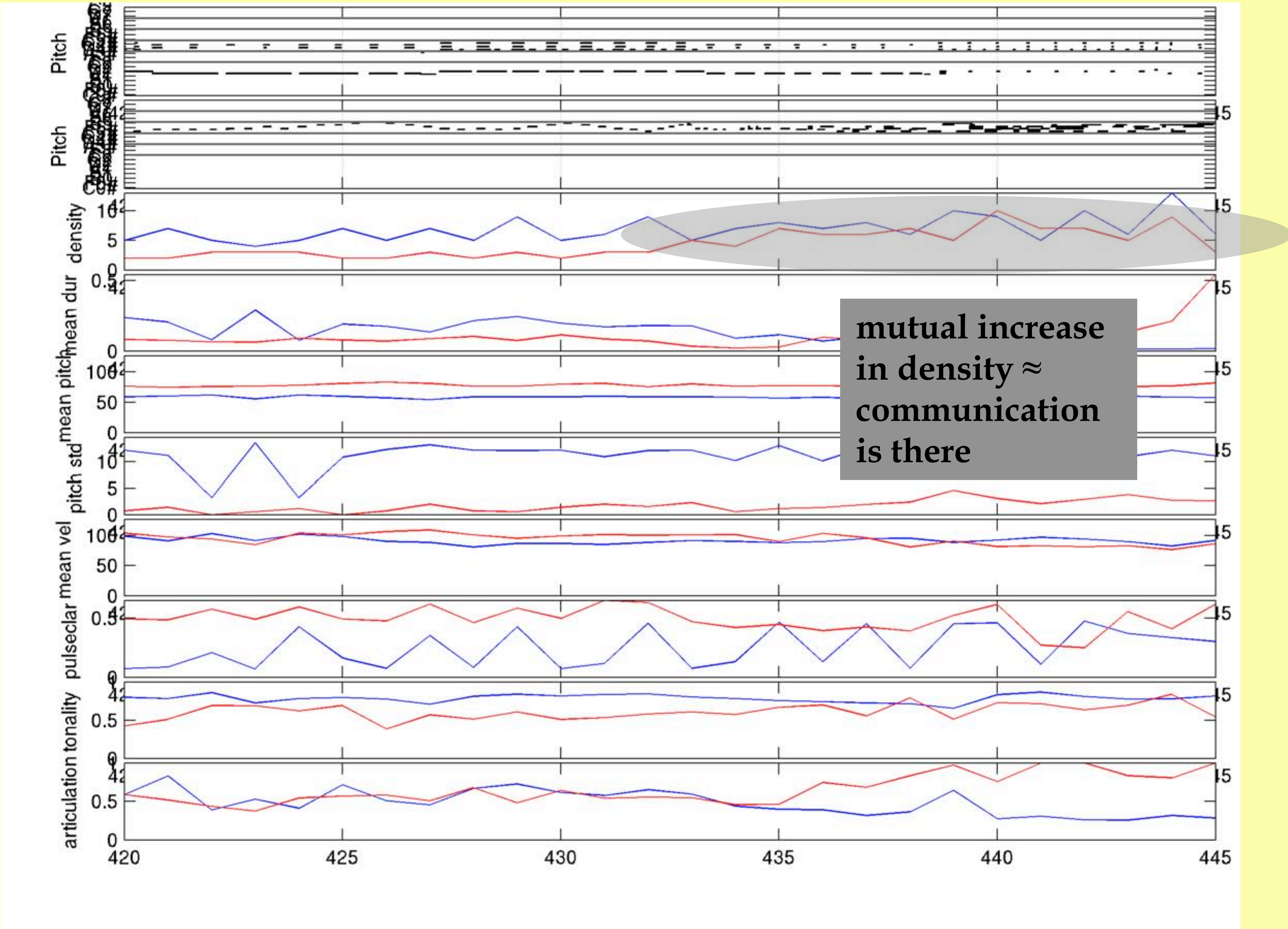
accompanist: bass line and chords



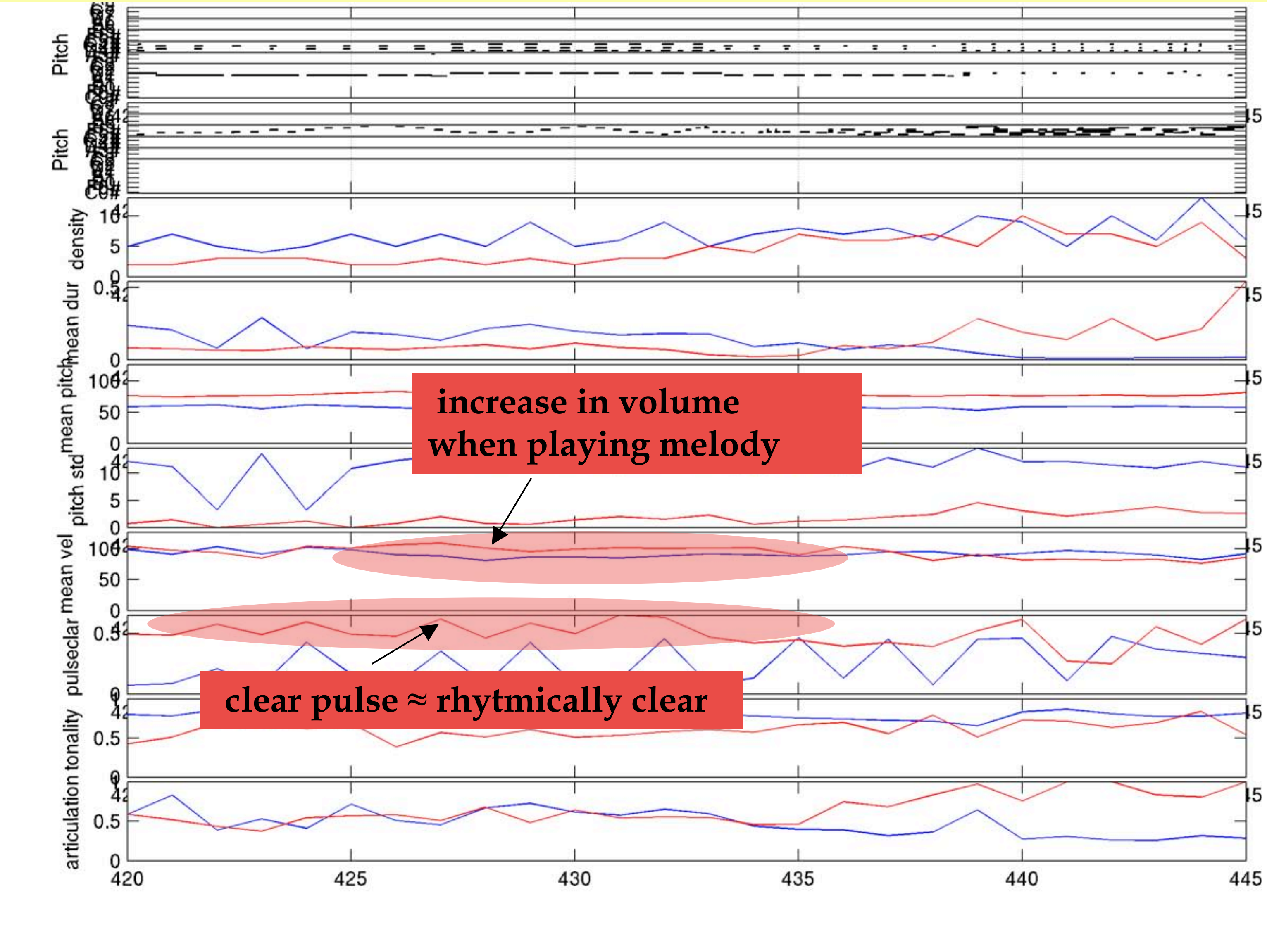
soloist: fragmented, single line expression, hint of melody

C

case 1	A	B
case 2	A	

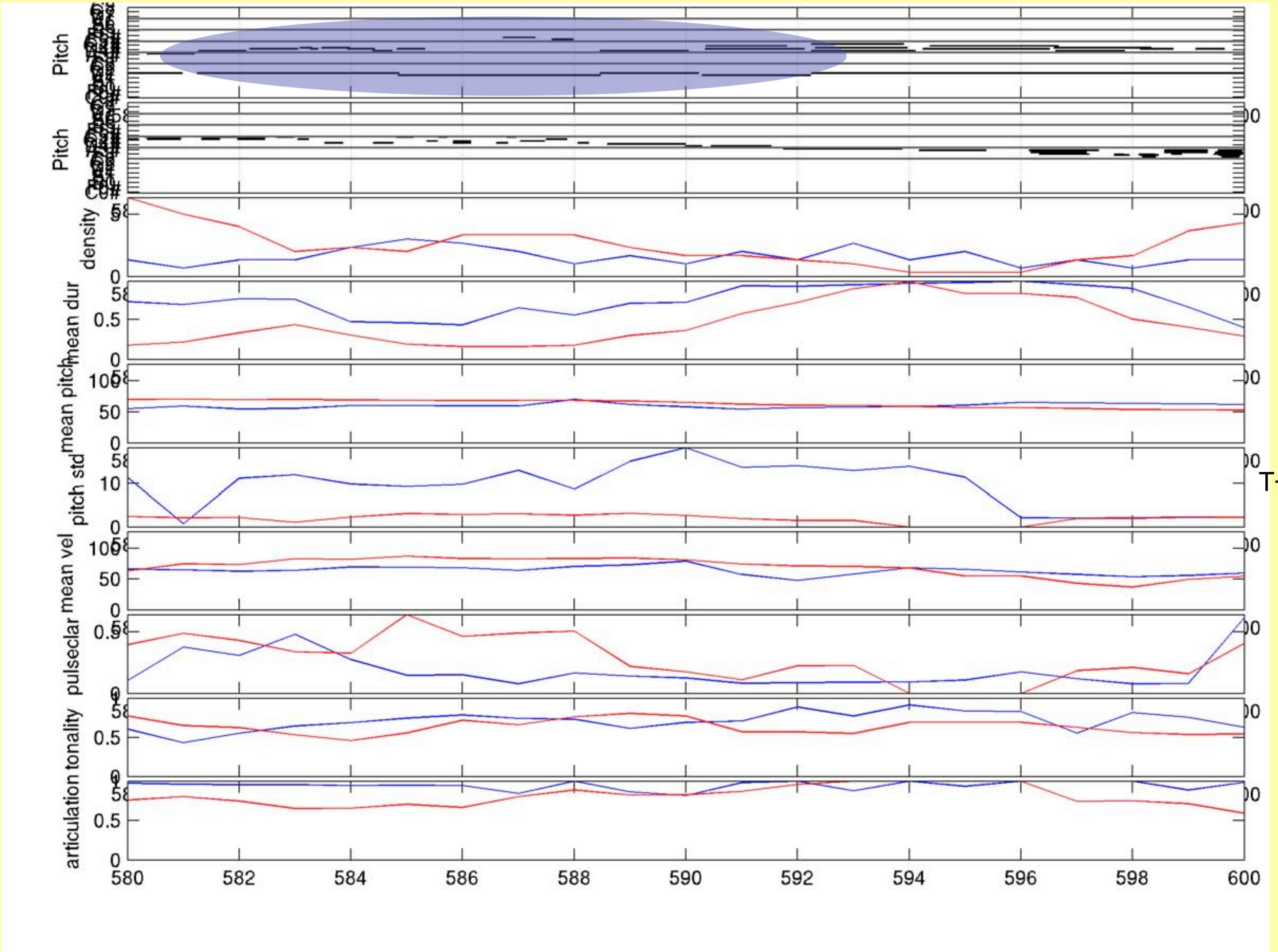


case 1	A	B
case 2	A	



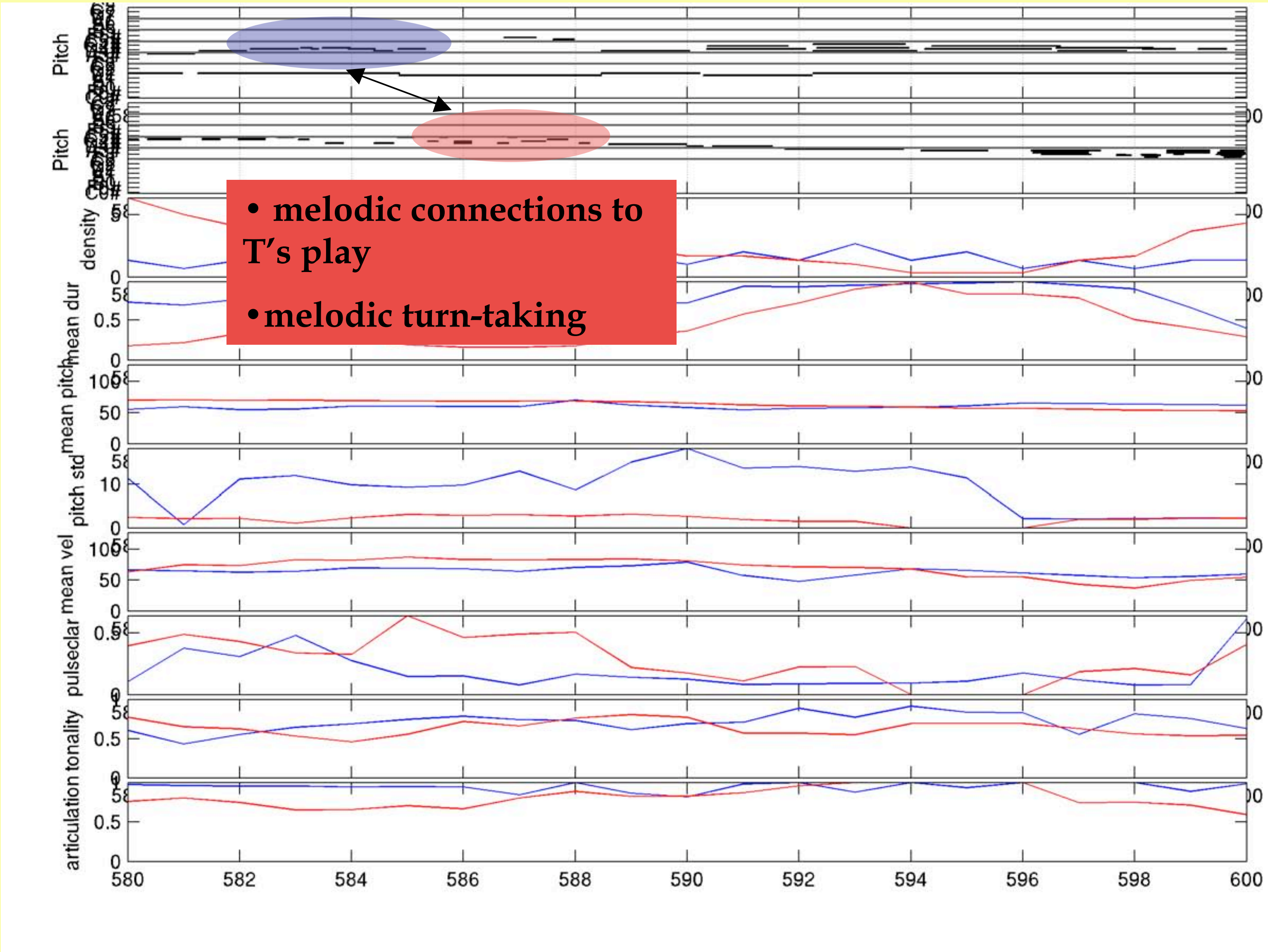
case 1	A	B
case 2	A	

more expressive/melodic role ≈ ”no need for holding”



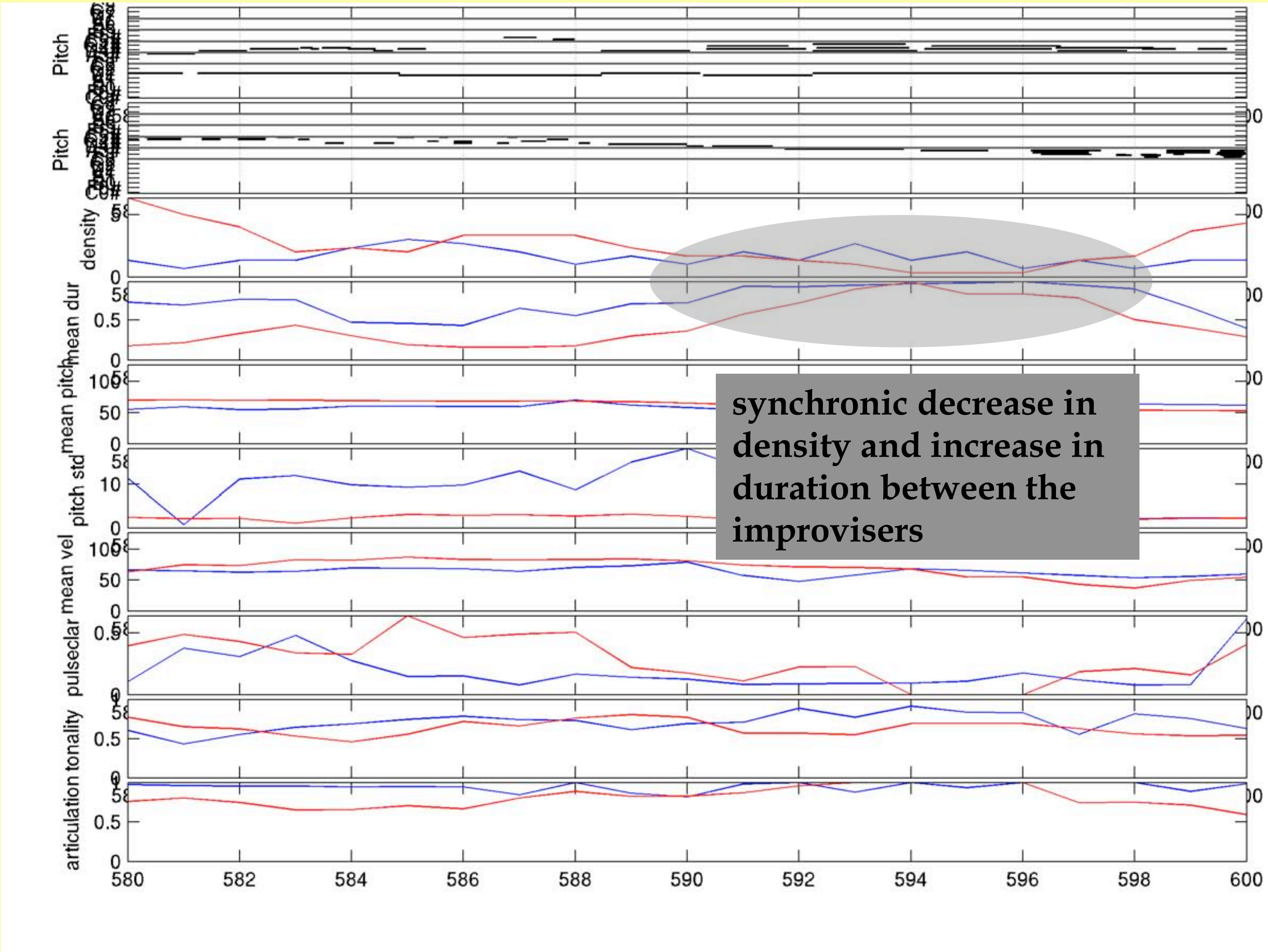
T+C

case 1	A	B
case 2	A	

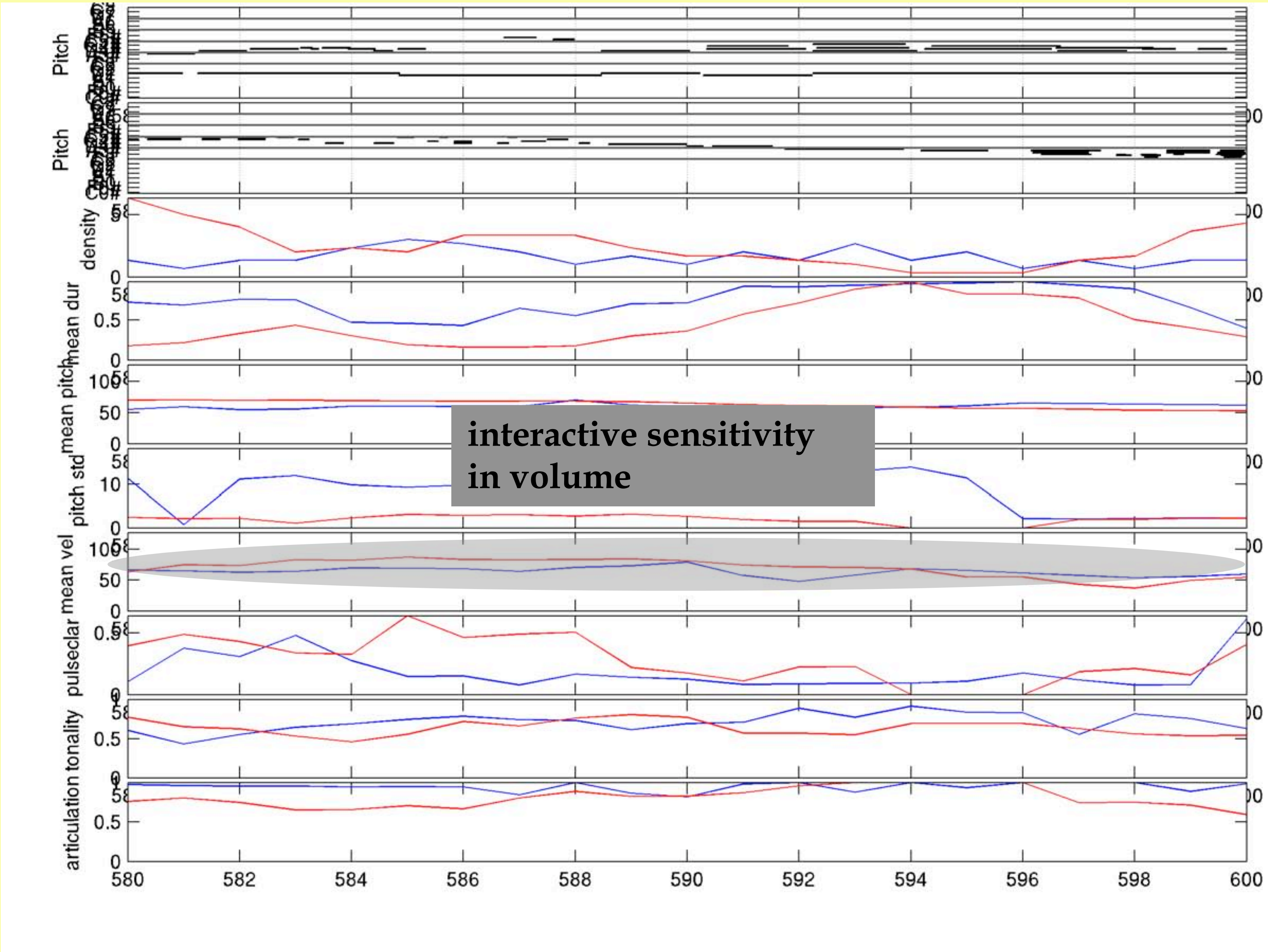


C

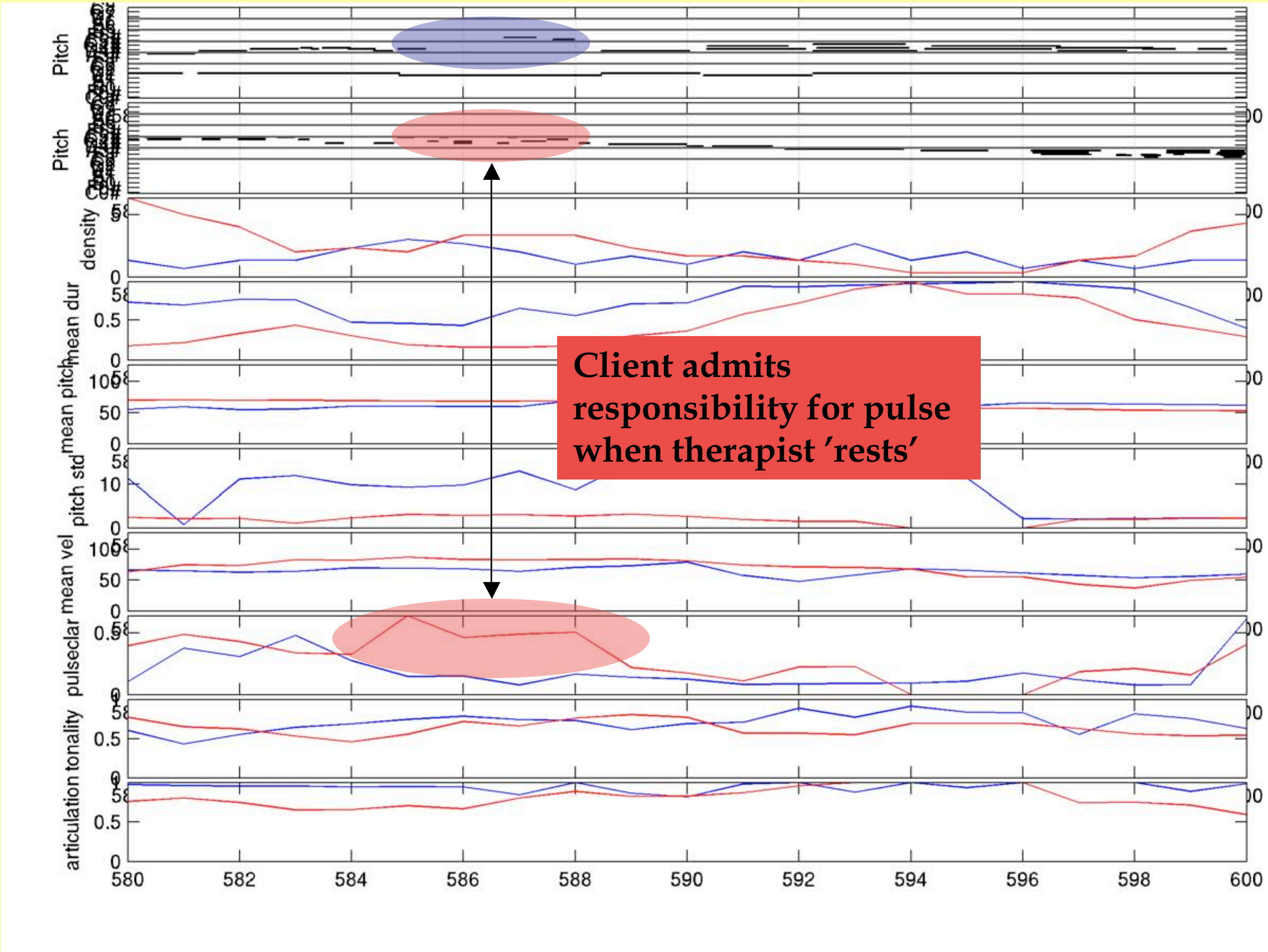
case 1	A	B
case 2	A	



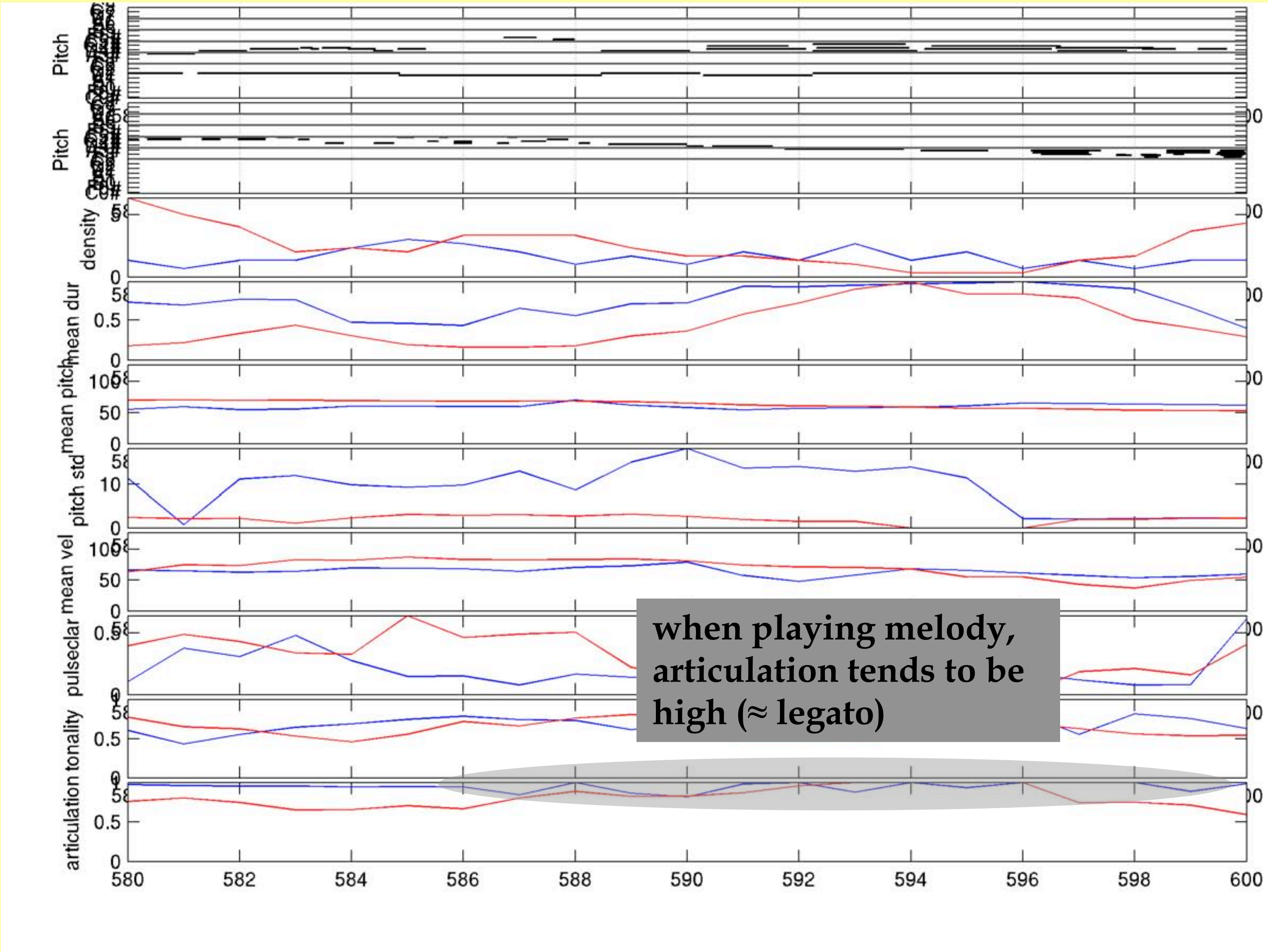
case 1	A	B
case 2	A	



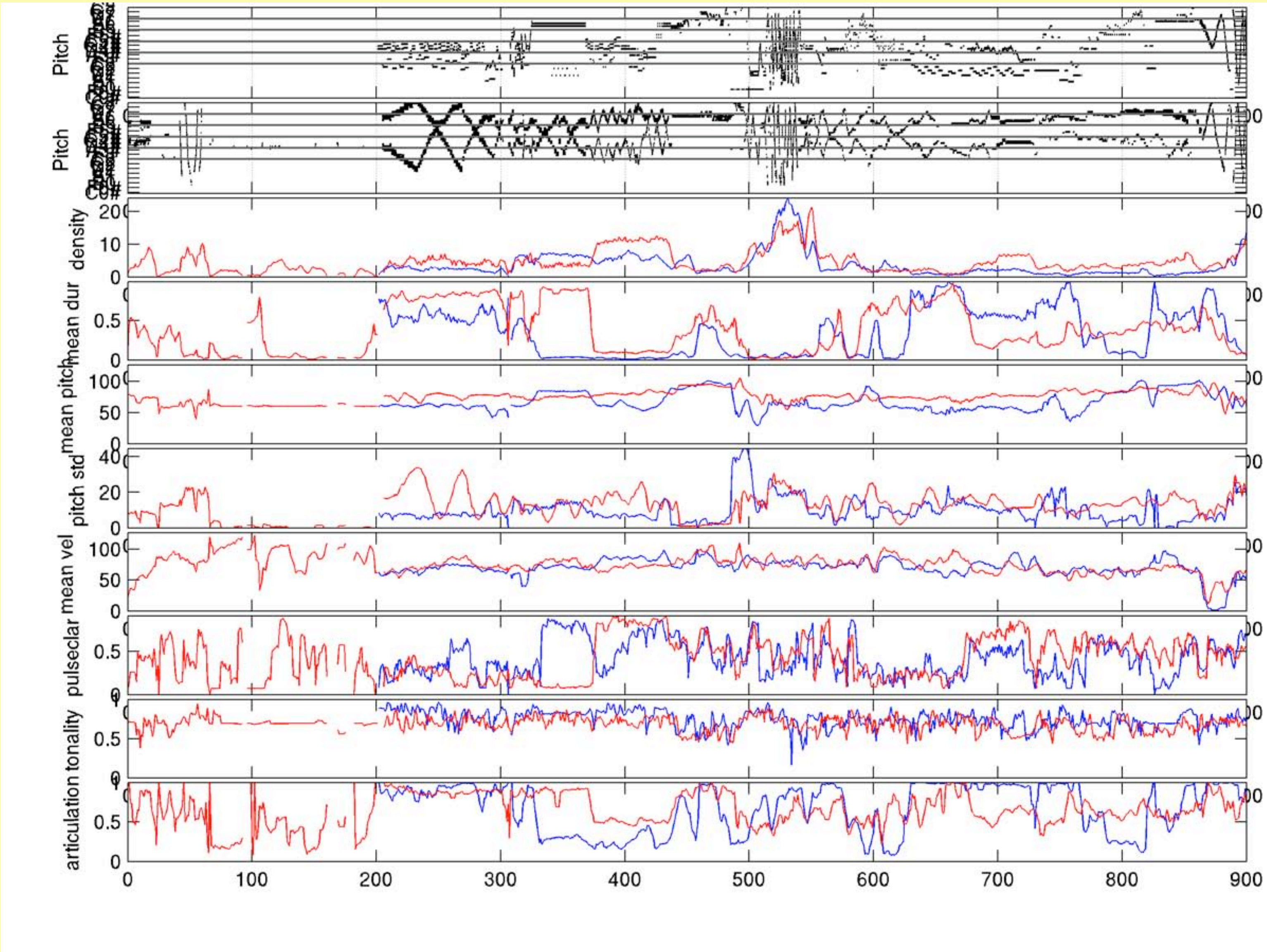
case 1	A	B
case 2	A	



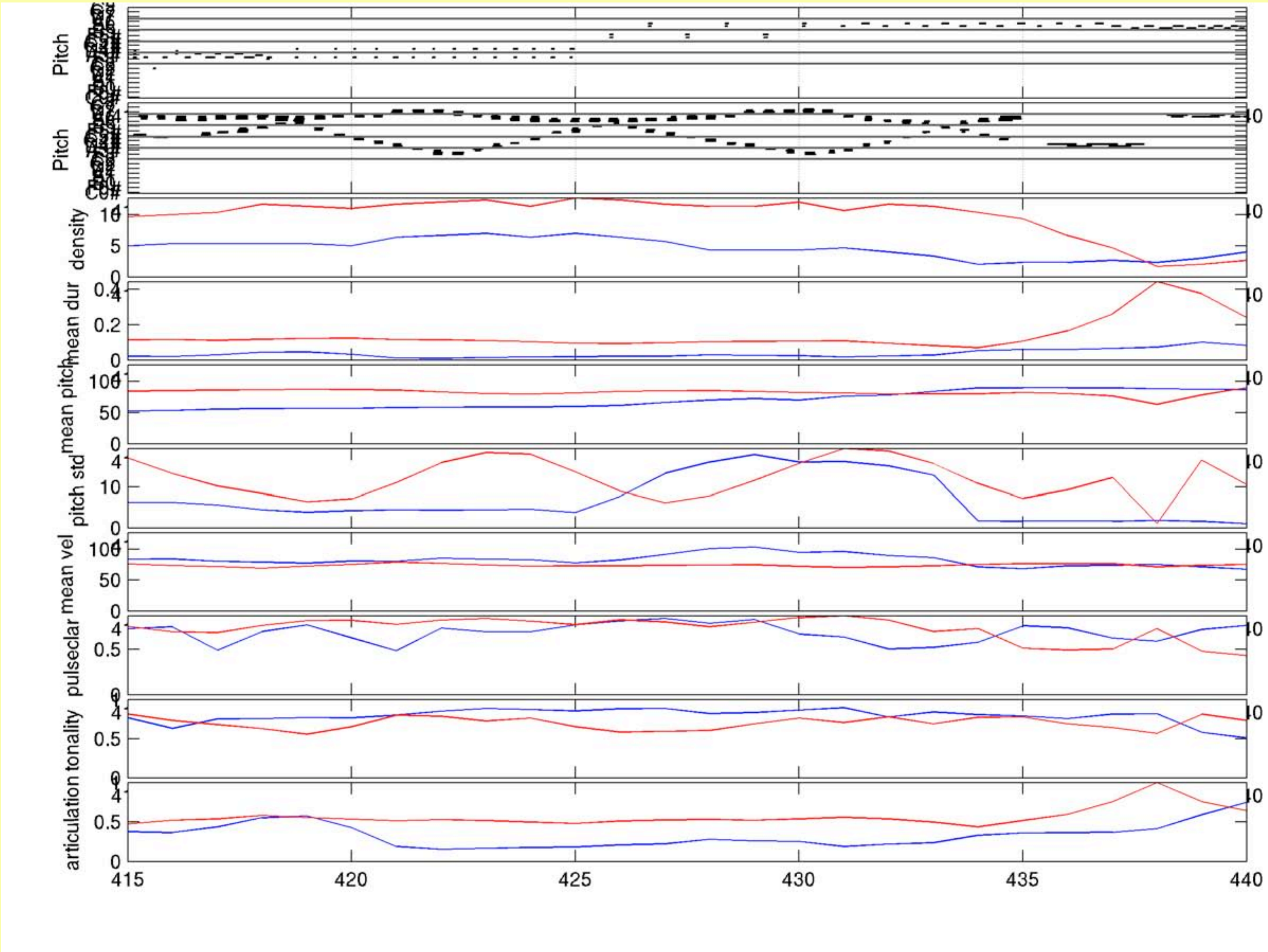
case 1	A	B
case 2	A	



case 1	A	B
case 2	A	



case 1	A	B
case 2	A	

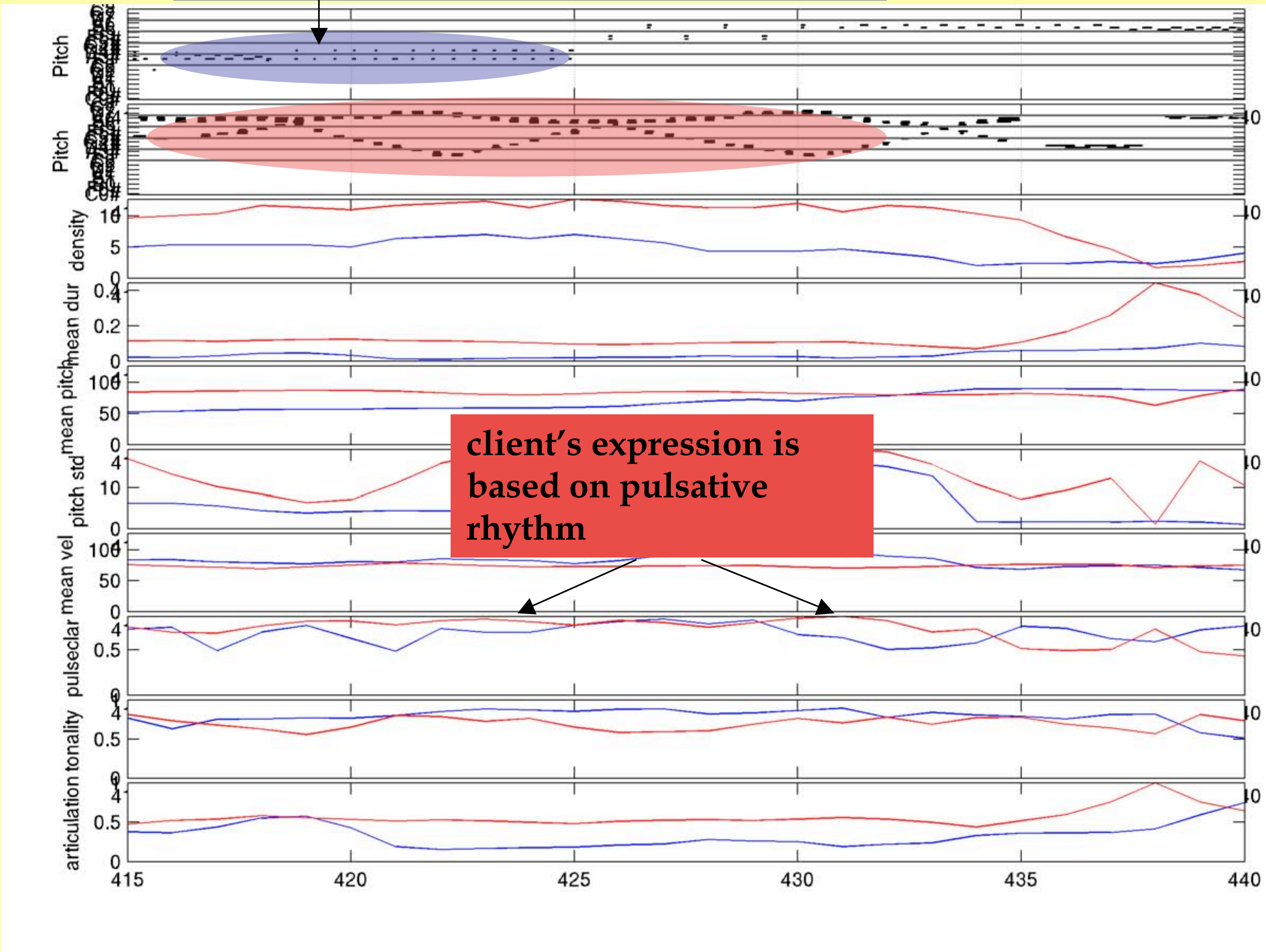


T+C

C

case 1	A	B
case 2	A	

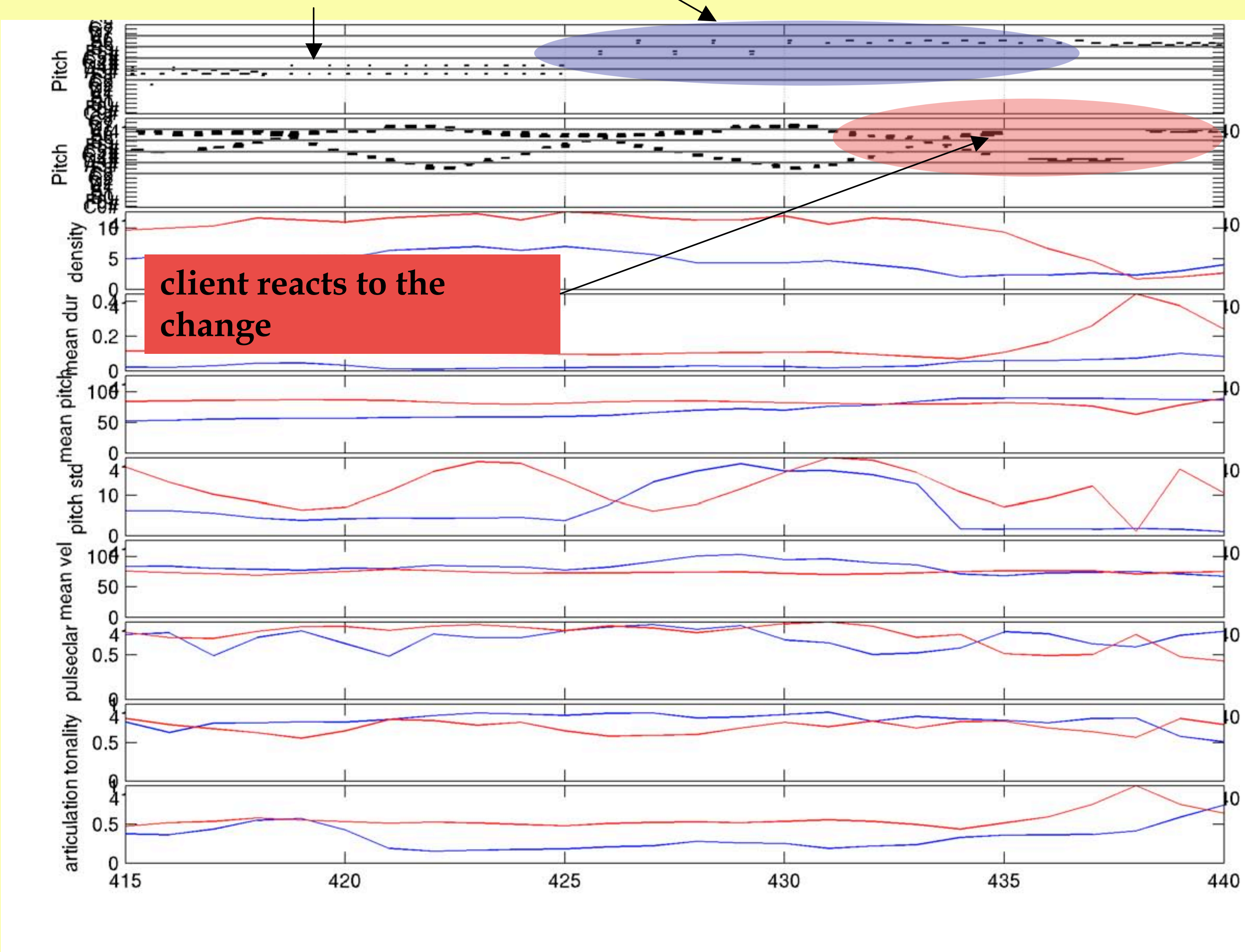
therapist supports the client's rhytmic way of playing



client's expression is based on pulsative rhythm

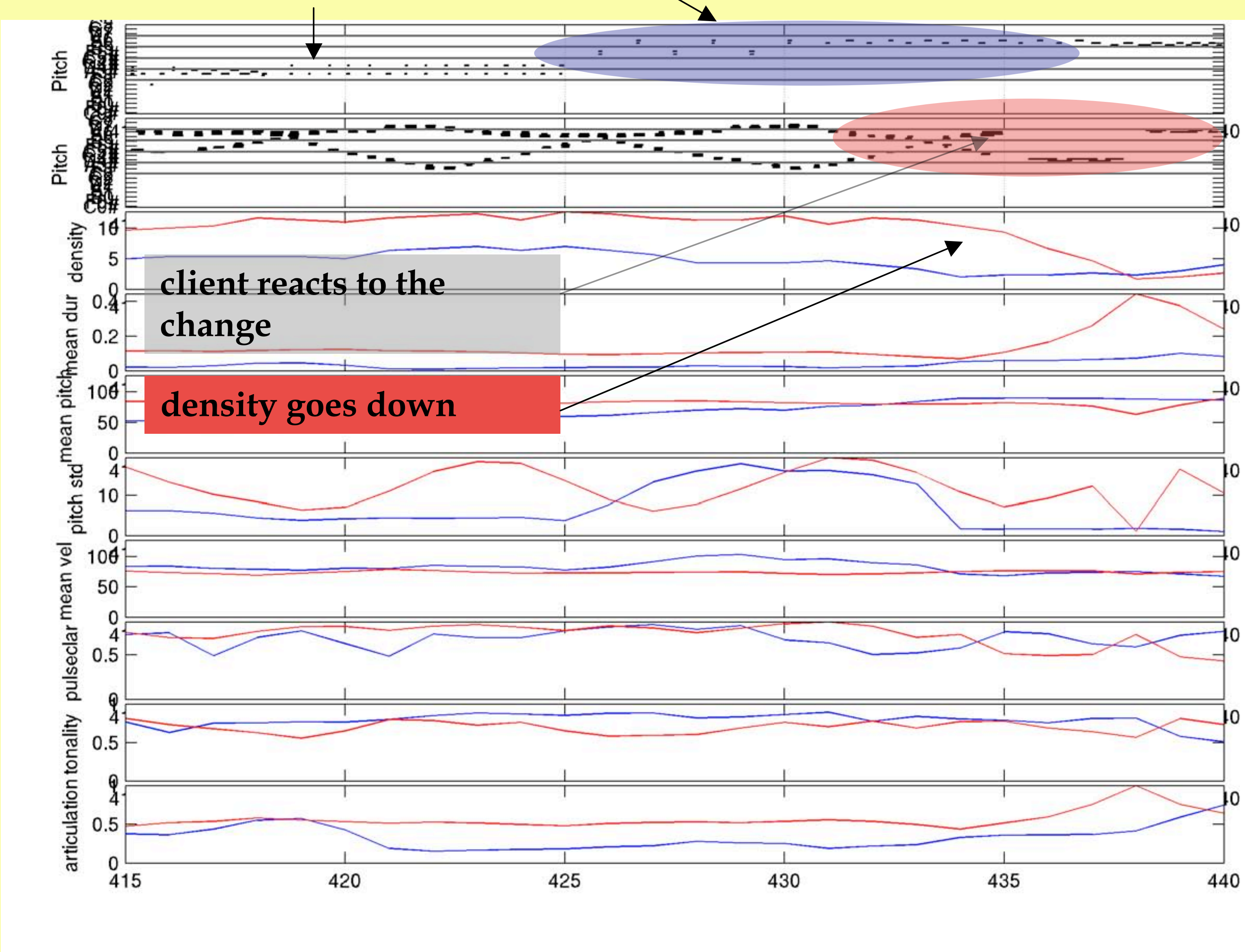
case 1	A	B
case 2	A	

Therapist introduces a change



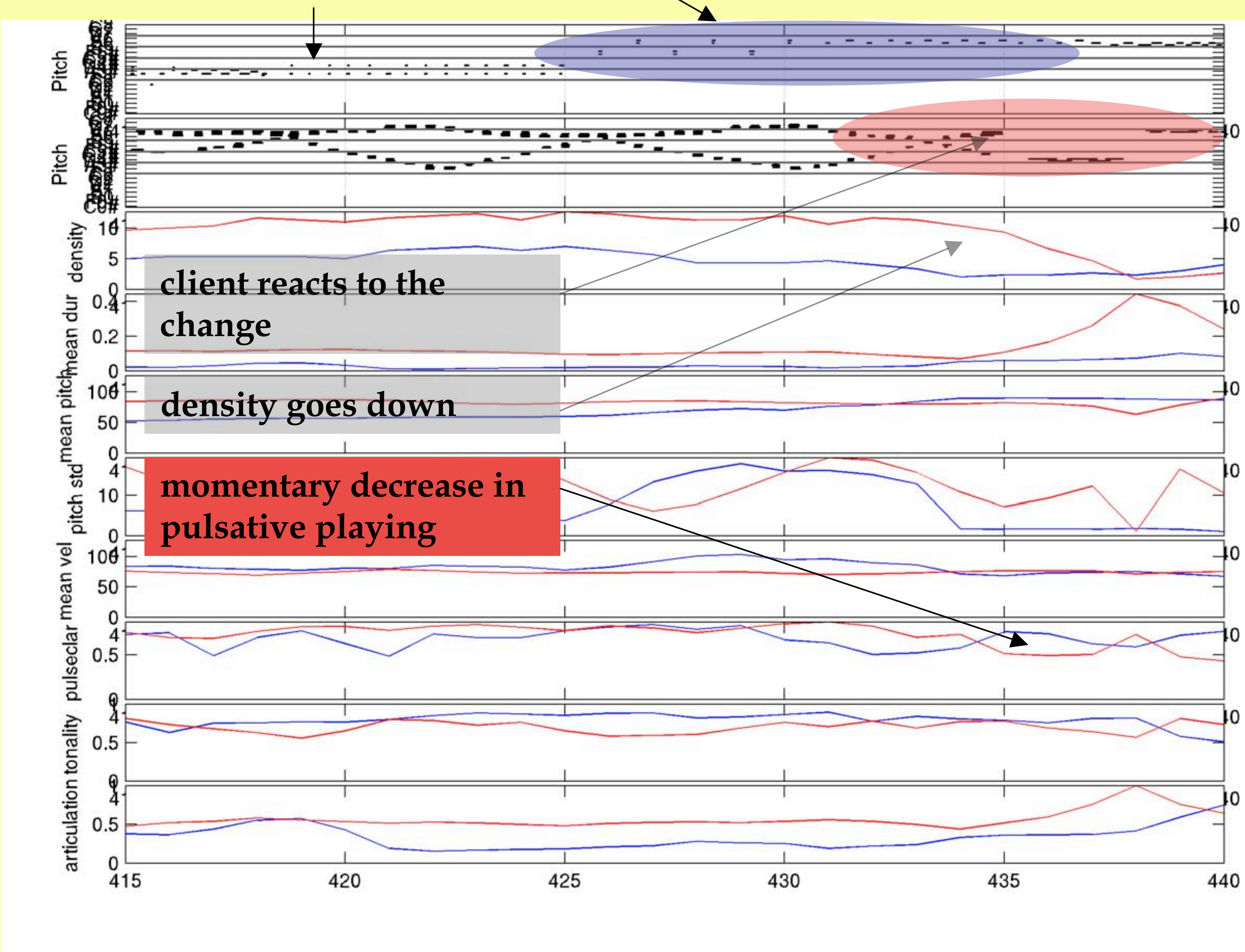
case 1	A	B
case 2	A	

Therapist introduces a change



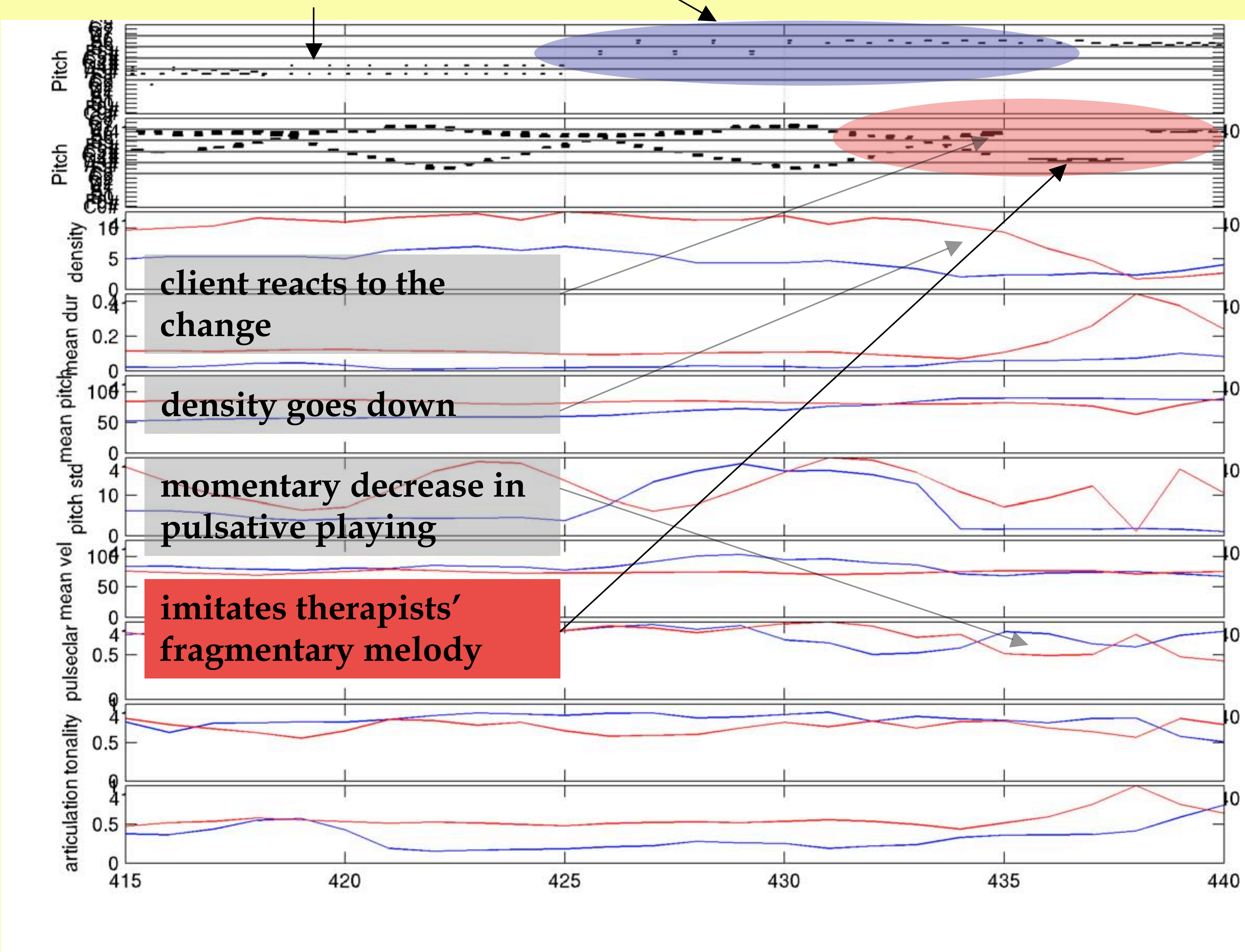
case 1	A	B
case 2	A	

Therapist introduces a change



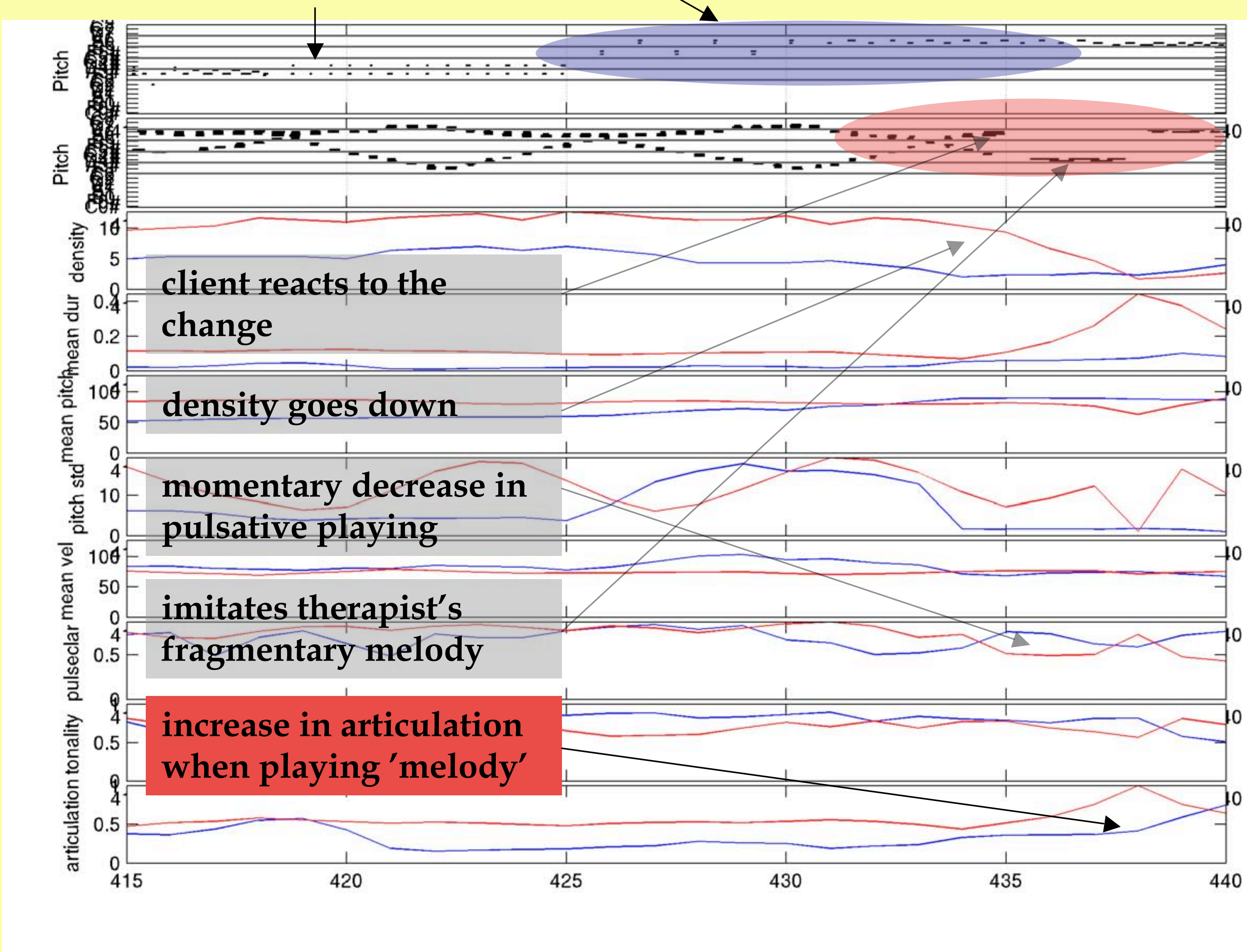
case 1	A	B
case 2	A	

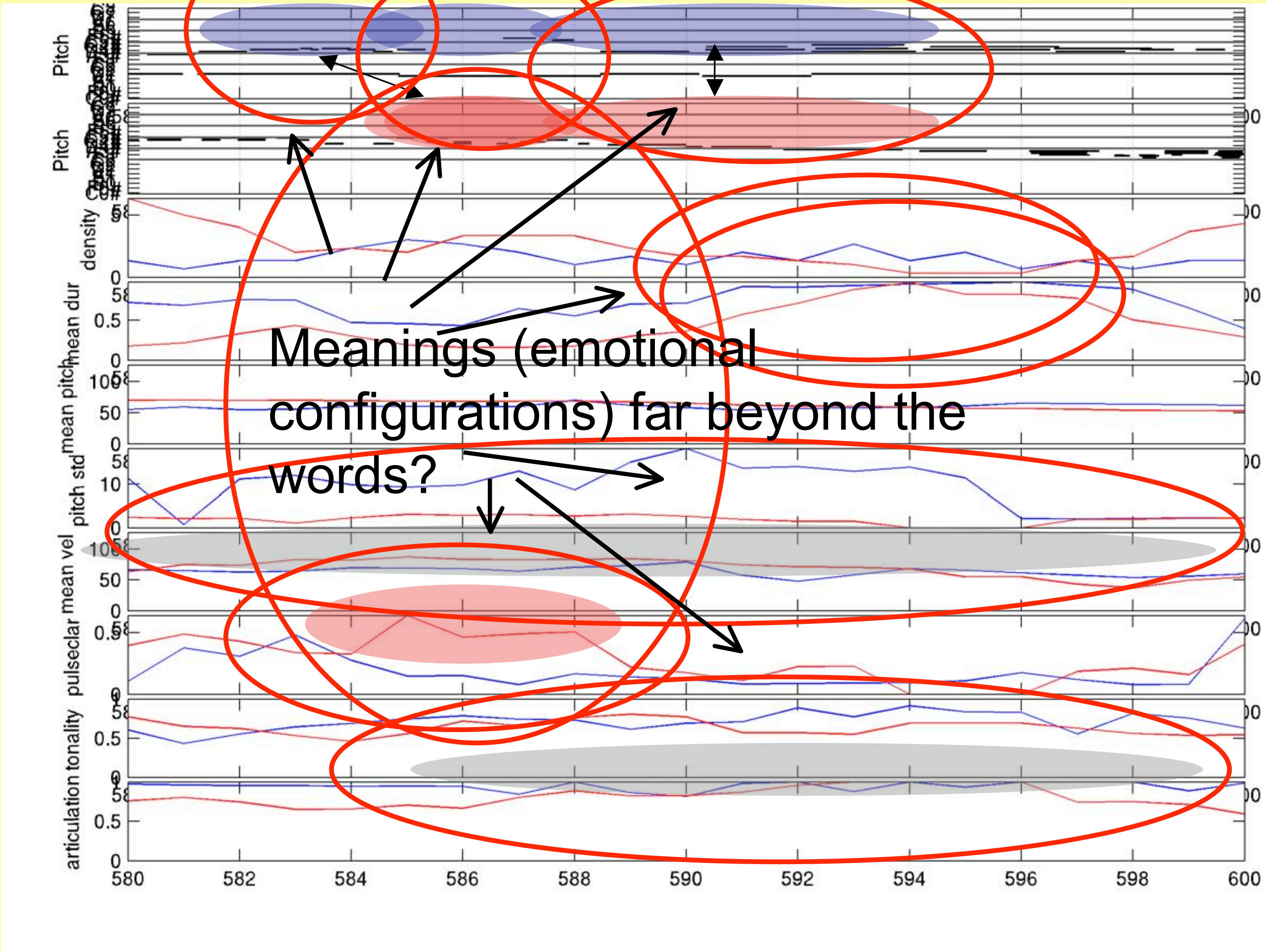
Therapist introduces a change



case 1	A	B
case 2	A	

Therapist introduces a change




Meanings (emotional configurations) far beyond the words?
Pitch
Pitch
density
mean dur
mean pitch
pitch std
mean vel
pulseclar
tonality
articulation
580
582
584
586
588
590
592
594
596
598
600

Conclusions

- Many pathologies and developmental deviations have their counterparts in musical expression
  - although there is a lot of work left…
- Meaningful musical expression is not dependent on the symbolic capability of the client
- Modern technology and modern music research have brought new possibilities for the analysis of clinical improvisations
- Collaboration between the fields of developmental psychology of music and music therapy should be deepened
  - there is a clear need for comparative research (normal vs. pathological) by using appropriate and standardized enough methods

Musical Development and the Human Brain – Current Perspectives

Dr. Minna Huotilainen

Helsinki Collegium for Advanced Studies

University of Helsinki

Contents

- What types of brain research methods are available for a music researcher?
- Which types of processes in the brain are interesting from the point of view of music research?
- Brain research results related to music (adults)
- Brain development
- Brain research results in the developing brain

Methods


PET


EEG & ERP

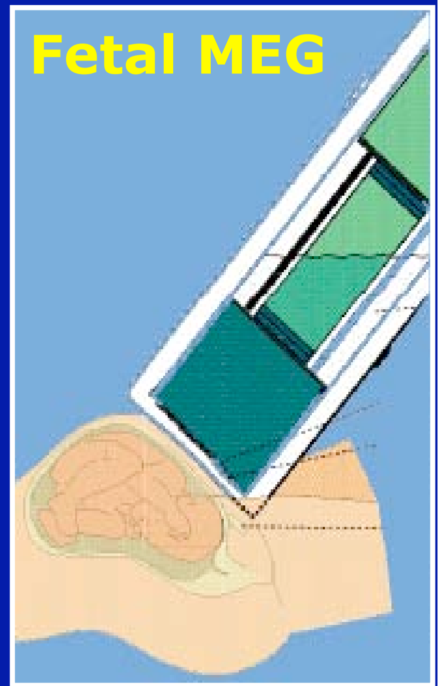

Optical imaging


NBS


fMRI

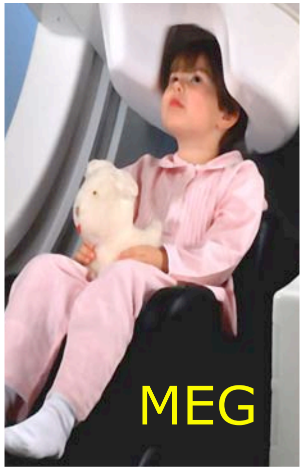

Infant MEG


MEG


Fetal MEG

Methods: ERP

- Electroencephalography EEG
- Event-related potetials ERPs
- No time delay, no overlap in time
- Direct access to neuronal activity
- Best question: ”How does this brain *process* change when I change the sounds or the task?”



Methods: MEG

- Magnetoencephalography MEG
- Magnetic counterparts of EEG and ERP
- No time delay, no overlap in time, source models, separation of hemispheres
- Best questions: ”How does this brain *process* change when I change the sounds or the task?” ”Do these two *processes* share the same generators?”

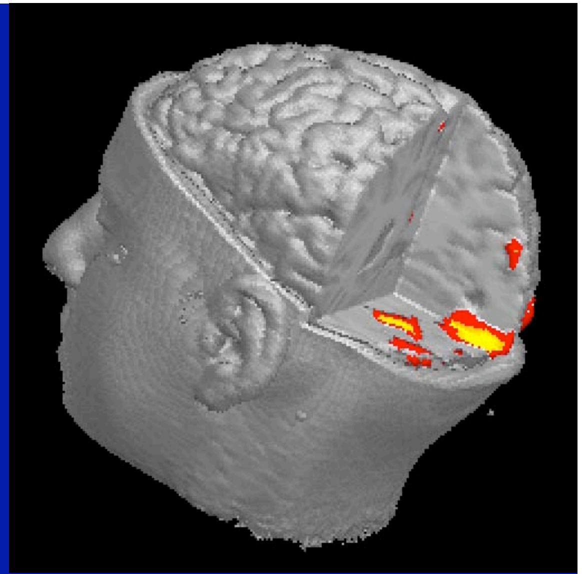
Methods: MEG

- Infants can be recorded in MEG while they sleep
- ERP and MEG can be performed together
- One hemisphere at a time
- Best questions: ”Is the infant brain mature enough to share the same *processes* as the adult brain with these sounds / this task?”

Methods: MEG

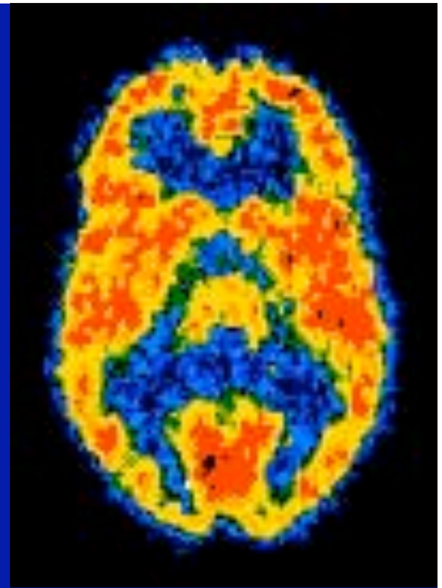
- From the fetus, ERP is impossible
- MEG is possible because the tissues are invisible to the magnetic field
- Completely non-invasive
- Practically possible only when the fetal head is still (after week 28 – 32)
- Best questions: ”Can we see this *process* in the fetus at this age?” ”How robust is it?”

Methods: fMRI

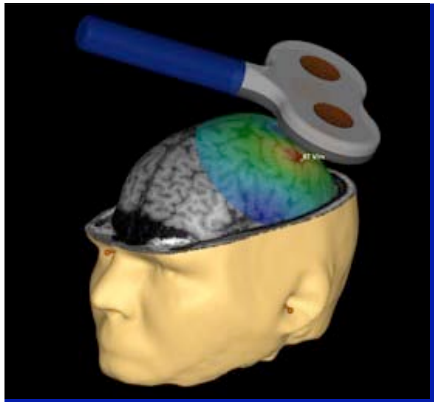


- fMRI = functional magnetic resonance imaging
- Picture of change of brain blood flow or oxygen between two steady conditions
- Difficult to relate to brain processes
- Best question: ”Which brain *areas* are involved in this task?” ”Which *areas* change their amount of activity when I change the sounds or the task?”

Methods: PET



- PET = positron emission tomography
- Picture of change of brain blood flow, oxygen, or molecule between two steady conditions
- Difficult to relate to brain processes
- Best question: ”Which brain *areas* are involved in this task?” ”Which *areas* change their amount of activity when I change the sounds or the task?”



Methods: NBS

- NBS = Navigated Brain Stimulation
- By stimulating = activating the brain
  - connectivity: ”Which brain areas are connected to which other brain areas?”
  - responsiveness: ”How responsive are certain brain areas in certain tasks?”
  - function: ”Is this brain area important in this function?”
- Not usually applied in children

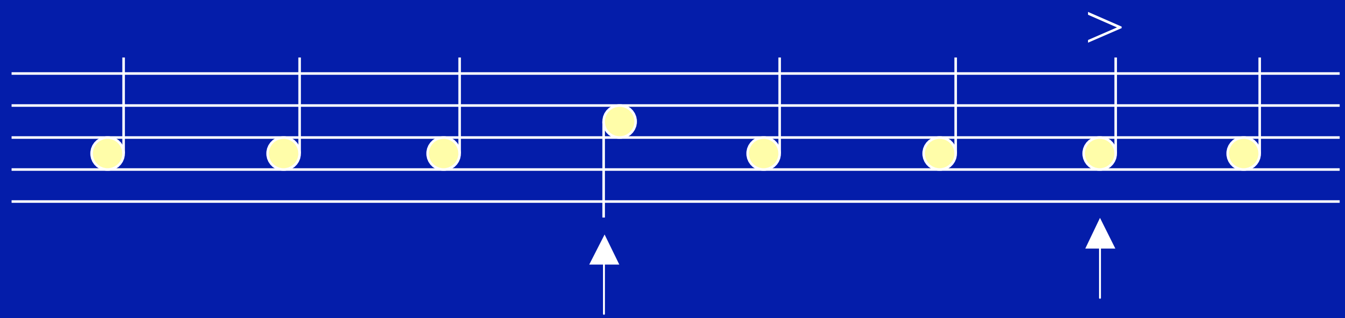
Processes

onset	offset	orienting
target	comparison	memory-trace
semantic	melodic	errort

Processes

onset P50, N1	offset N1	orienting N1, Nd, PN, P3a
target PN, P300	comparison MMN	memory-trace MMN
semantic PMN, N400	melodic P600	error RON

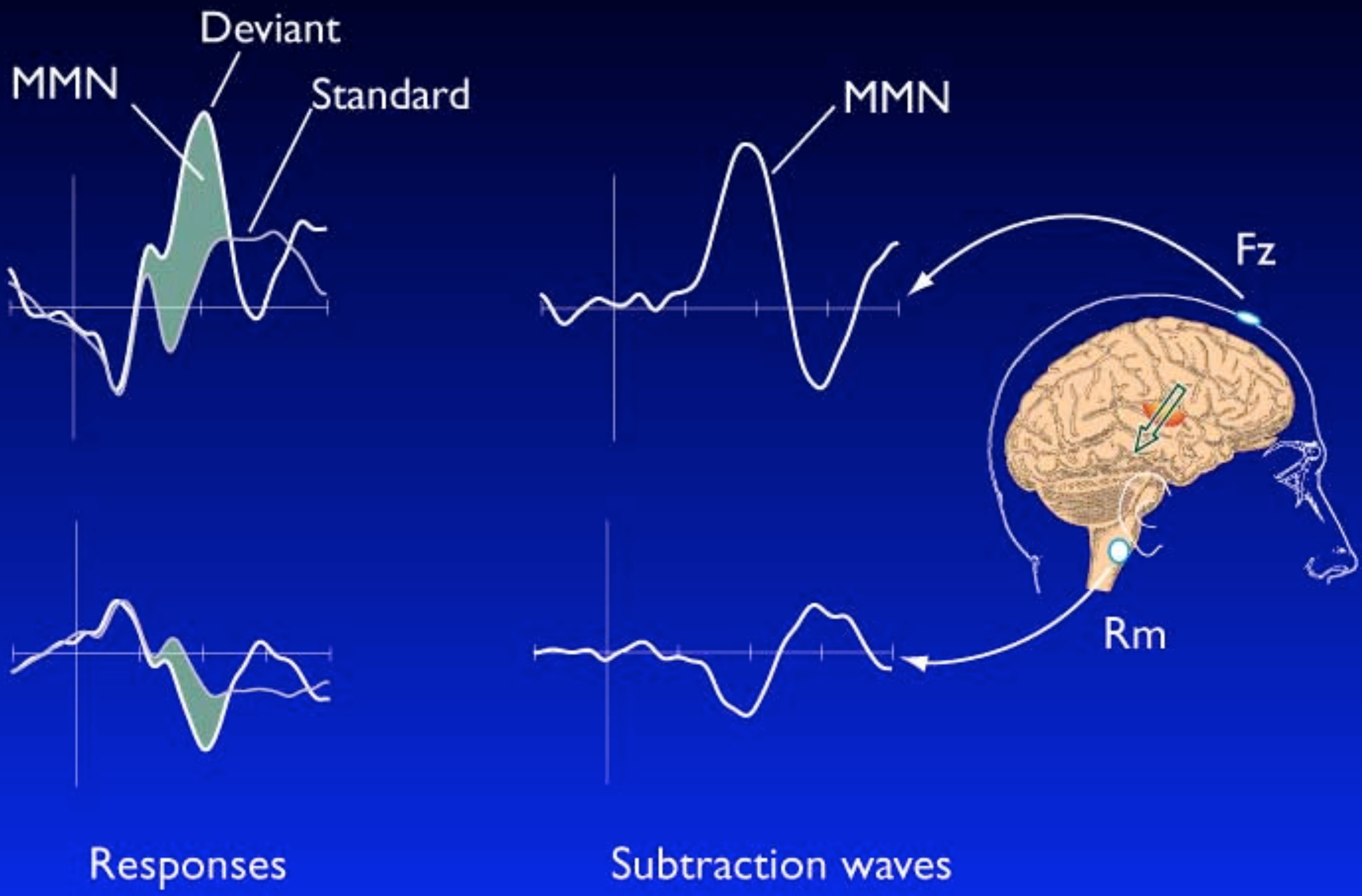
Processes: MMN



- Memory trace is formed automatically
- Comparison between incoming sound and memory trace
- If difference is detectable, MMN is elicited
- Also long-term traces facilitate detection

Näätänen et al. 1978, 2000, 2002

The Mismatch Negativity (MMN)



Teija Kujala, Ph.D. / CBRU

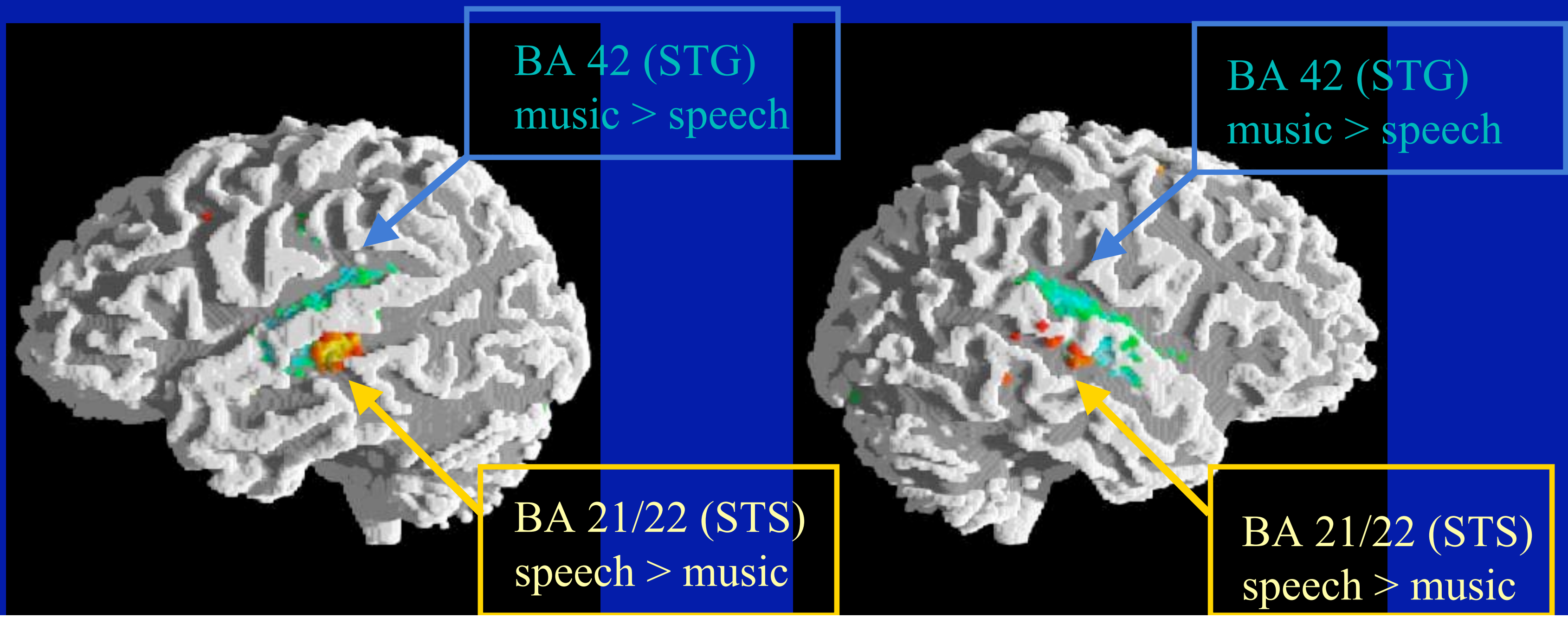
Results: Music-specific areas

- PET
- C-major vs c-minor: activity in the right hemisphere
- /o/ vs /e/: activity in the left hemisphere

Tervaniemi et al.

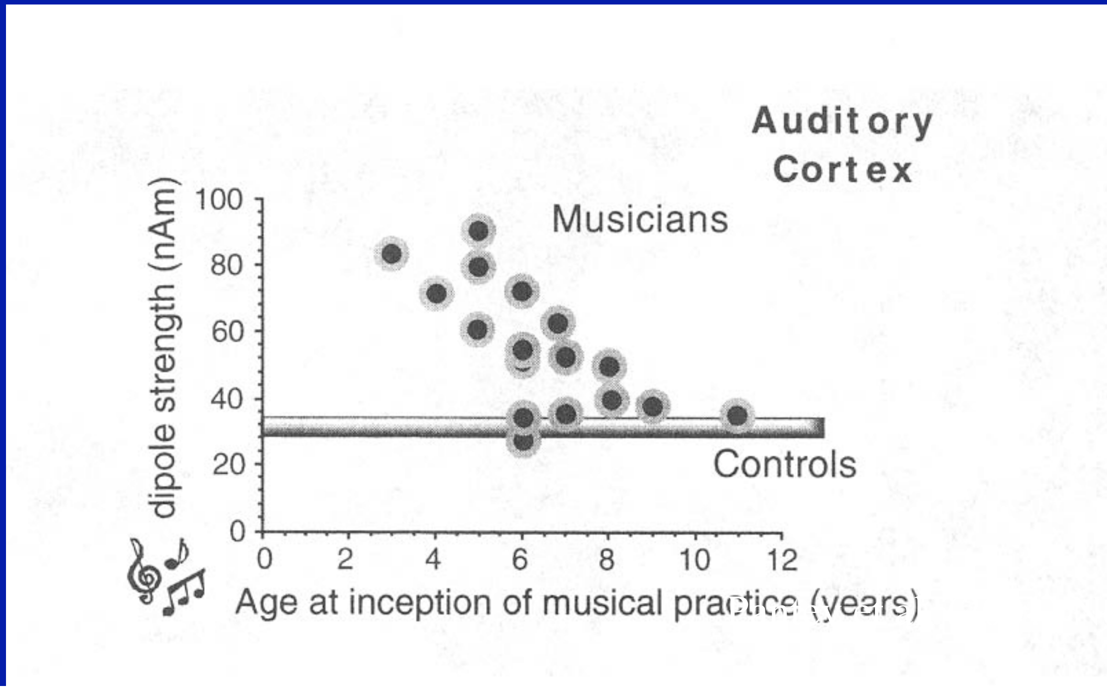
Results: Music-specific areas

- fMRI
- both hemispheres show ”music” and ”speech” areas
- more music areas on the left



Results: Onset of musical sound

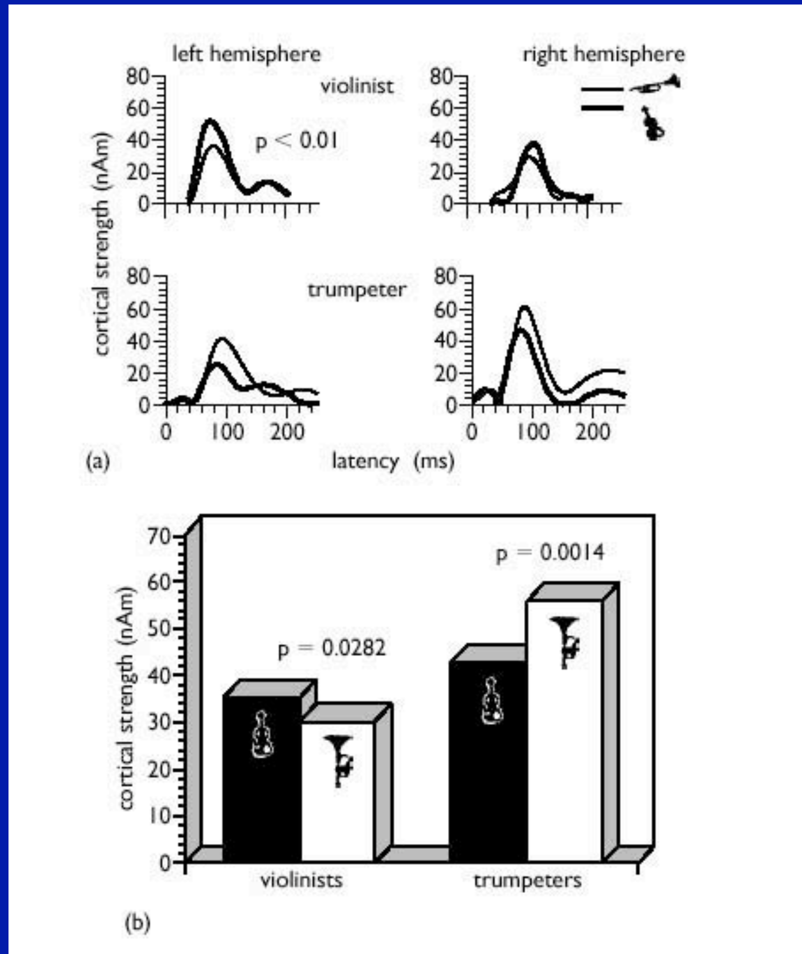
- MEG
- Musicians have stronger responses to onsets of musical sounds
- More so, if they started early



euroReport, 12, 169-174

Results: Onset of musical sound

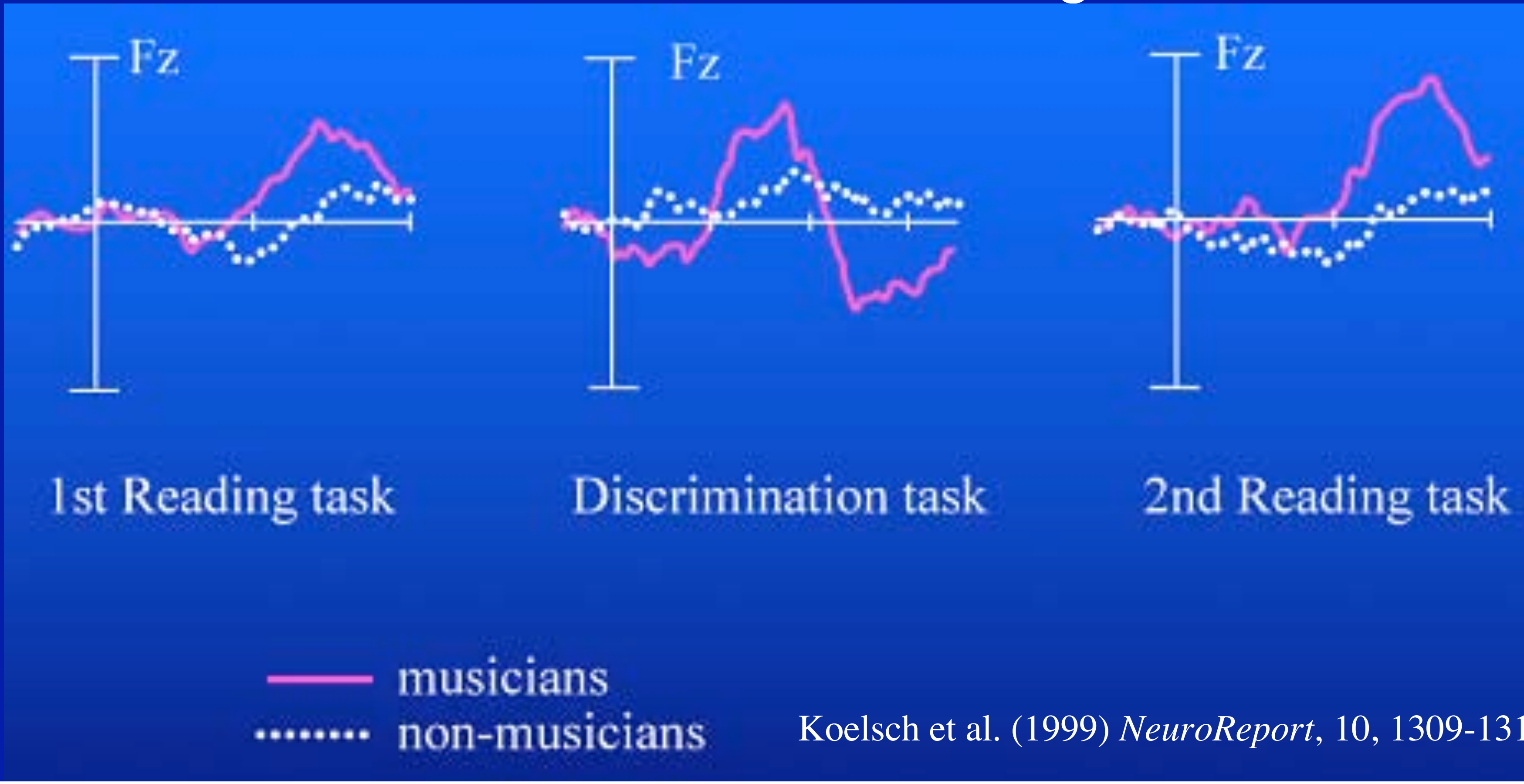
- MEG
- Musicians have stronger responses to onsets of their own instrument's sound



Pantev et al. (2001) NeuroReport, 12, 169-174

Results: Comparison process

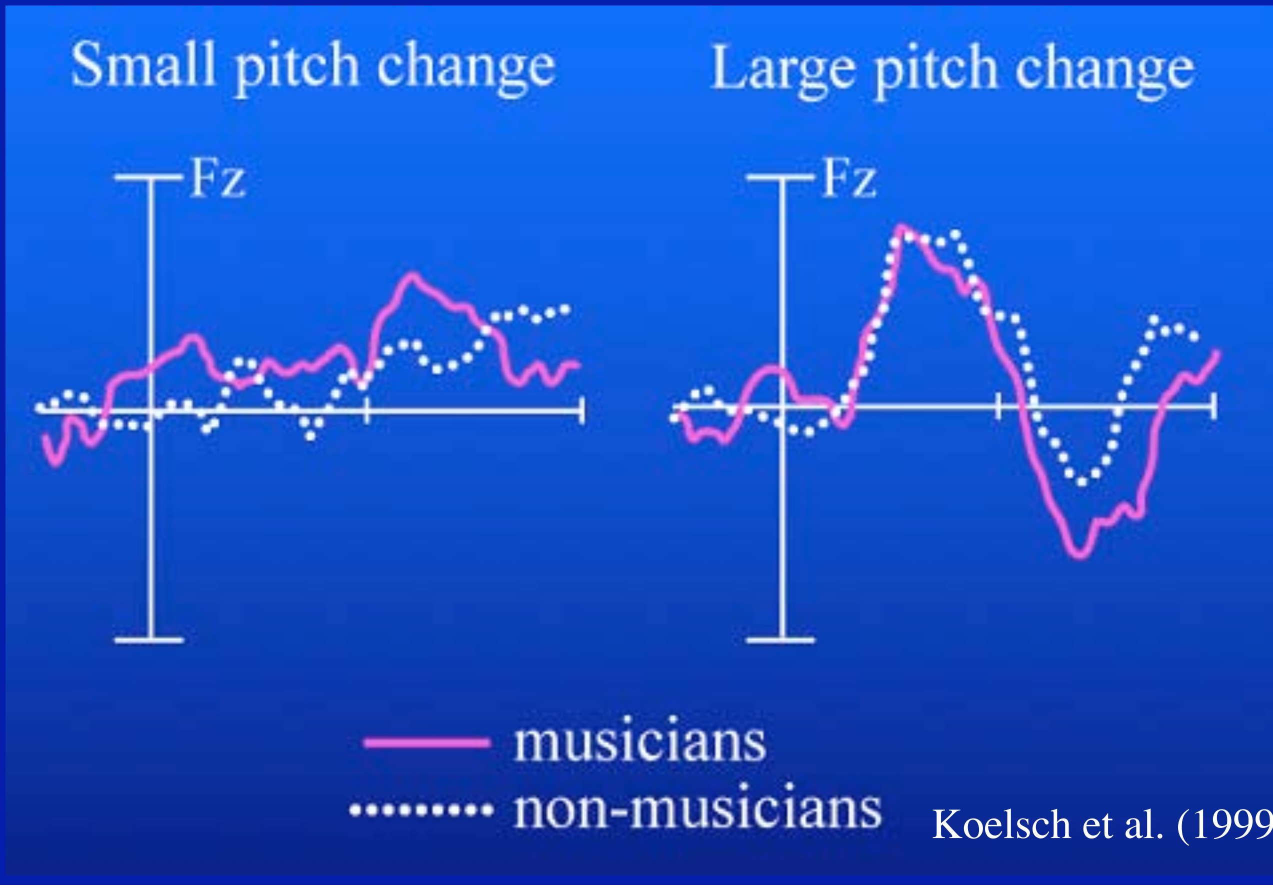
- ERP: G-major chords, sometimes mistuned
- Musician's brain detects small changes automatically



Koelsch et al. (1999) *NeuroReport*, 10, 1309-1313

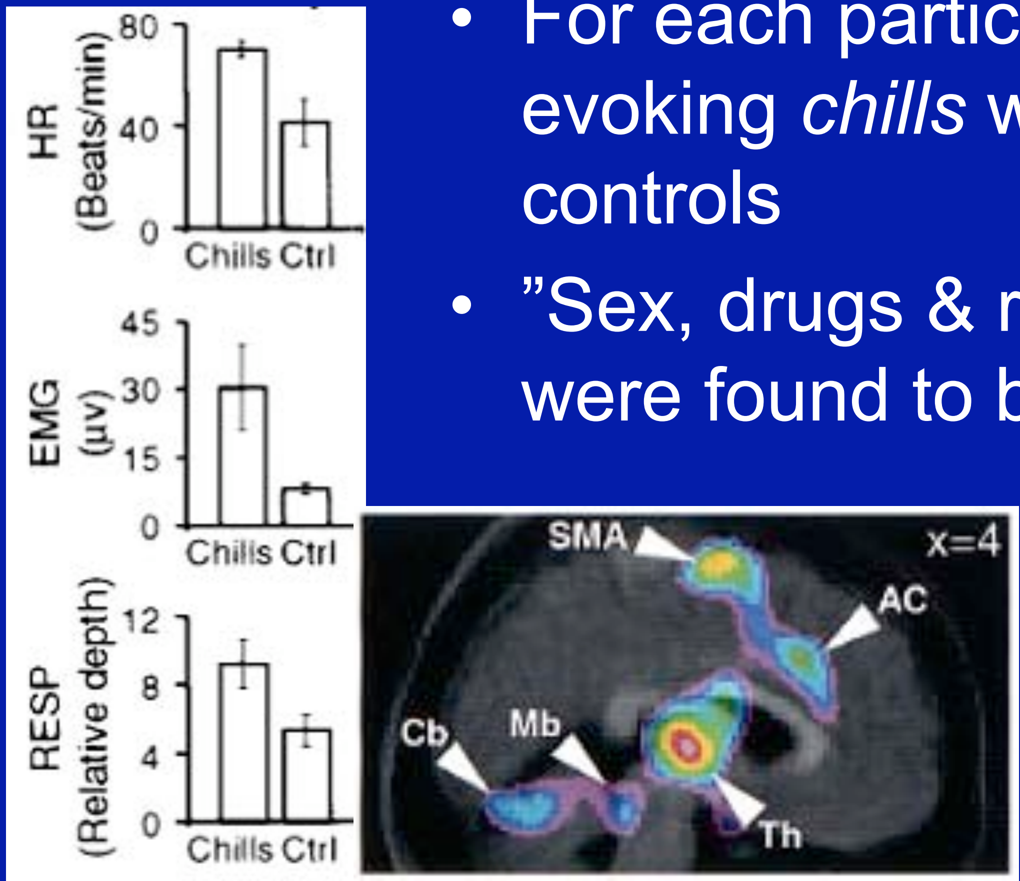
Results: Comparison process

- ERP: G-major chords, sometimes mistuned
- Musician's brain detects smaller changes



Koelsch et al. (1999) *NeuroReport*, 10, 1309-1313

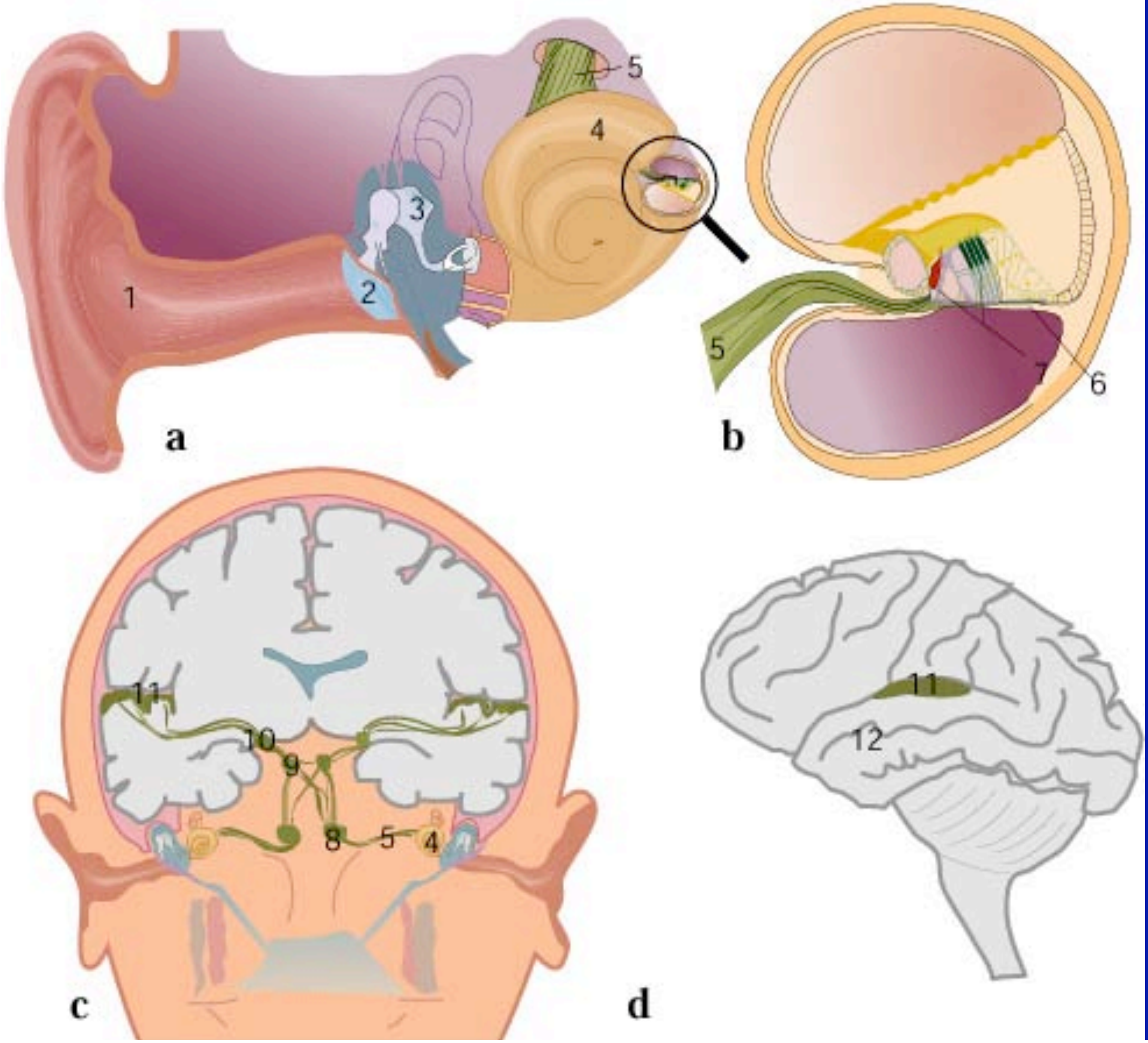
Results: Musical emotions



- For each participant, music evoking *chills* was compared with controls
- ”Sex, drugs & rock’n’roll” areas were found to be activated

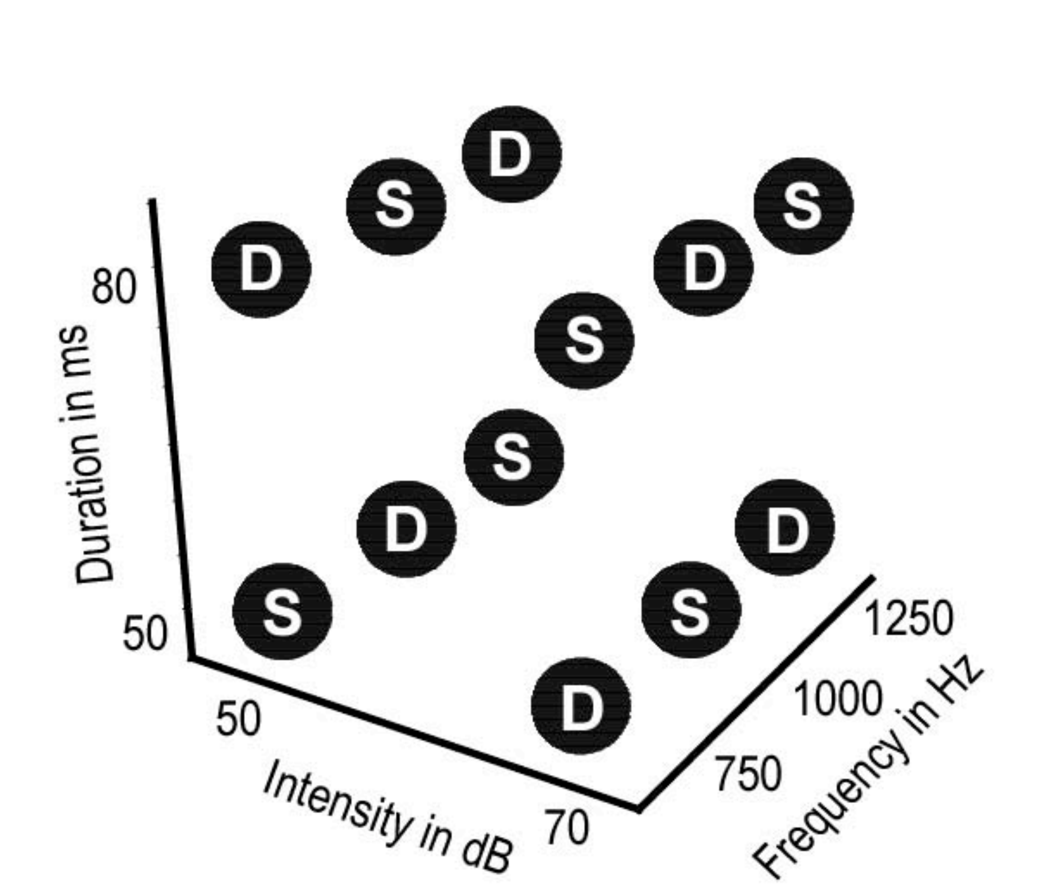
Blood & Zatorre, PNAS 2001

Development: Sensory areas



- Fetal week 26: signal from ear to brain
- Fetal week 29: early signs of learning
- Cortex is not very functional at birth

Result: neonates can bind

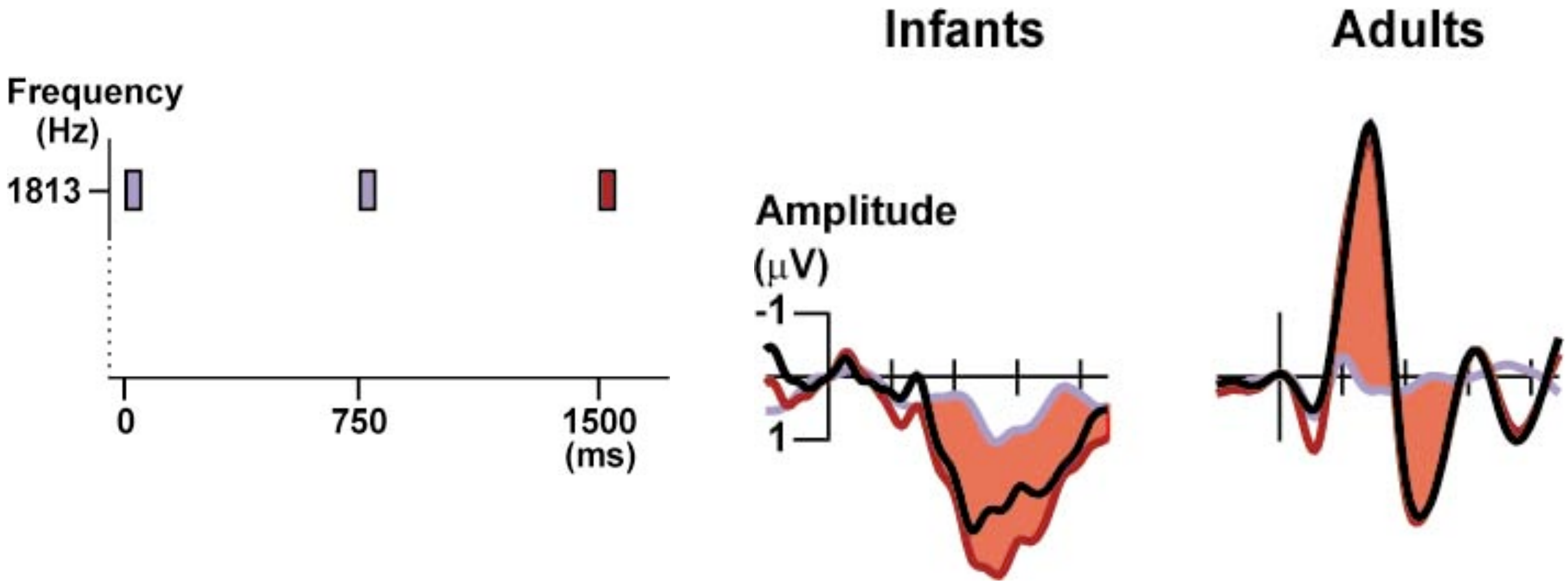


- In order to differenciate standards and deviants, the brain must keep 6 sets of 3 sound features in memory
- Both adult and neonatal brains can do the task
- Adults can not do it consciously

Ruusuvirta et al 2003

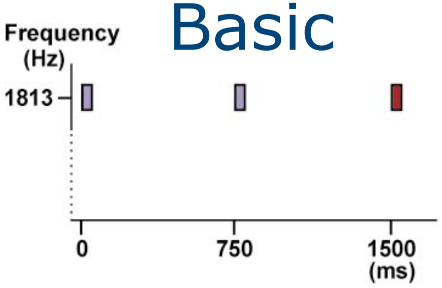
Stream segregation in neonates

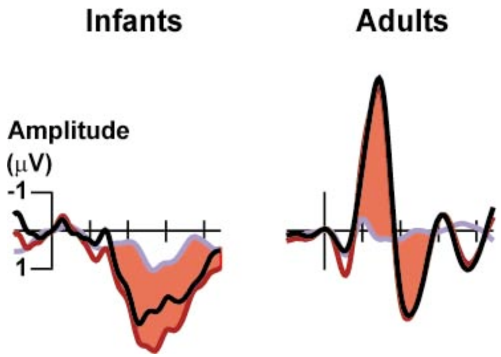
Basic condition



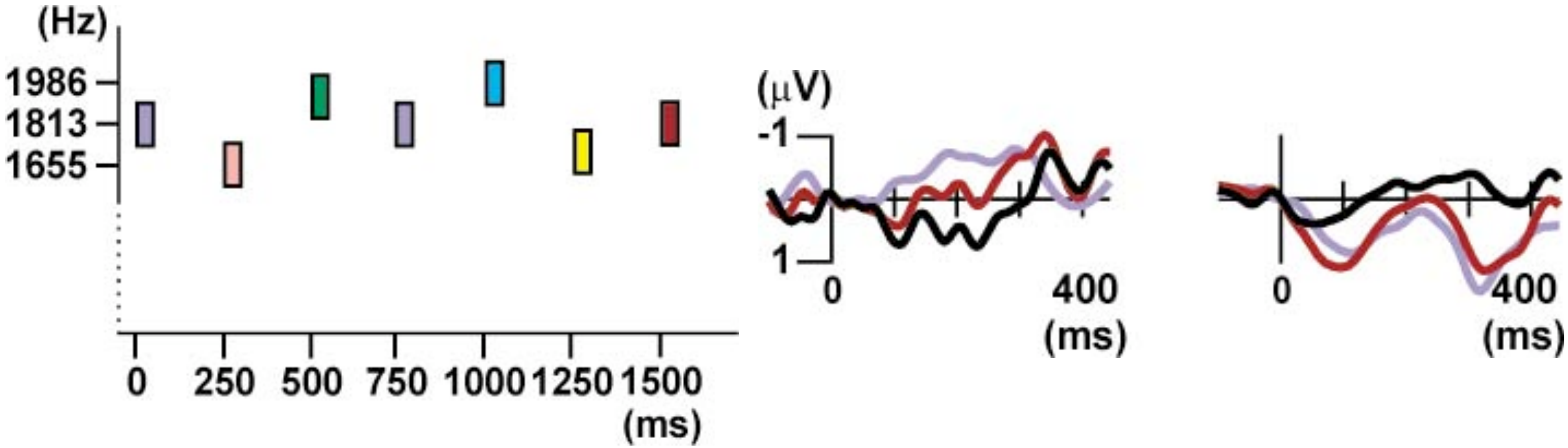
Stream segregation in neonates

Basic





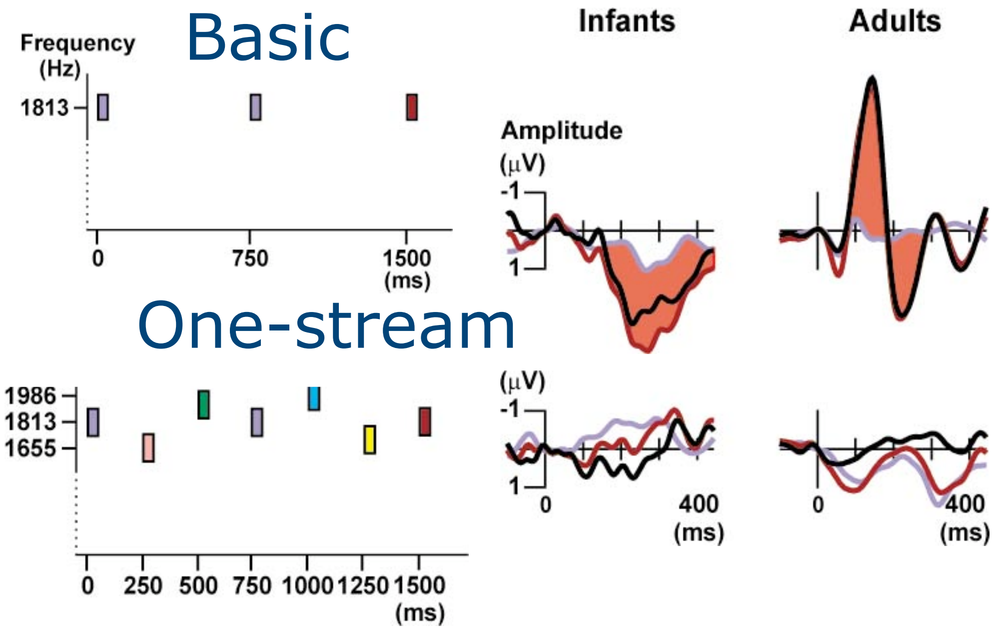
One-stream condition



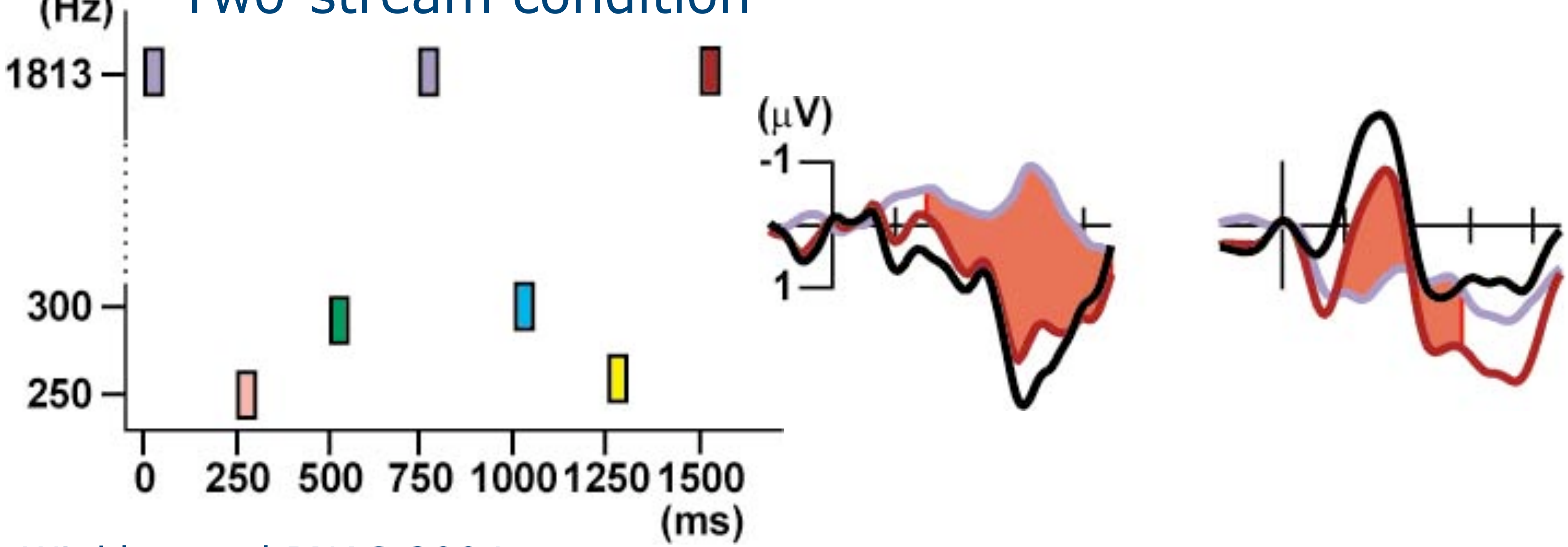
Stream segregation in neonates

Basic

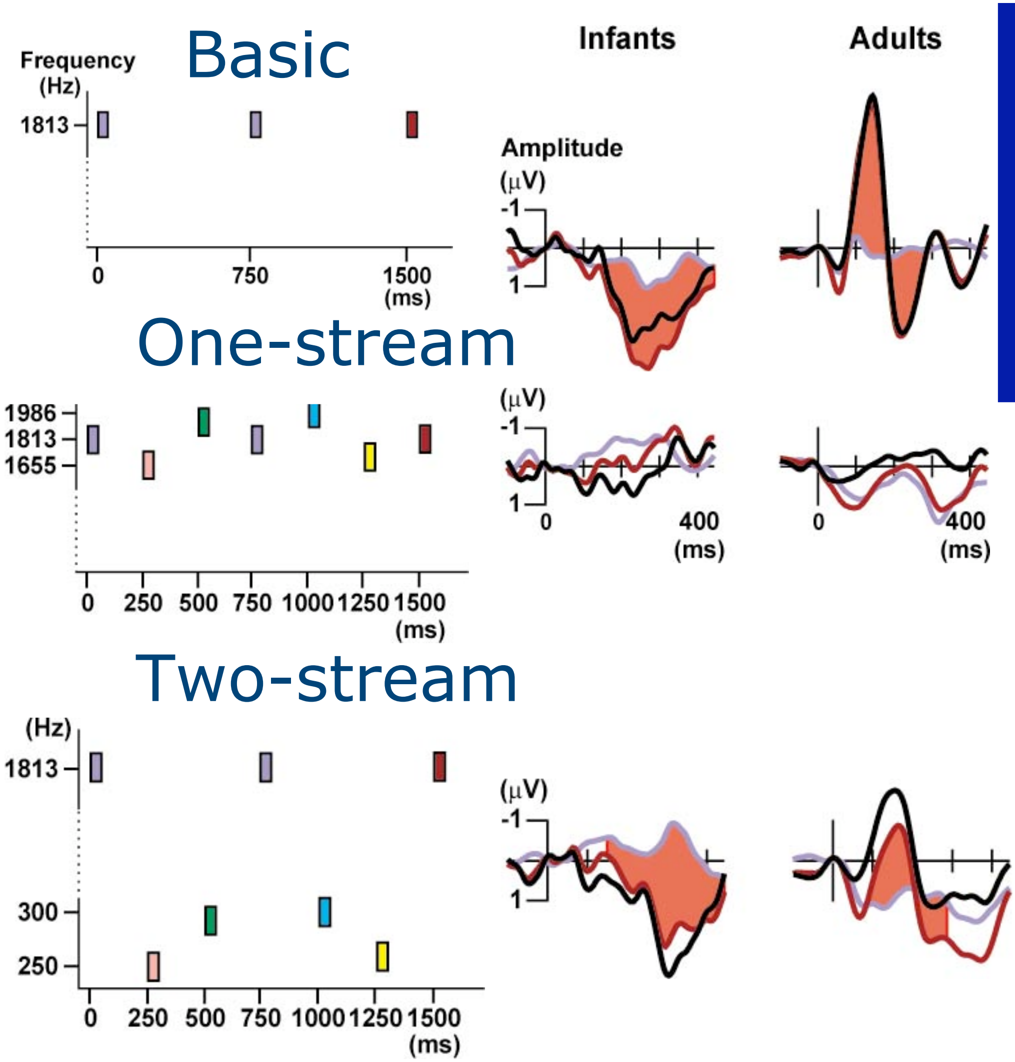
One-stream



Two-stream condition



Winkler et al PNAS 2004



Winkler et al PNAS 2004

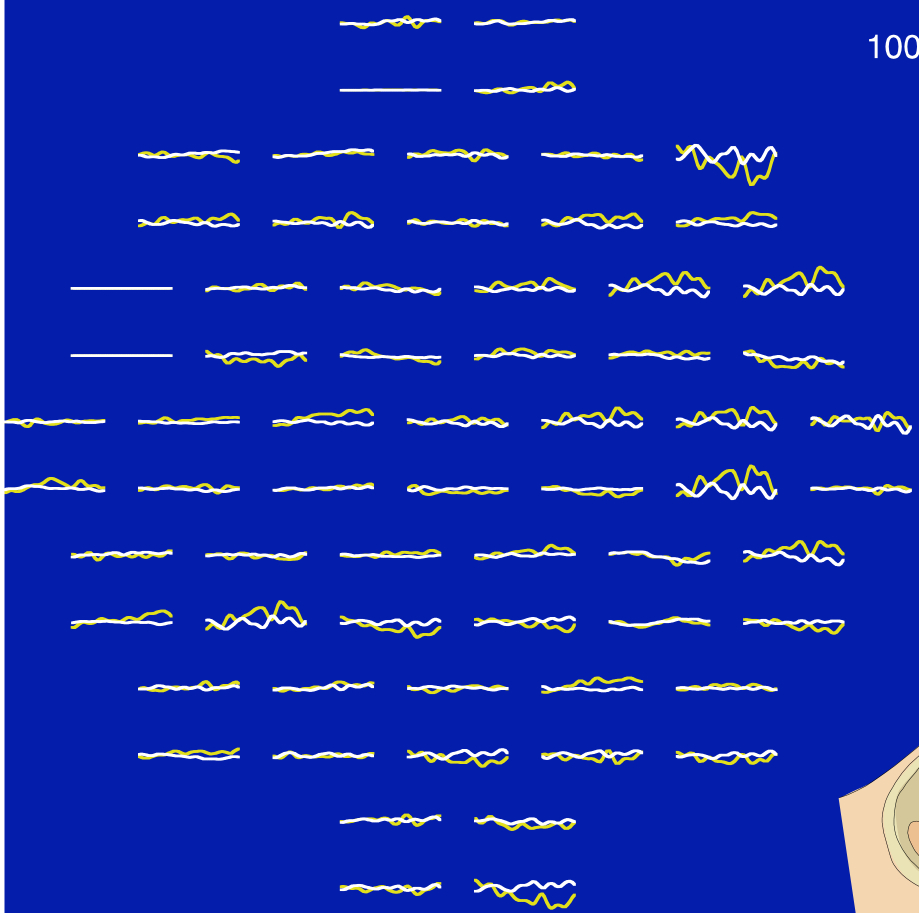
Stream segregation in neonates

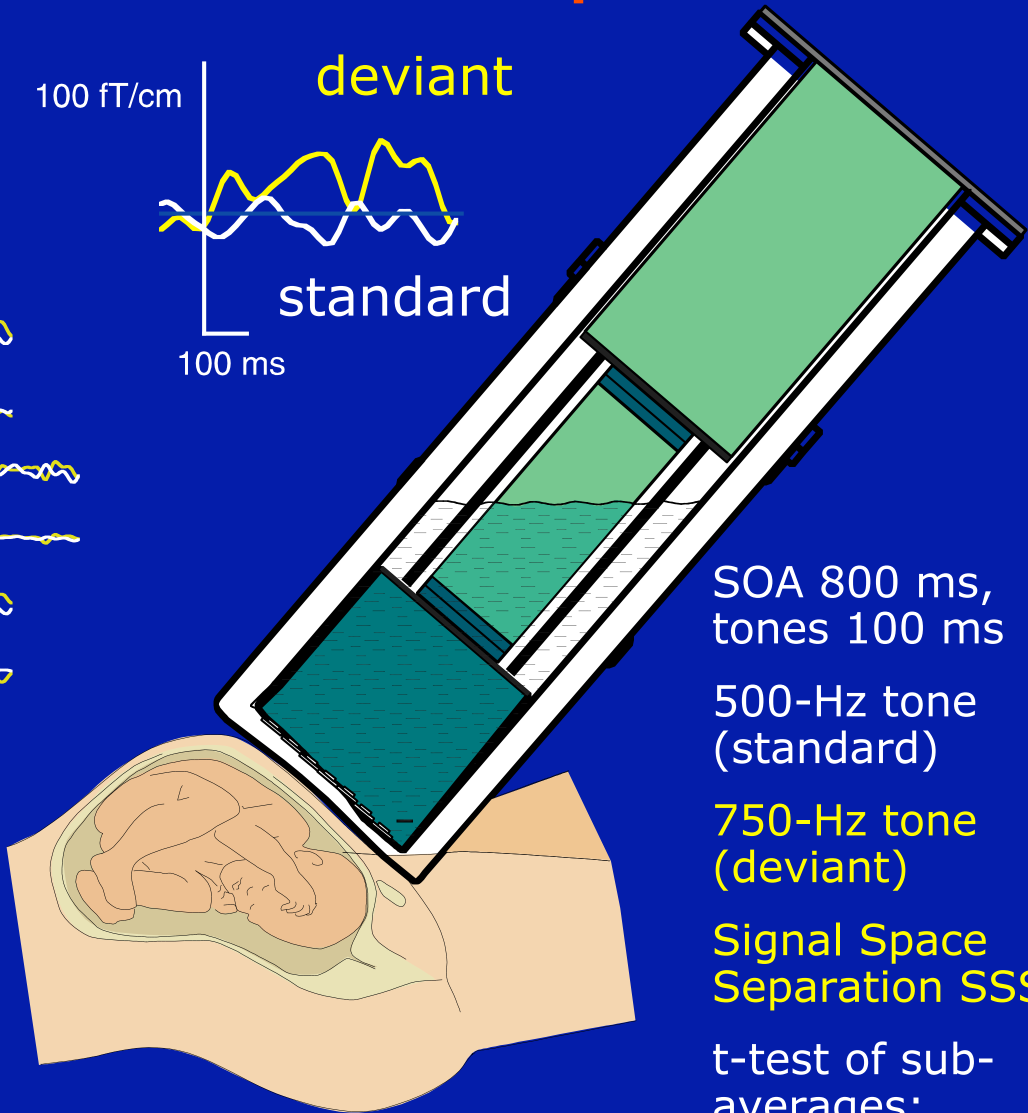
Streaming is an important skill of the auditory system.

It is required for separating sound sources and maintaining a coherent percept of a stream.

Without streaming, each intervening sound would break the predictability and memory trace of a sound stream.

Fetus can discriminate frequencies





SOA 800 ms, tones 100 ms

500-Hz tone (standard)

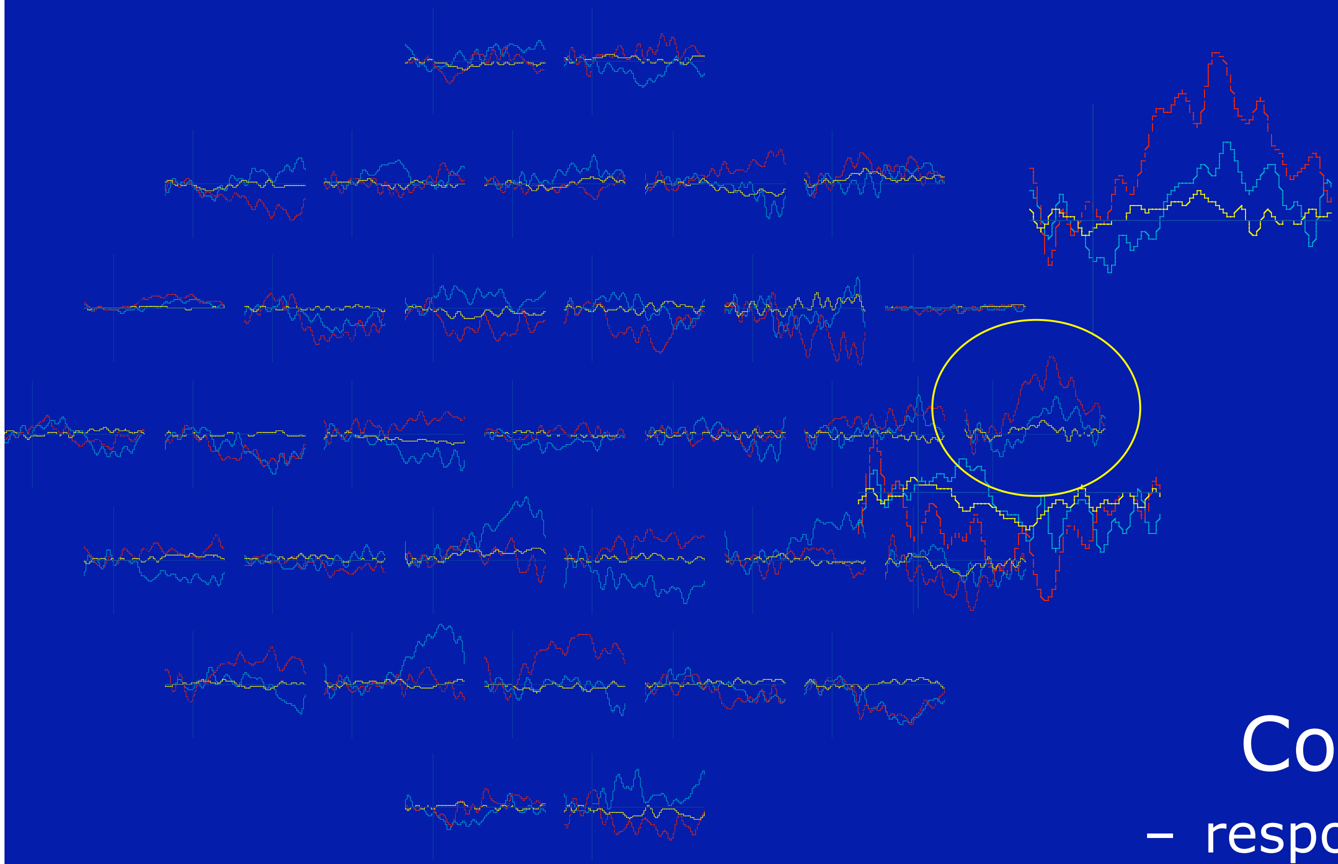
750-Hz tone (deviant)

Signal Space Separation SSS

t-test of sub-averages: 10/14, 9/14

Huotilainen et al. 2005 NeuroReport

Fetus can discriminate phonemes



SOA 650-750 ms, vowels 300ms

Std /a/

Dev /i/

Dev /a/ rising F0

Signal Space Separation SSS

t-test of sub-averages:

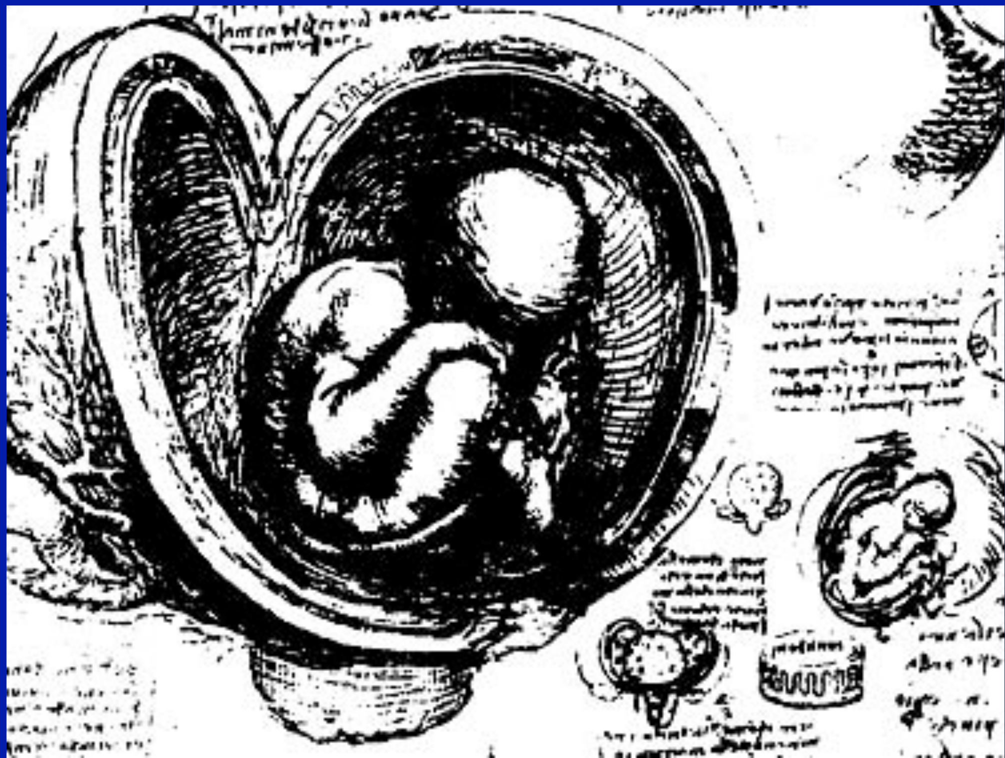
8/9 7/9 5/9

Conclusions

- responses to /a/ larger than responses to tones
- MMNm to changes of frequency, phoneme category, and intonation

Huotilainen et al. submitted

Future: Early signs of music-related brain activity



Future: Early signs of music-related brain activity

Future: Early signs of music-related brain activity

Conclusions

- Brain research can reveal new aspects on music cognition, musical abilities, even music-related emotions in adults
- In children, brain research is beginning to find ways of overcoming problems
- Brain research is the only way to address neonatal and fetal musical capabilities

Thank you!

- mari.tervaniemi@helsinki.fi
- minna.huotilainen@helsinki.fi

Developing Engagement with Music

Alexandra Lamont

Keele University, UK

"I mean I've always loved music, it's, it's the only thing I've always kind of had in my life, all the way through and it's surprised me how much it means to me"

Developmental starting points

- Music is part of all human cultures
- In Western society, musical engagement is not universal
  - creators and performers: musical training
  - listeners: musical enculturation
- How to understand musical ontogeny
  - is there progression(s?)
  - if so, what affects development?
  - can engagement be changed?

Infants’ Engagement with Music

Collaboration with Sandra Trehub, University of Toronto, 2005

Supported by the Royal Society

Research assistance from Loretta Falco, Saba Ul Haq, Michelle Muc

Design

- 38 infants
  - age 7m16 to 8m21 at outset (mean 8m)
  - 22 girls, 16 boys
- Background information on family, music experiences and infant temperament
- 4 experimental tasks

Book interaction 60 secs	Attention measure ≥ 20 secs	Music preferences ≤ 300 secs	Toy interaction 60 secs

- 2 or 4 sessions completed each a week apart

Infants' engagement with music

	N	Minimum	Maximum	Mean	SD
Visit 1	37	58.44	189.66	**111.79**	32.08
Visit 2	36	49.14	229.81	**107.94**	37.45
Visit 3	21	51.86	186.41	**104.69**	37.79
Visit 4	21	41.53	151.18	**102.63**	30.70

- General interest in music as indicated by looking times is sustained over 4 visits
- No change in mood over 10 music trials
- No significant correlations between looking patterns to non-musical and to musical stimuli on any visit

Observable responses to tasks

- Video recordings scored using Seifer's Temperament Adjective Triad Assessment (2004)
- No difference in Mood across tasks
- Music evoked significantly less Approach ($p<.0001$) and less Vocal Activity ($p<.001$) than all other tasks

Infants' music choices (so far)

- Preference for high arousal music does not vary over visits - around 50%
- No effects of style of music, order or side of presentation
- No differences in music choices according to temperament, testability, age, gender, feeding/sleeping routines
- But music evokes a qualitatively different behavioural response

Implications from infancy

- High levels of engagement shown in music listening
  - long looking times and less approach
  - less vocal activity
- Variability in individual preferences from week to week / session to session
  - potentially sensitive to micro-context
  - potentially affected by more stable environmental features such as family and prior experience

Musical engagement in toddlerhood

Collaboration with BBC Child of Our Time, 2003

Also supported by the British Academy
Research assistance from Nicole Jordan and Katy Kaminski

Design

Participants: 37 children aged 3.2 to 3.9 years (17 girls, 20 boys) and their families, childminders, nursery school teachers, and other responsible adults

- Experience Sampling Methodology
  - mobile telephones
  - data over 1 week, up to 21 episodes
  - questions about real life music engagement

- Experimental Preference Study
  - toy keyboard
  - 4 real music extracts
  - child-controlled exposure
  - total duration of playing of each piece

Toddlers' musical experiences

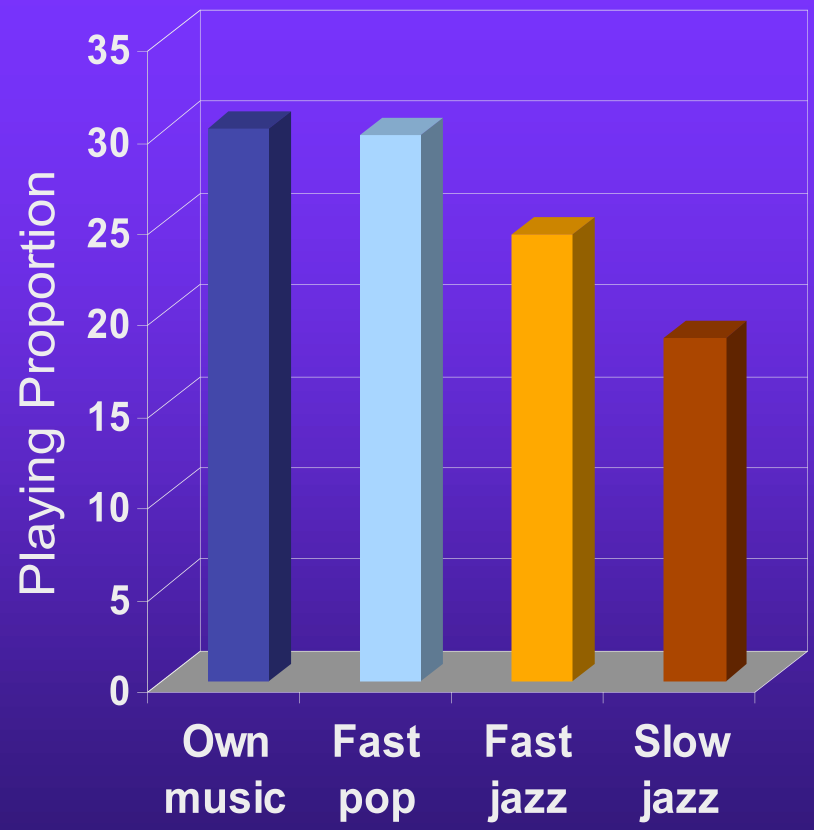
- Mean of 78% of 518 episodes occurred with music (43%-100%)
- Children's music the most frequently heard, chosen and responded to (47% of total)
- Pop music also frequently heard (38%) but less chosen or responded to
- Other styles rare (<15%)
- Varied engagement
  - every child engages with music
  - varies depending on routine, mood of child, other activities
- Family dynamics are important
  - mothers more willing to negotiate music choices with toddlers
  - fathers and older male siblings more likely to dictate musical experiences

Musical engagement in toddlers

- Range from 39s to 780s (mean 295s)
- No difference between girls and boys
- Engagement relates to temperament: higher Effortful Control relates to less playing time (r=-.522, p=.011)

Toddlers' music choices

- Significant differences between musical styles ($F(3,108)=4.683$, $p=.004$)
- Slow jazz significantly lower than fast pop/own music ($p<.02$)
- Temperament affects choices: significant correlation between Surgency and Fast Jazz ($r=.484$, $p=.019$)



Implications from toddlerhood

- Contexts of music experience are already very varied
- Some marked differences between home and other settings
- Music is present for a substantial part of toddlers' lives, although their responses to it are more variable
- Music preferences are not simply related to prior experience

Children's Early Music-Making Skills

With Geraldine Leighton, MSc at Keele 1999-2002

Currently supported by SEMPRE Arnold Bentley New Initiatives Fund (2004-6)

Thanks also to Norfolk Music Works for interview data (2002-3)

Field study of children's singing

Participants: 42 children aged 4.8-6.8 years (mean 5.5)
20 girls, 22 boys

Test Battery (from Welch, 1998)

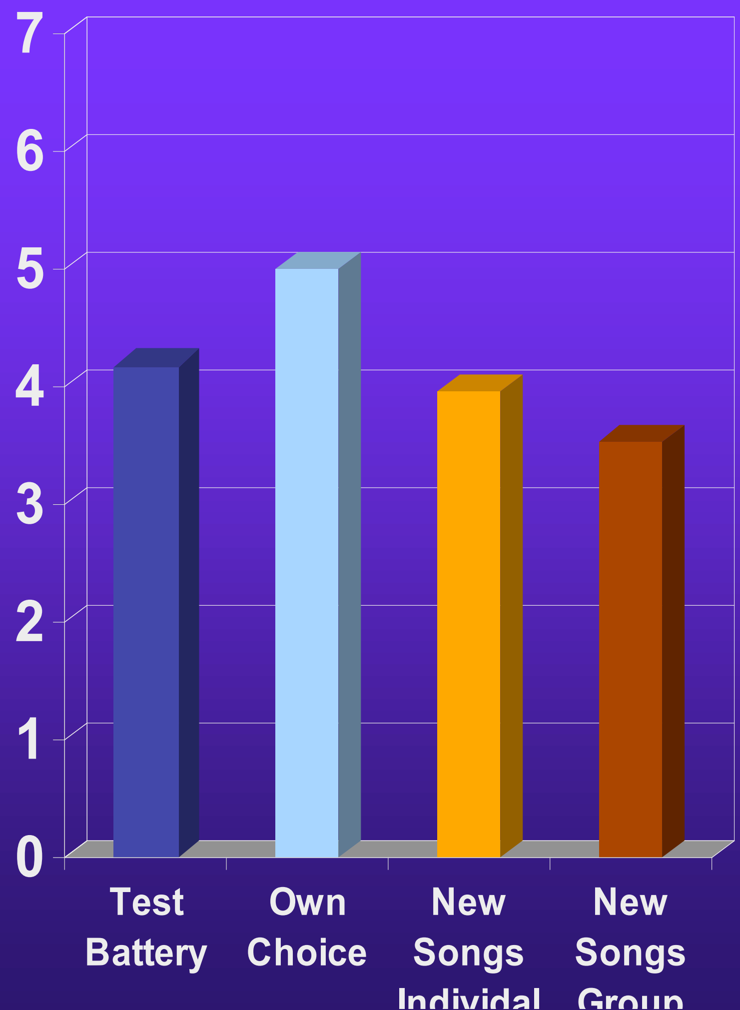
Own Choice song

4 weeks of school lessons
learning two new songs

New songs
recorded individually and within-group

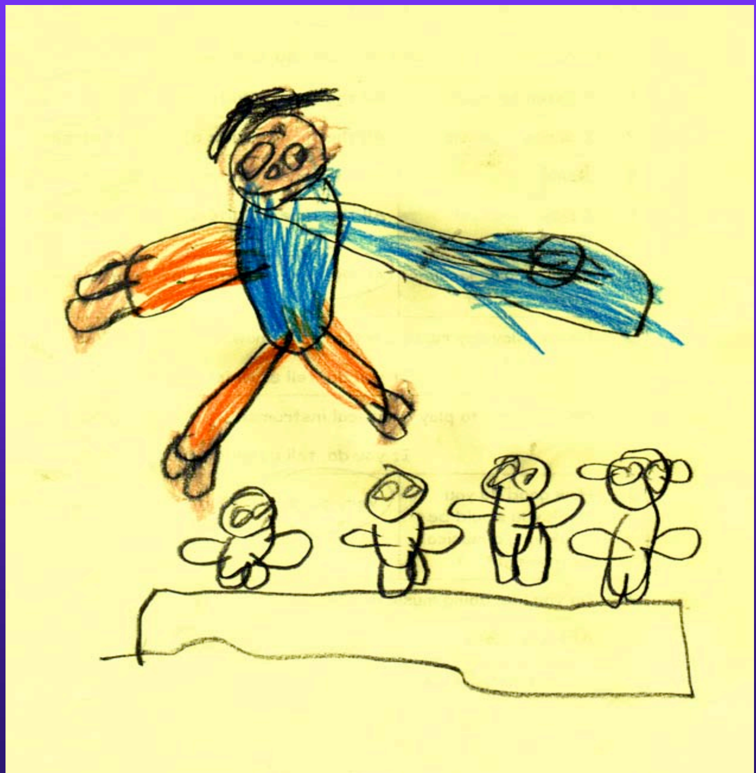
Voice assessment scores

- Average singing in isolated fragments
- More confident when singing Own Choice songs
- Poorer performance in songs learned for the project
- Poorest performance in group singing



Attitudes to music in early childhood

"I like music 'cos I like all the noise" (Joe, age 4)



"I like music because it's cool and you play lots of musical songs" (Christopher, age 5)

Implications from the start of school

- Children like music and are very positive about musical experiences
- There is a long way to go in developing singing skills
- Children sing better with music they have learned informally and/or over longer time periods
- The wider social context of music making is not always beneficial

Young People's Attitudes to Music In and Out of School

With David Hargreaves, Nigel Marshall & Mark Tarrant

Supported by the Qualifications and Curriculum Authority

Research assistance from Jane Anslow & Naomi-Jane Martin (2002-3)

Overview

Participants: pupils aged between 6 and 14 years (compulsory music curriculum) from a range of schools in England

- Phase 1: questionnaire study of attitudes to music in and out of school
- Phase 2: follow-up focus group study
- Phase 3: focus group study about progression in music
- Phase 4: questionnaire study of attitudes and aspirations in music

Positive attitudes towards music

- Enjoyment of class music lessons higher than expected - 67% of pupils report enjoying class music lessons
  - Liking music due to playing instruments, making up music, contact with real musicians
  - Disliking music due to learning facts about music
  - Mixed attitudes about singing and listening
- Learning an instrument at school: a quarter of pupils learn, and of those who don’t, approximately 40% say they would like to
- Extra-curricular school music activities decline sharply between primary and secondary school (age 11), and involve more girls than boys

Attitudes affected by aspirations

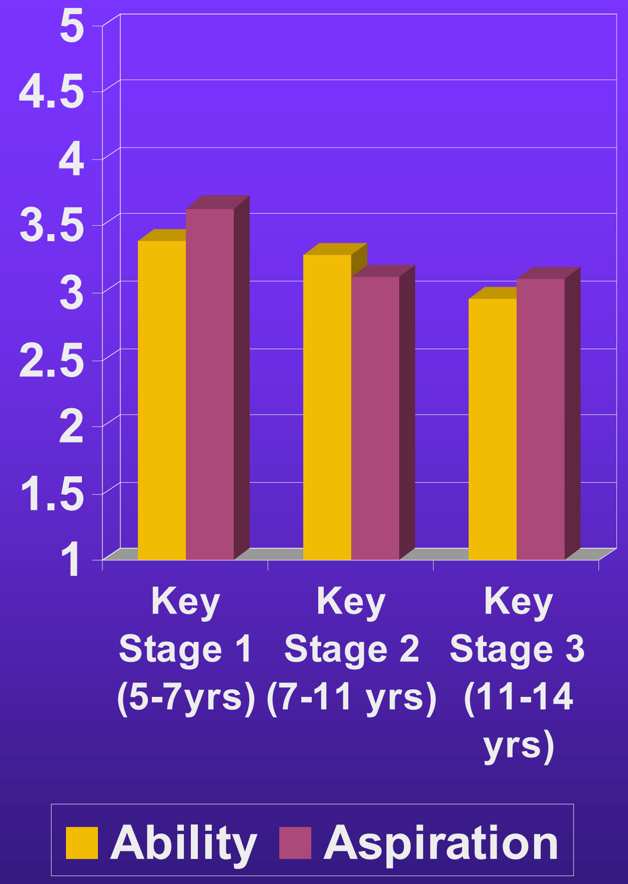
- Pupils having musical training discuss many positive and some negative aspects of school music, including activities beyond their own experiences
- Pupils aspiring to have training emphasise social benefits of group work in music and opportunities to try musical instruments
- Pupils not aspiring to have training would still like to learn to play ‘real’ musical instruments in class right up to age 14

Different elements of being good at music

- Performing alone/with others
- Reading music without performing
- Making up music
- Using computers
- Listening to music
- Talking about music
- Conducting
- Keeping a beat
- Knowledge
- Learning to play properly/tunes they like

Abilities and aspirations in music

- Both ability and aspiration decline gradually with age
- Relationship between ability and aspiration in Key Stage 3
  - if higher ability, lower aspiration
  - if lower ability, higher aspiration



Implications from school studies

- Positive attitudes towards music
- Complex attitudes towards success in music
- Interest in music and playing musical instruments is sustained throughout school
  - need for real life high quality musical experiences
  - potential to engage all pupils, even the ‘non-aspiring’

Engaging with music in adulthood

Project with Alinka Greasley, PhD student, Keele 2004-

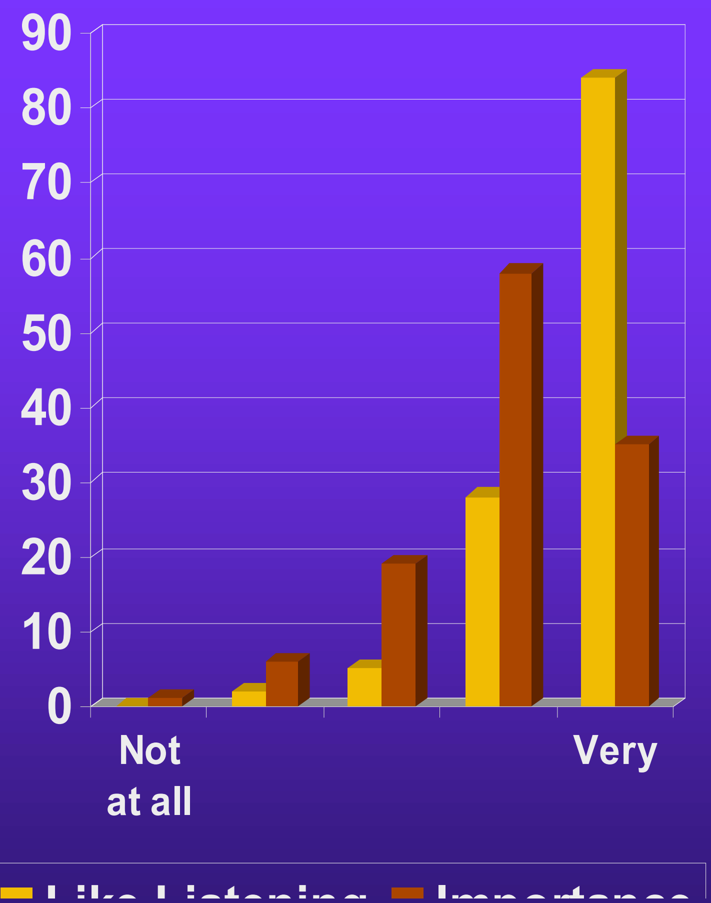
“petrol, food and, and tunes, basically, nothing else is allocated for, everything else is luxury, so those three are essential…” (male, 27 years)

Collecting and using music

- Qualitative enquiry focusing on listeners' music collections and how they use music in everyday life
- Main themes
  - engagement and technology
  - self-therapy
  - categorisation
  - changes in music use over time
    - short-term phases of preference
    - longer-term lifespan issues

Overall engagement with music

- Music listening is a very pervasive activity in early adulthood
- Music is important for 78% of respondents aged 18-22 years



Engagement and technology

- Many formats: vinyl, tape, CD, MD, MP3, CD Walkman, digital radio, MD player, MP3 player / iPod, DVD player, XBox, computer
- Necessity to have music at the touch of a button
- Choices affected by technology, e.g. downloading:
  - "you type in one artist name and it comes up with .. not just the artist or the title category, it comes up with everything they've done, so if they're just featured on something or if they've produced something … it's like speeding up the slow process of buying an album, hearing someone on it as a guest, thinking they're brilliant, then looking for other stuff by them… instead you just type it in and straight away it lists it all" (male, 24 years)

Music as self-therapy

- Use of music to regulate mood, often explicitly
- Music used as a way into other non-musical things
  - creating and recreating autobiographies
  - opening up extra-musical connections to art, literature, language, ways of thinking
  - opening up a social arena for friendships and connections

Categorising music

- Respondents unwilling to categorise their music simply by style
  - "generally the one thing that's, that's consistent is that I'll buy randomly all the time ... the music collection I have now, I go from reggae to hip-hop to country to pop, 80s pop, to techno to trance to hardcore, literally, erm, even some classical, erm, even some Irish pub songs…" (male, 27 years)
- Organisation on many different levels:
  - sequence within a track; song/piece; album; artist/band; album series; genre
  - use; historical period; alphabetical order; style; personal ratings

Music engagement over time

- Short-term inverted-U patterns of waxing and waning of preference - a conscious process
- Early adulthood (18 yrs +) frequently cited as influential in broadening music preferences and in starting ‘serious’ collecting
  - “then I came to uni and suddenly discovered not only that there’s a massive HMV with all the music I wanted plus having a bit more money with a loan to be able to buy the music I wanted ... and of course all the music influences from everyone else you meet at uni, so that the little I knew about hip-hop was suddenly expanded and still is being expanded to loads” (male, 25 years)
- Social interaction is a catalyst

Implications from early adulthood

- Music engagement is pervasive and the contexts of engagement very diverse
- Music is emphasised as a meaningful and important personal and social undertaking, and one which is socially constructed
- Music engagement is flexible into adulthood (broadening of style and range of choices)
- Adults are consciously aware of the many ways they use and engage with music

Key developmental questions and educational implications

"We are all musical: we just need the opportunity for our musicality to be celebrated and developed. Such is the prime purpose of music education" (Welch, 2003)

How does engagement develop?

- Music is appealing across the lifespan
- Responses to music are hard to predict because they are highly context-specific
- What changes?
  - Conscious awareness of the complexities of musical engagement (personal)
  - Range of contexts within which music is experienced (social)
  - Breadth of music that is experienced (musical)

Music education approaches

- Traditional Western models of music education prioritise music performance
- Music education embodies ideologies about the value of listening to as well as performing different types of music
- Music listening/music appreciation is typically taught as a decoding activity, learning to “hear” what the composer intended in and from the music: aesthetic listening

Key issues for music education

- Authenticity of musical experiences
  - playing real musical instruments
  - responding to music in a way which reflects its context rather than at a cognitive distance
  - listening to music as an active dialectic of constructing and reconstructing meaning
- Acknowledging the role of social interaction in musical development –negative and positive
- Bridging the two different aspects of musical development - enculturation and training

Some further reading

- Lamont, A. (2003). Toddlers' Musical Preferences: Musical Preference and Musical Memory in the Early Years, *The Neurosciences and Music: Annals of the New York Academy of Sciences*, 999, pp. 518-519.
- Lamont, A., Hargreaves, D.J., Marshall, N.A. & Tarrant, M. (2003). Young People's Music In and Out of School, *British Journal of Music Education,* 20(3), pp. 229-241.
- Lamont, A. (2002a). Musical identities and the school environment. In: R.A.R. MacDonald, D.J. Hargreaves & D. Miell (Eds.), *Musical Identities*, Oxford: Oxford University Press, pp. 49-55.
- Lamont, A. (2002b). Music Psychology and the Secondary Music Teacher. In: G.J. Spruce (Ed.), *Teaching Music in Secondary Schools: A Reader* (London: Routledge/Falmer), pp. 63-79.

Growing into a culture:

A structure-genetic theory on music development

Stefanie Stadler Elmer

University of Zürich

Switzerland

(2000). Spiel und Nachahmung – Über die Entwicklung der elementaren musikalischen Aktivitäten. Aarau: Nepomuk. (200 S.) *(Play and imitation - on the development of elementary musical activities)*

(2002). Kinder singen Lieder. Über den Prozess der Kultivierung des vokalen Ausdrucks. Berlin: Waxmann. (400 S.) *(Children' song singing - How vocal expression adapts to a culture's music and language)*

1. **Musical development**: example, questions

2. **Theoretical elements**: elementary, universal activities

3. **Vocal musical development:** Previous theories, elements of a new theory

4. **Methods to analyse singing**

5. **Further elements of a new theory**:

   Hypotheses about the developmental course, illustrated with empirical examples

6. **Conclusions**

Musical development

example (O:54)

Questions:

What does the child intend to sing??

What is more articulated, the word, or the melody?

Which age is this child?

(musical development)

Questions from a developmental point of view

How does this ability evolve?

What changes during the course of development?

How can we analyse and representing such behaviour?

How can we understand and conceptualise the vocal musical development?

Aim:

to gain a theory, based on empirical evidence.

Theory =

an ordered set of statements, arguments, explanations, and hypotheses.

(musical development, elements of a theory)

Theoretical elements: elementary, universal activities

Musical behaviour

Three elementary and universal behaviour, based on human biology

1. perception of sounds: listening, bone conduction, and kinesthesis (body positions and movements)

2. vocalisation

3. motor movements:

   - producing sounds (instrumental)

   - accompanying sounds (dancing)

(musical development, elements of a theory)

Vocal development

Voice: sounds produced naturally in the body

necessary condition for the development:

hearing, socio-emotional stimulation

(musical development, elements of a theory)

Arround the beginning of the second year, vocalisations differentiate into

$\longrightarrow$ singing

and

$\longrightarrow$ speaking

Singing:

universal, elementary expression of language and music

excellent example to study and to show how a person adapts to the surrounding culture.

Previous theories on singing development

1. „linguistic primacy“

song acquisition and singing development:

words appear first, followed by **rhythm**, **contour**, and **intervals**

(e.g. Moog, 1968; Hargreaves, 1986; Welch, 1986; Welch, White, Sergeant, 1998)

(cont. previous theories)

2. sequence of (innate) intervals:

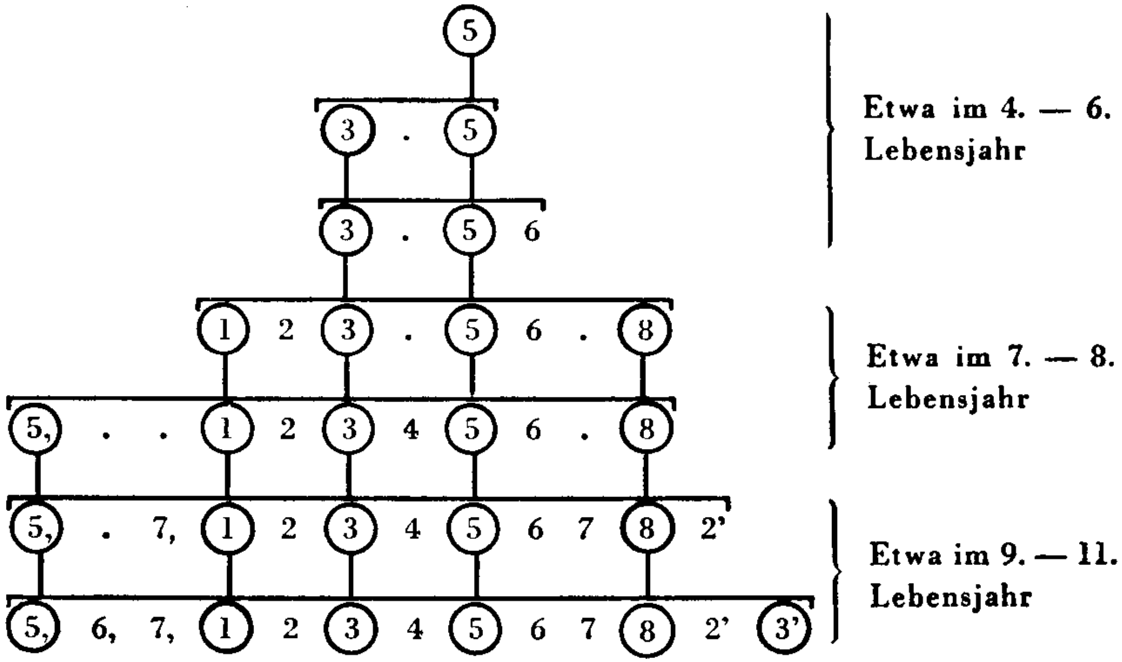
so

→ falling minor third *so, mi*

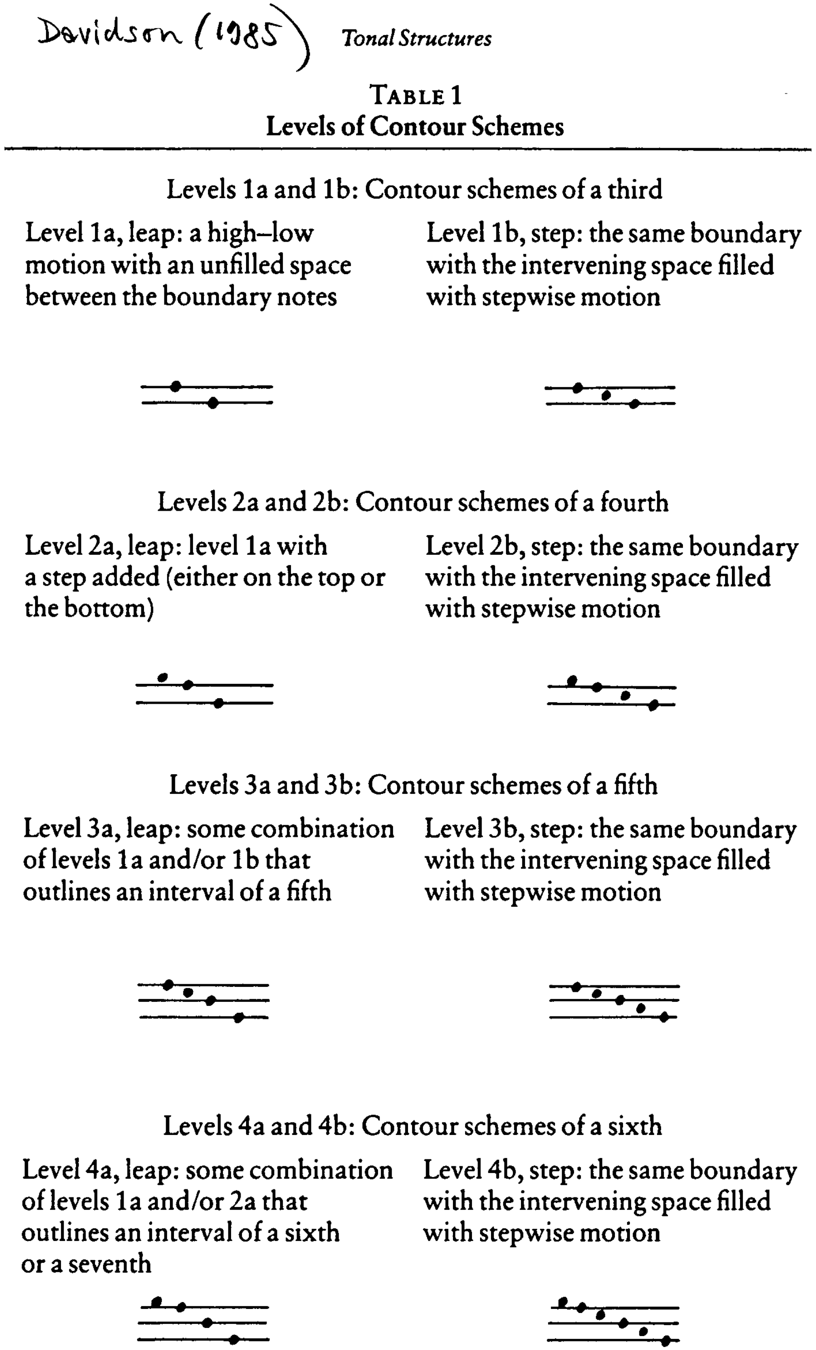
→ Urmelodie: *so, mi, la* etx.

(Werner, 1917; Nestele, 1930; Kube, 1958; Ewert, 1970)

figure: Kube (1958)



Die Gruppe der statischen Töne ist durch Kreise kenntlich gemacht, die verbindenden Senkrechten symbolisieren die statischen Klangebenen. Die waagerechte Klammer bezeichnet die nach unten und oben zunehmende qualitative Besonderung der natürlichen Tonstufen.



Davidson (1985)

Tonal Structures

TABLE 1
Levels of Contour Schemes

Levels 1a and 1b: Contour schemes of a third

Level 1a, leap: a high–low motion with an unfilled space between the boundary notes	Level 1b, step: the same boundary with the intervening space filled with stepwise motion

Levels 2a and 2b: Contour schemes of a fourth

Level 2a, leap: level 1a with a step added (either on the top or the bottom)	Level 2b, step: the same boundary with the intervening space filled with stepwise motion

Levels 3a and 3b: Contour schemes of a fifth

Level 3a, leap: some combination of levels 1a and/or 1b that outlines an interval of a fifth	Level 3b, step: the same boundary with the intervening space filled with stepwise motion

Levels 4a and 4b: Contour schemes of a sixth

Level 4a, leap: some combination of levels 1a and/or 2a that outlines an interval of a sixth or a seventh	Level 4b, step: the same boundary with the intervening space filled with stepwise motion

(cont. previous theories)

3. „contour schema theory“

coutour size of a phrase increases with age,
beginning with the interval of a third, then a fourth etc.
by age 6 or 7, the child arrives at mastering the size of a sixth.

(Davidson, 1985, 1994)

(cont. previous theories)

Dimensions of musical development

≠ chronological age

≠ pre-determined, innate musical structures

≠ sequence of isolated components (words, rhythm etc.)

occidental music theory (intervals etc.)
≠ universally valid, formal criteria

≠ age-related increase of the contour size of melodies ('contour schema', Davidson)

≠ independent of socio-emotional and socio-cultural stimulation

(Further elements of a new theory)

Alternative dimensions

theoretical background: structure genetic constructivism (Piaget)

- sensorimotor activities

  $\Rightarrow$ growing control

  $\Rightarrow$ growing awareness

  $\Rightarrow$ growing flexibility

- pre-conventional

  $\Rightarrow$ conventional structures of actions and thoughts

  $\Rightarrow$ post-conventional structures (e.g. artistic)

(Further elements of a new theory)

- implicit

  $\Rightarrow$ explicit knowledge about rules (cf. awareness)

- examples $\Rightarrow$ general rules (growing repertoire)

- universal physical conditions

  $\Rightarrow$ culture specific and adapted physical and mental conditions

  $\Rightarrow$ 'music' as part of the (multi-)cultural identity

(Further elements of new theory)

Singing is ...

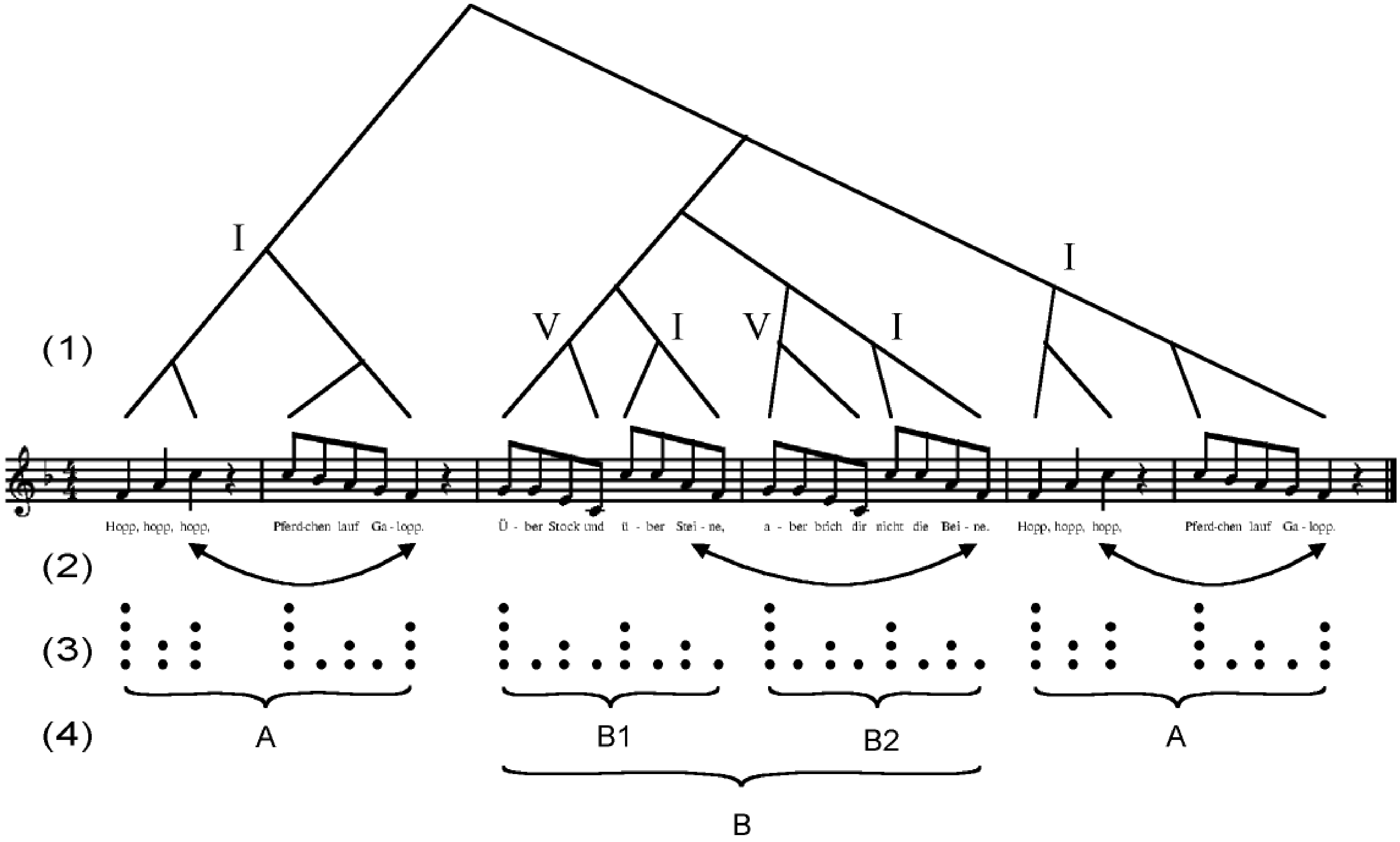
- ...
- play (Funktionslust, Bühler 1934) which implies rules

  rules: culture specific conventions (here: only occidental)
- originally accompanied with positive emotions
- the organisation of linguistic and melodic sounds
- in its most primitive way the prolongation of vowels

(Further elements of a new theory)

(Singing is ...)

- related to hearing and body movement
- expression of someone's knowledge about (play) rules, norms, conventions
- expression of belonging to a certain social or cultural group
- - when theoretically analysed - a parallel organised hierarchy of text and melody $\rightarrow$ figure).
- ...


I
V
I
V
I
I
(1)
Hopp, hopp, hopp, Pferd-chen lauf Ga - lopp. Ü - ber Stock und ü - ber Stei - ne, a - ber brich dir nicht die Bei - ne. Hopp, hopp, hopp, Pferd-chen lauf Ga - lopp.
(2)
(3)
(4)
A
B1
B2
A
B

Methods for analysing singing

Previous methods

tape or video recording

1. listening, and transcribing by traditional notation

2. listening, and verbal rating by experts

   with categories such as the extent of right - wrong of the words, melody, rhythms etc.

(Previous methods)

Questions and problems:

- Can we trust the auditory analysis?

  Siegel & Siegel (1977a, 1977b): musicians hear and judge a pitch continuum at the basis of the cultural pitch categories

- childrens' singing does not yet following the cultural conventions

  What happens with micro intervals, with glissandi, instable sounds?

  Which norms, criteria, and notation would guarantee a valid description?

  remember: phonetic notation → spoken language

A new method

- microanalysis of (musical) behaviour in social context
- computer aided acoustical analysis of singing
- graphic representation with a new notation system

Aim:

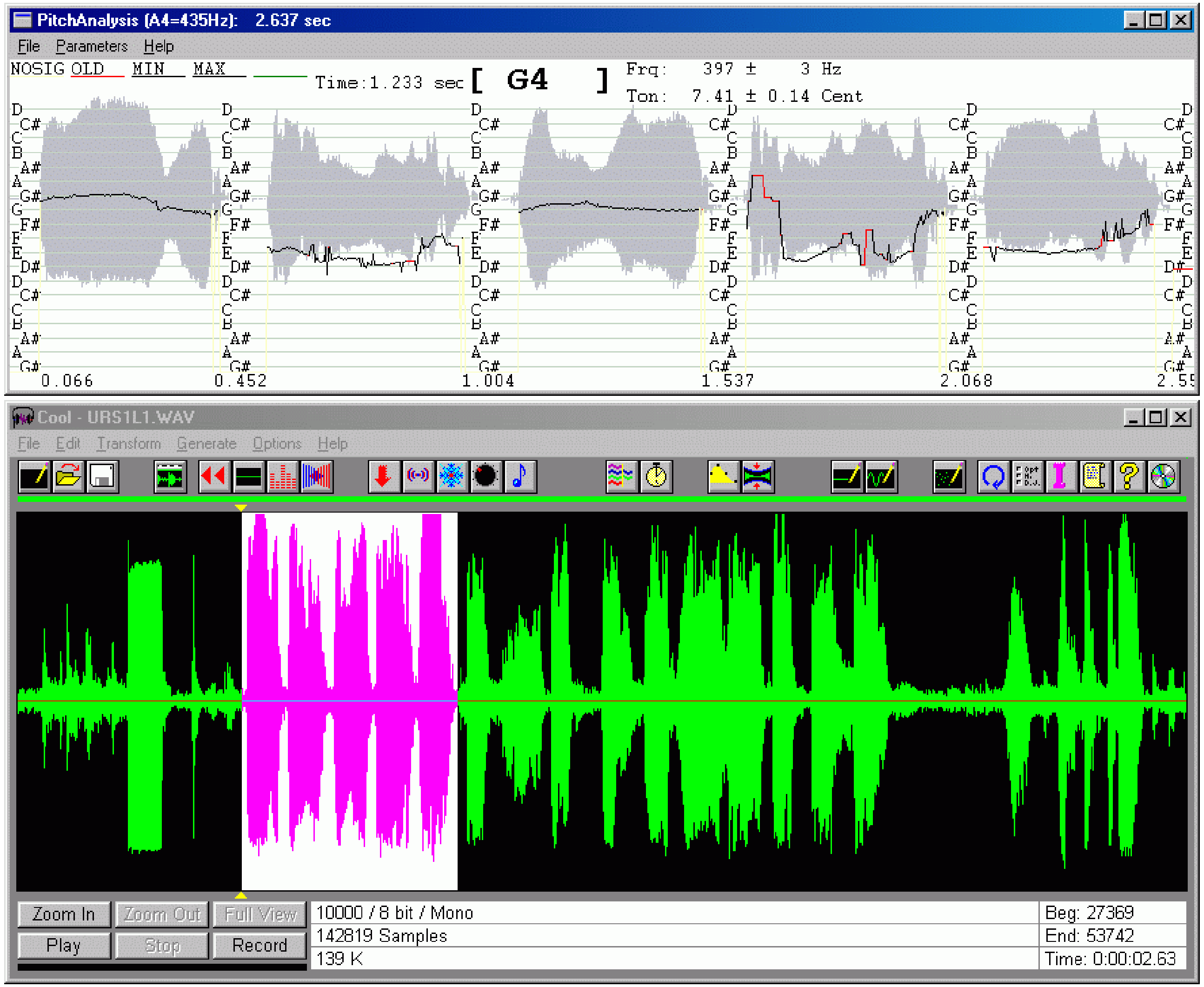
a) to analyse the structure of vocal expressions

b) to reconstruct how vocalisations are organised and how the structures change

Stadler Elmer, S. & Elmer, F.J. (2000). A new method for analyzing and representing singing. Psychology of Music, 28, 23-42.

pitch analysis program:

http://monet.physik.unibas.ch/~elmer/pa/


PitchAnalysis (A4=435Hz): 2.637 sec
File Parameters Help
NOSIG OLD MIN MAX
Time:1.233 sec [G4]
Frq: 397 ± 3 Hz
Ton: 7.41 ± 0.14 Cent
0.066
0.452
1.004
1.537
2.068
Cool - URS1L1.WAV
File Edit Transform Generate Options Help
Zoom In
Zoom Out
Full View
Play
Stop
Record
10000 / 8 bit / Mono
142819 Samples
139 K
Beg: 27369
End: 53742
Time: 0:00:02.63

Further elements of a new theory:

Hypotheses about the developmental course

illustrated with **empirical examples**

stages: heuristics to describe the process, how new qualities emerge

$\longrightarrow$ adaption on cultural conventions

gain and loss in the developmental process

Stage 1: Beginning co-evolution of innate expressive pre-dispositions with the social environment

activities at birth: perception (hearing), vocalisation, motor movements

organisation and co-ordination $\longrightarrow$ differentiation of structures

play with the voice, exploration of the voice

hearing: preferences ...

'intuitive parenting' ... prosody and melody are inseparable; musical features prevail and precede linguistic features in both, **parental and infant vocalisation**.

singing-like vocalisation: state of well-being, feeling at ease

roots: beginning of language and music

example 1: father and baby, 3 months.

(theoretical and empirical results)

Stage 2:

Deferred **imitation**, reciprocal imitation (up to 40%), emergent **vocal games** and rituals, extended vocal play.

beginning differentiation between more speech- and more singing-like vocalizations.

early capacities: e.g. accurate imitation of single pitches at age 3 months (cf. Kessen & Wendrich, 1981)

plasticity (brain)

rituals – familiarity, mutual expectations, attachment

example 2: 14 months transition between s & s

Stage 3: **Sensori-motor strategy**: auditory-vocal co-ordination to produce song fragments or entire songs

Sensori-motor singing without understanding rules

Reproduction (imitation) and joint singing may be amazingly accurate.

Invented songs have idiosyncratic and changing rules (e.g. neologisms, melodies, social rules)

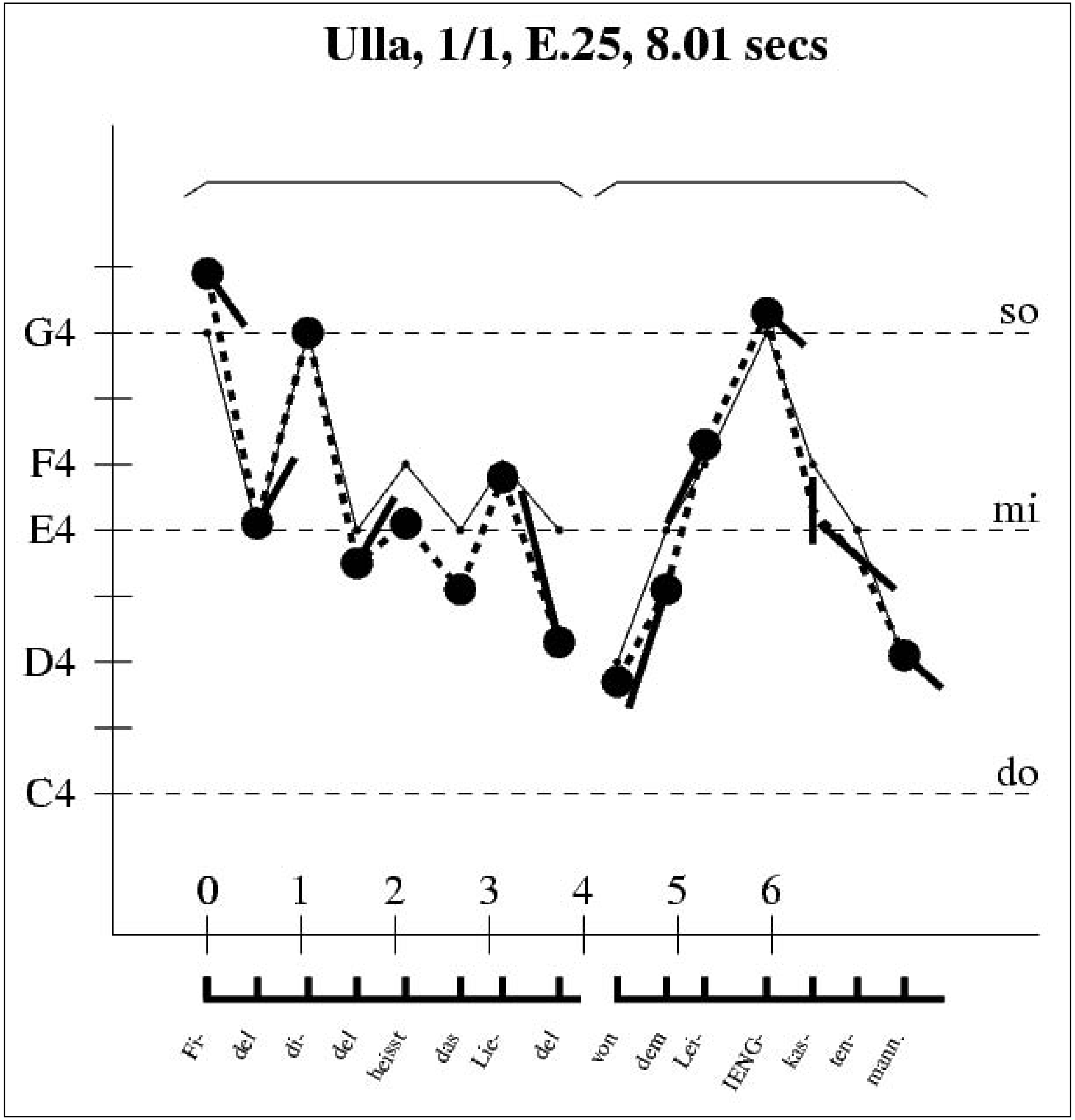
Frequent spontaneous inventing and reproducing songs during play

fluent transition between speaking, singing and other vocalisations

pre-conventional singing

(strategy not efficient ... see example)

example 3.: 'Hopp, hopp, hopp ...' 4. Ulla (Abb. Lied 1)


Ulla, 1/1, E.25, 8.01 secs
G4
F4
E4
D4
C4
so
mi
do
0
1
2
3
4
5
6
Fi-
del
di-
del
heisst
das
Lie-
del
von
dem
Lei-
IENG-
kas-
ten-
mann.

Stage 4:

Generalising examples, idiosyncratic song repertoire and idiosyncratic singing rules

Acquired songs serve as **examples to generalise** across contexts.

The child does not yet understand that singing is a kind of *social game* with certain stable rules.

Songs and rules are changed according to ego-centric view.

Invented songs are a mixture of newly invented and imitated parts.

Examples: (Ulla) Tom and Andy

song 1	□	□	□		□	□	□		[		□	□			]						]		□	
event	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Tom			□	□	□	□	□	□		□	□	□	□a	□		□b	□*	□*	□7	□*	]	□	□	□
Soli T.				1				2		3			4	5		6	7	8	9	10		11		12

Interaction: Tom, song 1.

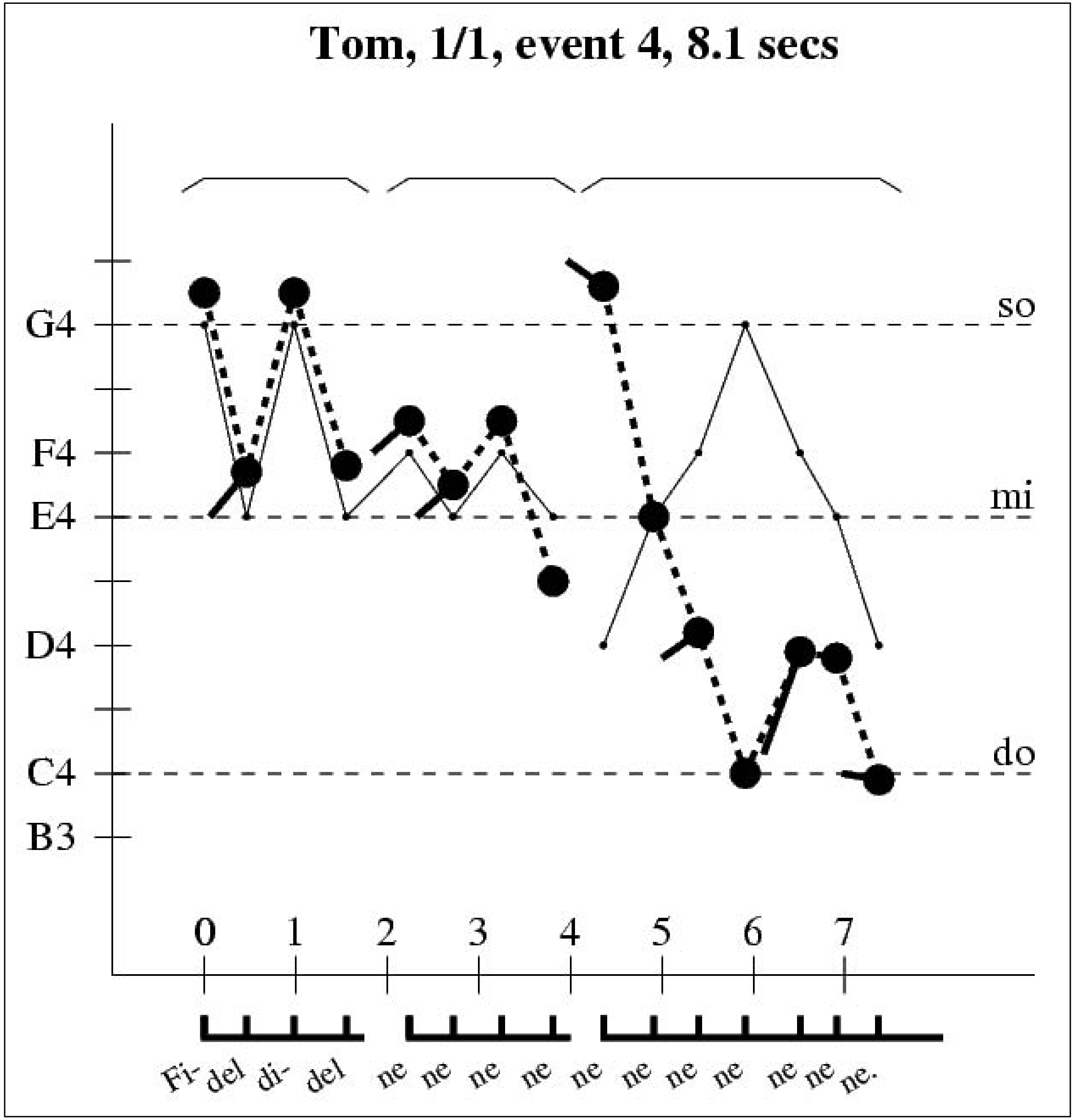
a: spontaneous invention

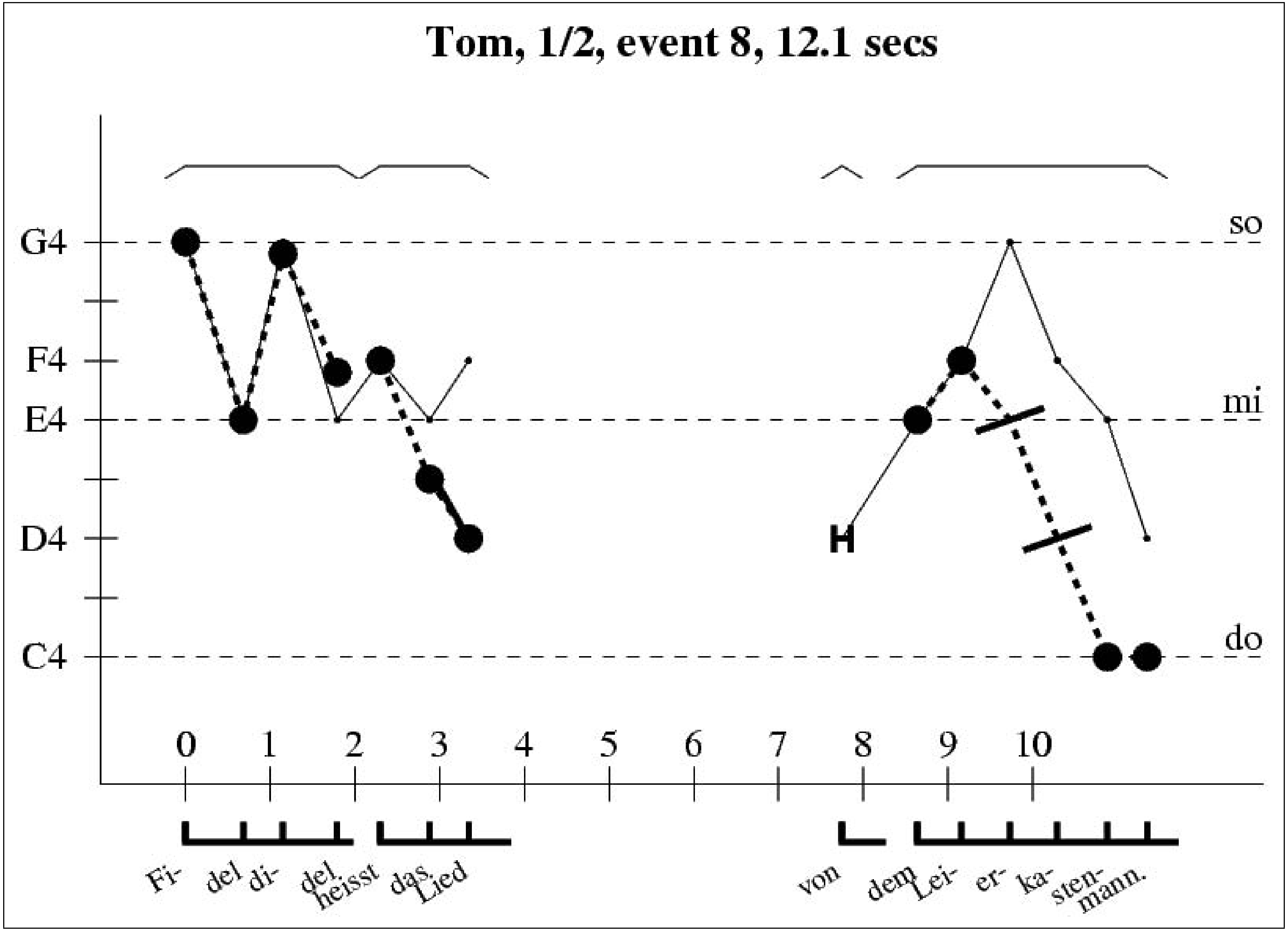
b: spontaneous invention = variation of song 1

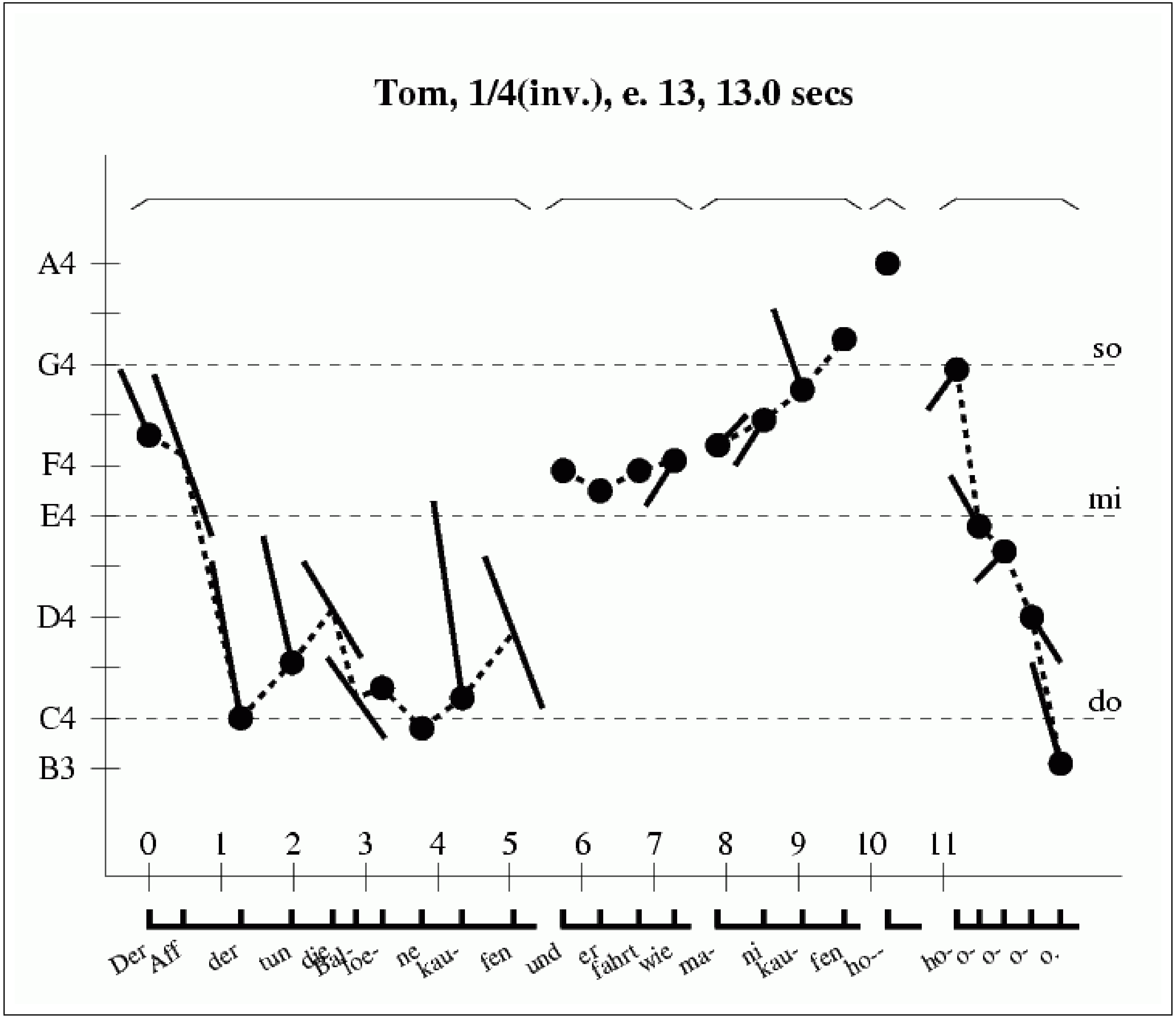
x: another present child sings the song accurately

∗: in the context of inventing new songs

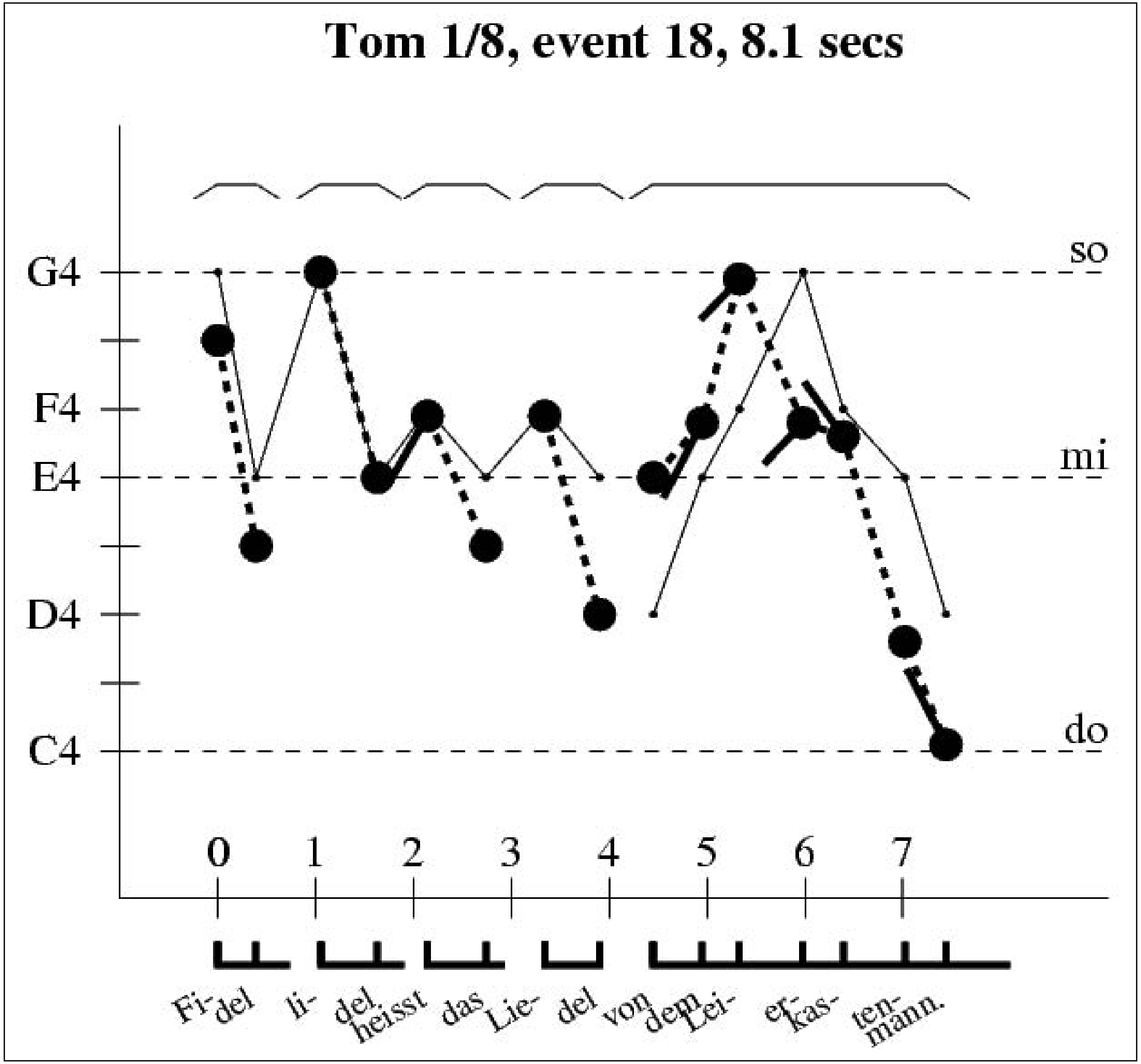
7: context with picture and song 7.

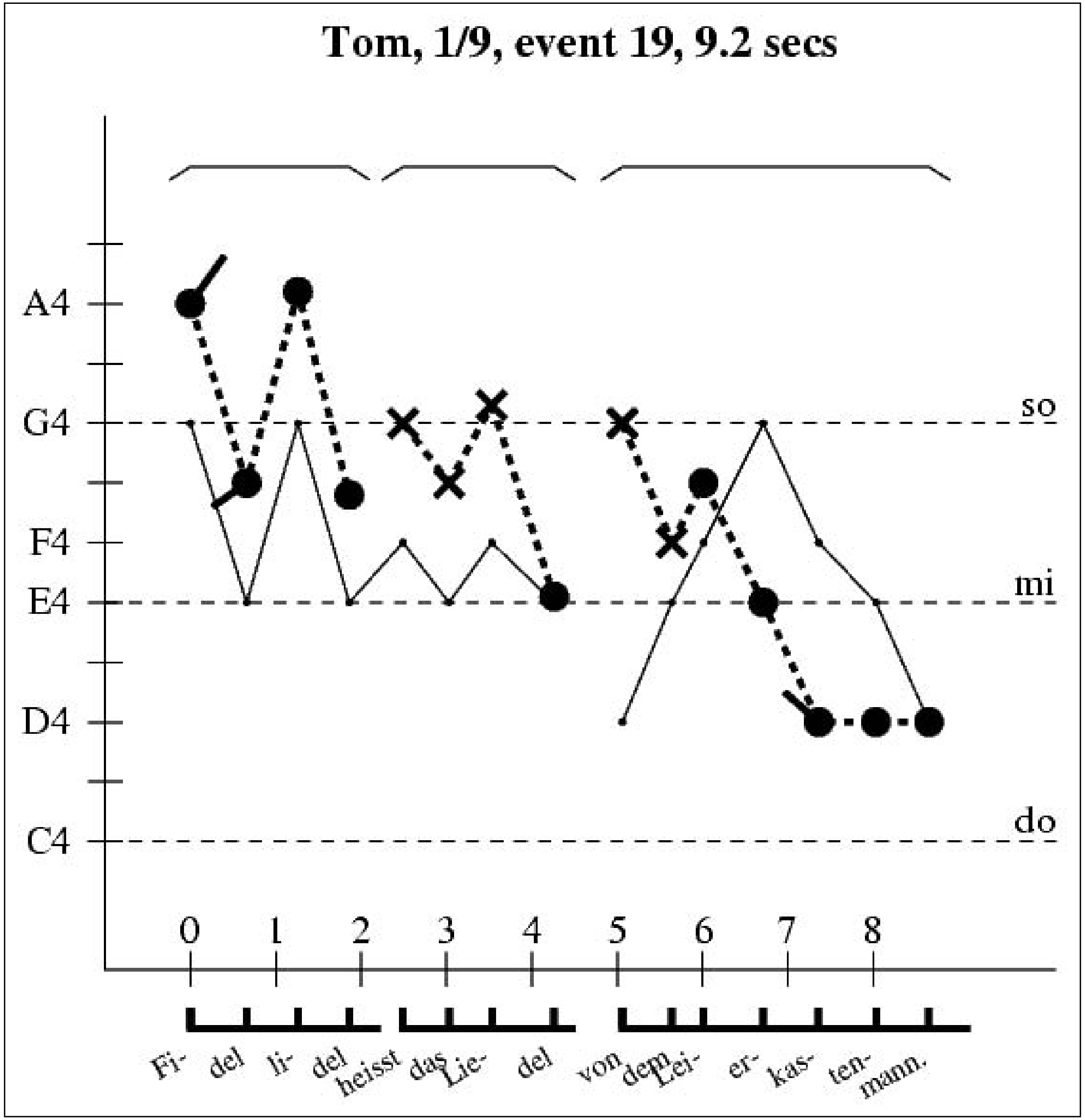

Tom, 1/1, event 4, 8.1 secs
G4
F4
E4
D4
C4
B3
so
mi
do
0 1 2 3 4 5 6 7
Fi- del di- del ne ne ne ne ne ne ne ne ne ne ne.


Tom, 1/2, event 8, 12.1 secs
G4
F4
E4
D4
C4
so
mi
do
H
0 1 2 3 4 5 6 7 8 9 10
Fi- del di- del heisst das Lied
von dem Lei- er- ka- sten- mann.



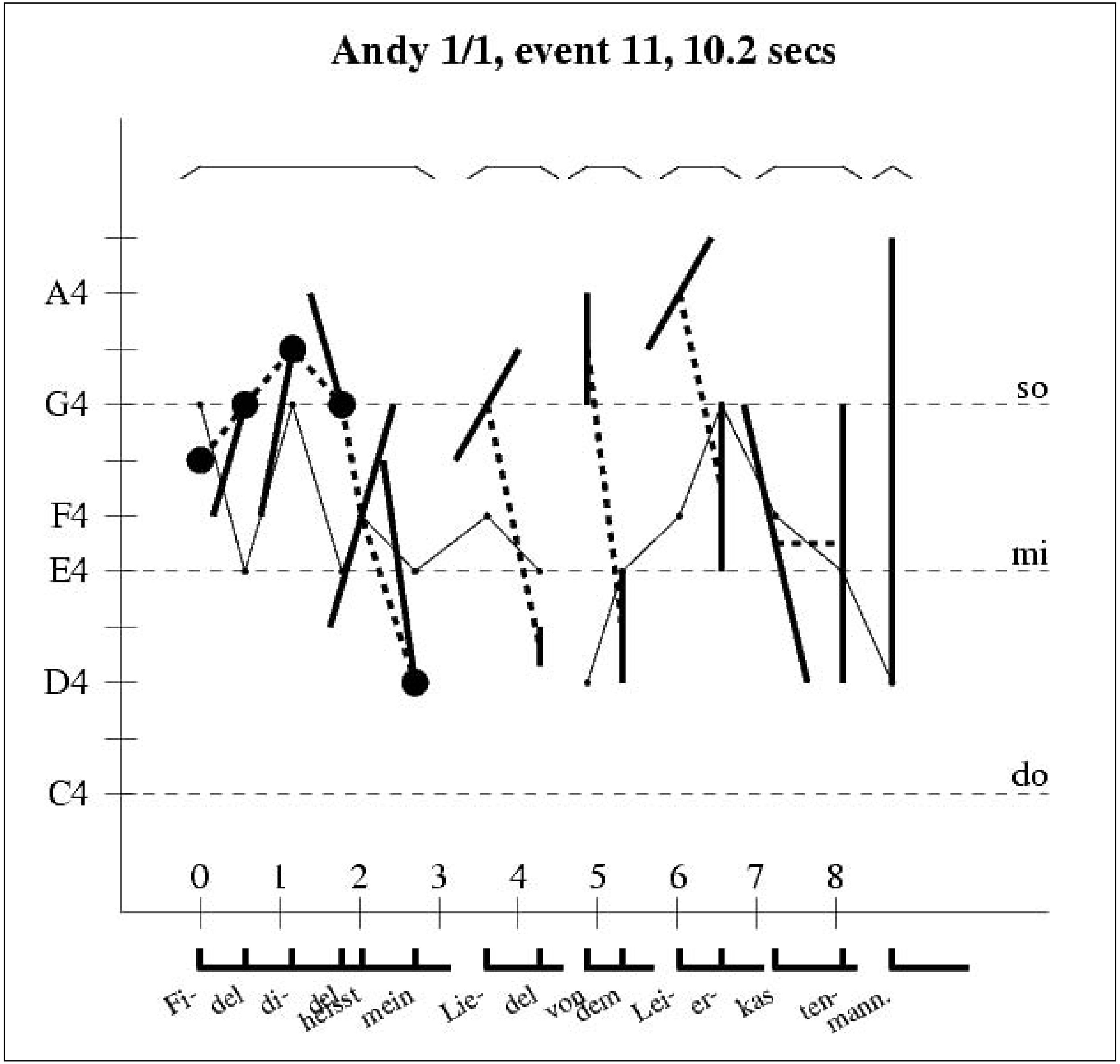
Tom, 1/4(inv.), e. 13, 13.0 secs
A4
G4
F4
E4
D4
C4
B3
so
mi
do
0 1 2 3 4 5 6 7 8 9 10 11
Der Aff der tun die Bal- loe- ne kau- fen und er fahrt wie ma- ni kau- fen ho-- ho- o- o- o- o.

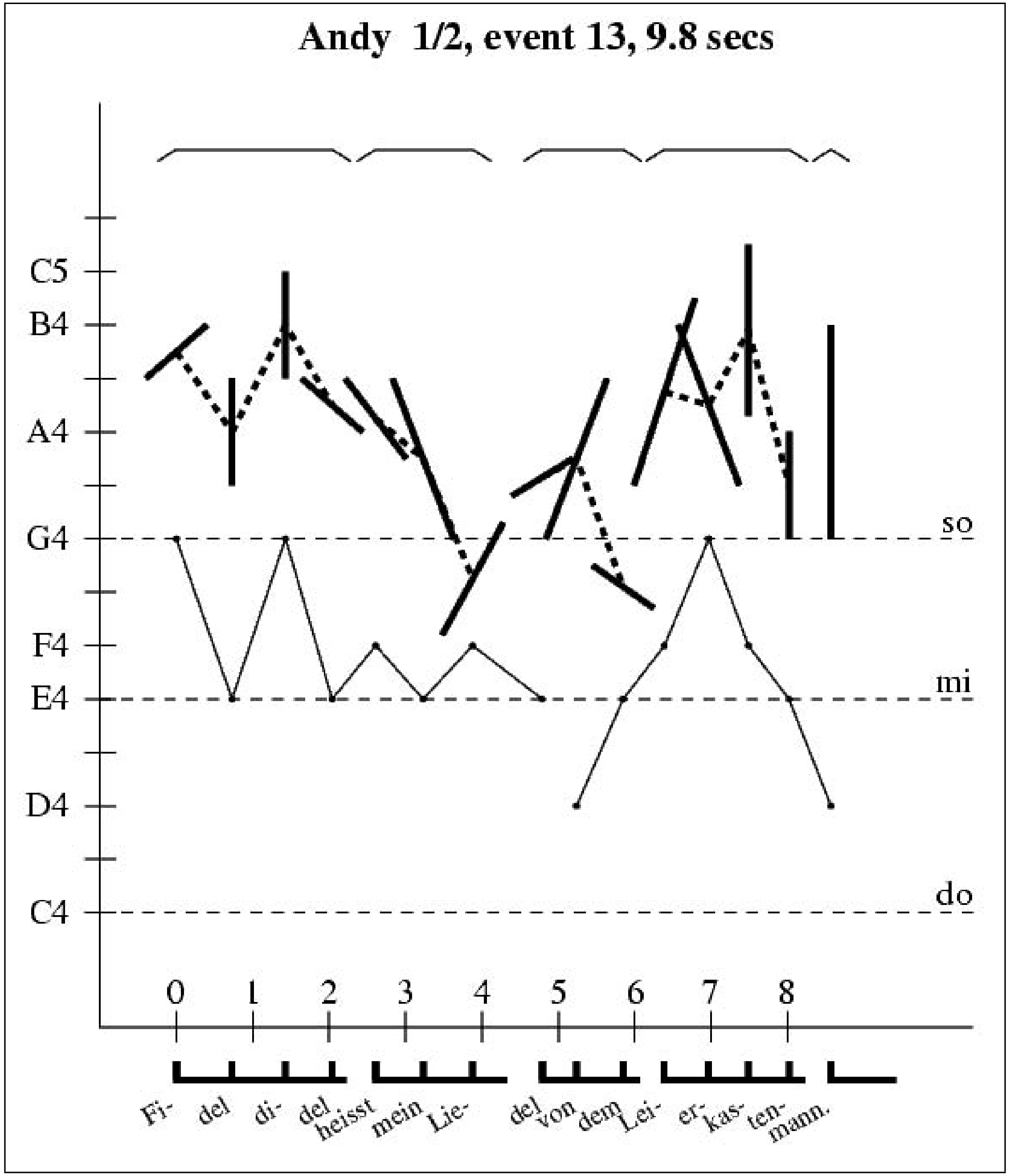

Tom 1/8, event 18, 8.1 secs
G4
F4
E4
D4
C4
so
mi
do
0
1
2
3
4
5
6
7
Fi- del li- del heisst das Lie- del von dem Lei- er- kas- ten- mann.

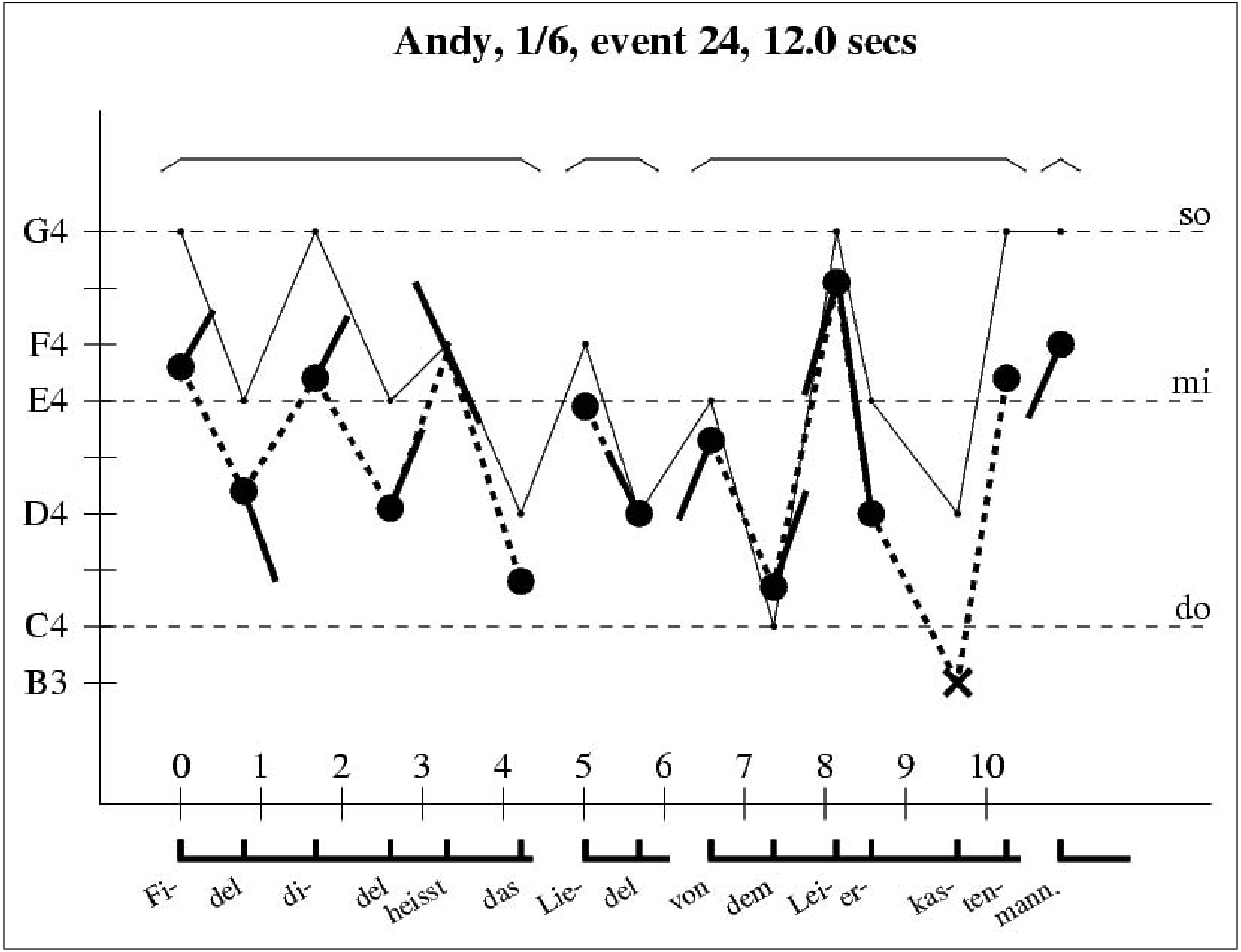

Tom, 1/9, event 19, 9.2 secs
A4
G4
F4
E4
D4
C4
so
mi
do
0
1
2
3
4
5
6
7
8
Fi-
del
li-
del
heisst
das
Lie-
del
von
dem
Lei-
er-
kas-
ten-
mann.

song 1	□	□	□	□	□	□	□	□	□	]		]		□	□			□		W	□		□		□	□
Andy	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
event								]		[	□	[	□			□	[	]	□			□		□		
Soli A.											1		2			3			4			5		6		

Interaction: Andy, song 1.


Andy 1/1, event 11, 10.2 secs
A4
G4
F4
E4
D4
C4
so
mi
do
0
1
2
3
4
5
6
7
8
Fi-
del
di-
del
heisst
mein
Lie-
del
von
dem
Lei-
er-
kas
ten-
mann.


Andy 1/2, event 13, 9.8 secs
C5
B4
A4
G4
F4
E4
D4
C4
so
mi
do
0 1 2 3 4 5 6 7 8
Fi- del di- del heisst mein Lie- del von dem Lei- er- kas- ten- mann.



Andy, 1/6, event 24, 12.0 secs
G4
F4
E4
D4
C4
B3
so
mi
do
0
1
2
3
4
5
6
7
8
9
10
Fi-
del
di-
del
heisst
das
Lie-
del
von
dem
Lei-
er-
kas-
ten-
mann.

Stage 5:

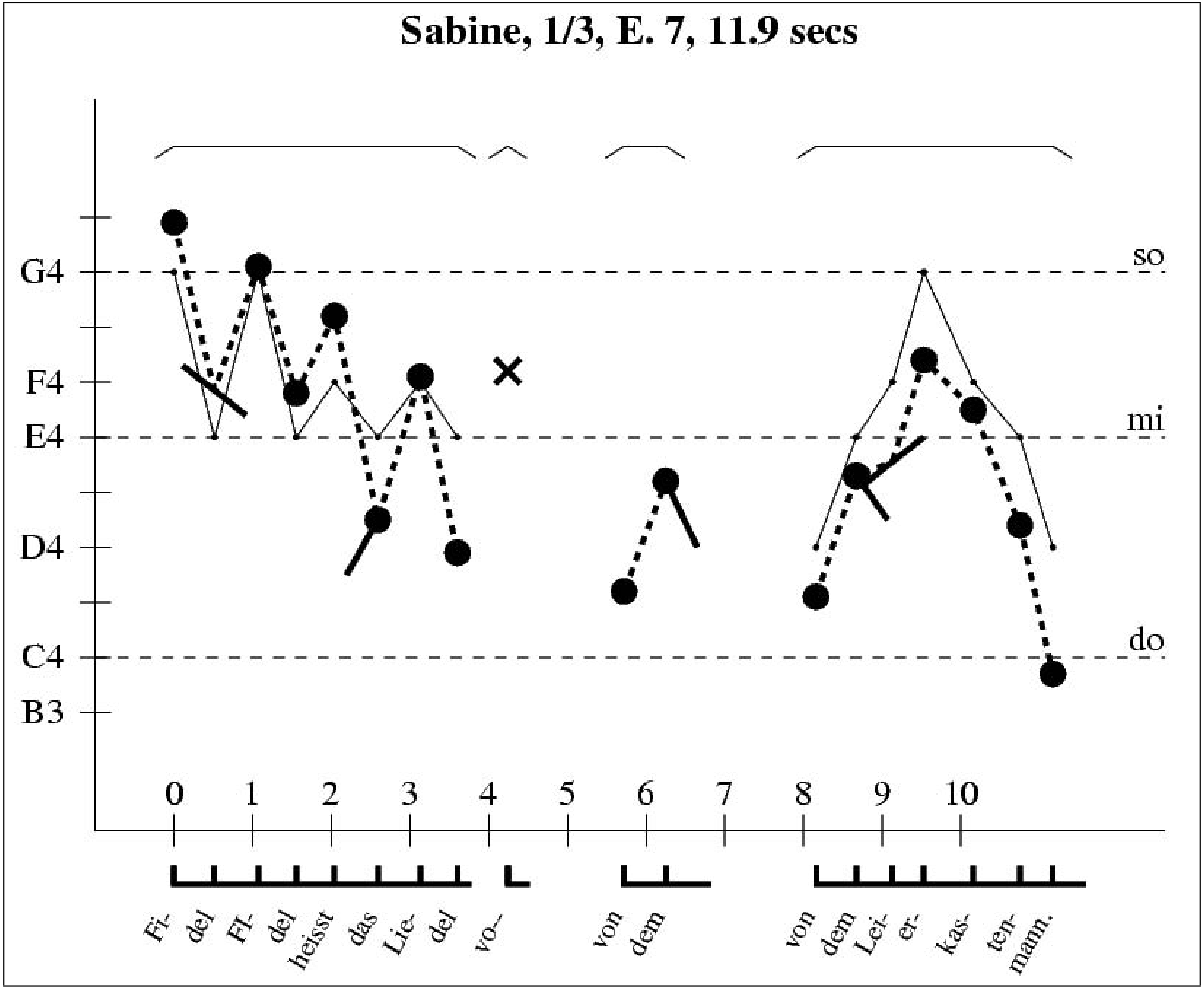
Conventional rules are implicitly integrated into singing

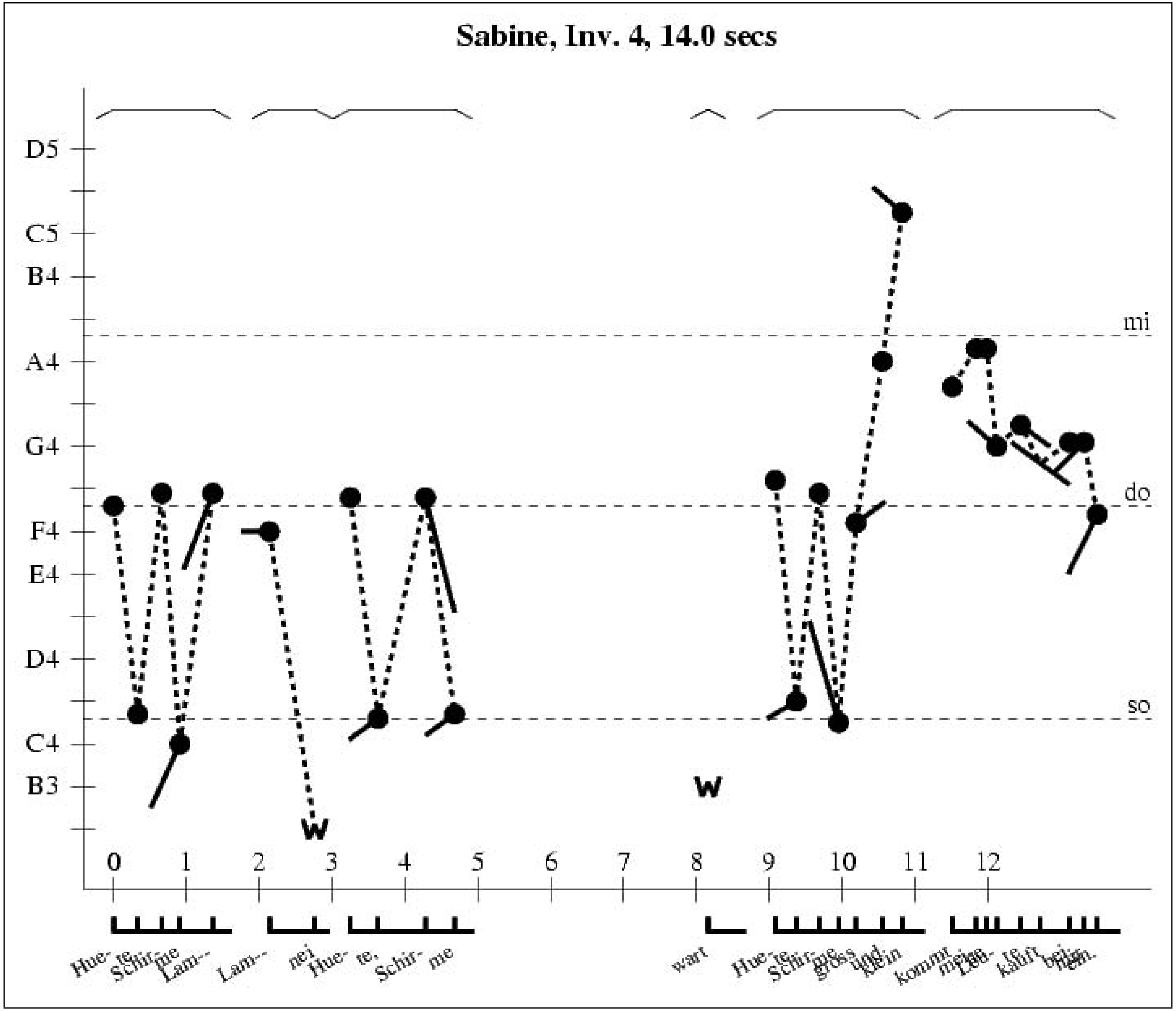
child understands rules at the level of action, i.e. knows **how** to produce songs according to conventional rules.

The growing song repertoire allows to generalise rules rather than single examples.

Invented songs are increasingly controlled by internalised conventions and rules.

Examples: Tom and Sabine


Sabine, 1/3, E. 7, 11.9 secs
G4
F4
E4
D4
C4
B3
so
mi
do
0
1
2
3
4
5
6
7
8
9
10
Fi-
del
Fi-
del
heisst
das
Lie-
del
vo-
von
dem
von
dem
Lei-
er-
kas-
ten-
mann.



Sabine, Inv. 4, 14.0 secs
D5
C5
B4
A4
G4
F4
E4
D4
C4
B3
mi
do
so
W
W
0 1 2 3 4 5 6 7 8 9 10 11 12

Stage 6:

Beginning **reflection and conceptualisation** of musical actions, of success and failure, of means and symbols.

→ growing ability to communicate about actions, co-operations
→ growing abilitiy to use symbols for musical sounds, i.e. reading, interpreting, and composing music.

Beginning reflection of actions, means, symbols and concepts

Growing awareness about one's own strengths and weaknesses related to music.

Growing knowledge about symbolic meanings of music in the own culture.

Awareness of the existence of other cultures' rules and conventions.

Conclusions

- Previous theories fail to account for microgenetic findings.
- Case studies (within experimental setting) allow to reconstruct **change** and reveal new and interesting phenomena and individual differences.
- The child constructs vocal sounds by constantly adapting the growing means to the stimulation he or she receives from the environment.
- Development shows as changes of the structures in actions, thoughts, and consciousness. Are they always profit, or sometimes loss?
- Social interactions during the early ages are most influential in this respect.

(Conclusions)

Future research ...

- focus on the mechanisms of how cultural heritage is transmitted between generations. $\rightarrow$ cross-cultural research $\rightarrow$ universal vs. cultural specific adaptation

- focus on comparative single cases and the variety of possible pathways while elaborating on the reconstruction of the general mechanisms.

- consider the functional aspects of musical behaviour related to emotions and moods.

- consider singing and traditional vocal games as powerful means to regulate emotions and moods,

  and as powerful means to coin the development of a social and socio-cultural identity.

’La musique est le suprême mystère des sciences de l’homme,

celui contre lequel elles butent,

et qui garde la clé de leur progrès.’

(Lévi-Strauss, in Nattiez, 1975)

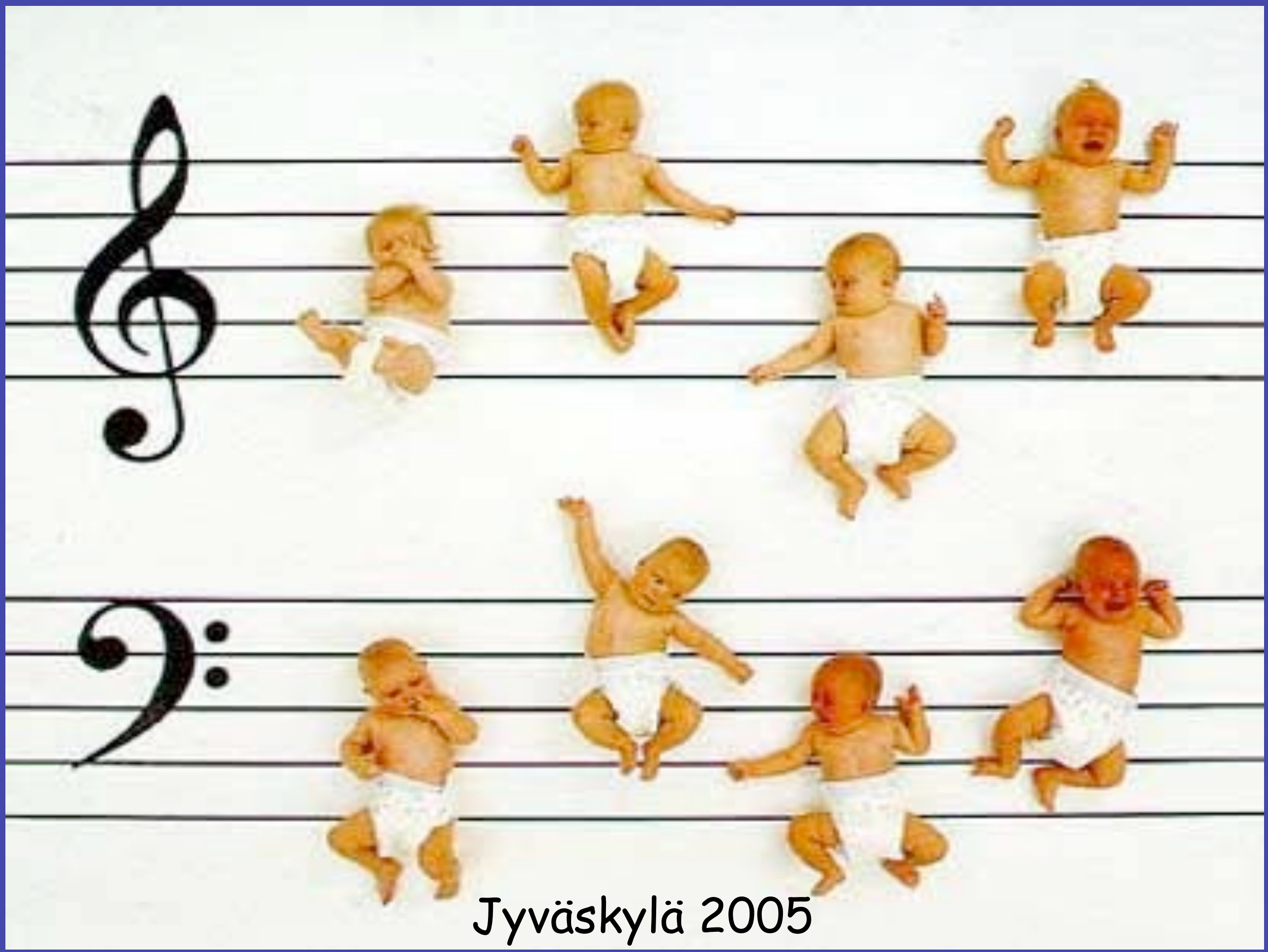
Music is the ultimate mystery in the social sciences

which resists being resolved and which keeps the key to their progress.

Musical Beginnings

Sandra E. Trehub

University of Toronto



Jyväskylä 2005

Infants' music potential

Jyväskylä 2005

- elevated auditory thresholds
- poorer pitch resolution than adults
- poorer temporal resolution than adults

Infants' music potential

Jyväskylä 2005

- elevated auditory thresholds +
- poorer pitch resolution than adults +
- poorer temporal resolution than adults +

= adult-like perception of music

Test procedures

Jyväskylä 2005

- conditioned head-turning
- preferential looking (listening)

Conditioned head-turning


Jyväskylä 2005

- appropriate for 6- to 10-month-old infants
- builds on inclination to turn to sound source

Conditioned head-turning

Jyväskylä 2005

- appropriate for 6- to 10-month-old infants
- builds on inclination to turn to sound source
- infants watch puppet show
- repeating auditory pattern in background (left side)
- subtle changes occur periodically

Conditioned head-turning

Jyväskylä 2005

- appropriate for 6- to 10-month-old infants
- builds on inclination to turn to sound source
- infants watch puppet show
- repeating auditory pattern in background (left side)
- subtle changes occur periodically
- rewards for head turns immediately after a change
- turns at other times have no consequence

Conditioned head-turning

Jyväskylä 2005

- appropriate for 6- to 10-month-old infants
- builds on inclination to turn to sound source
- infants watch puppet show
- repeating auditory pattern in background (left side)
- subtle changes occur periodically
- rewards for head turns immediately after a change
- turns at other times have no consequence
- infants learn "game" quickly
- discrimination evidence: greater incidence of turns after change

Preferential looking

Jyväskylä
2005

- infants' attention attracted to one monitor (e.g., left)
- musical pattern presented until infant looks away
- attention attracted to other monitor (e.g., right)
- contrasting musical pattern presented until infant looks away

Preferential looking

Jyväskylä 2005

- infants' attention attracted to one monitor (e.g., left)
- musical pattern presented until infant looks away
- attention attracted to other monitor (e.g., right)
- contrasting musical pattern presented until infant looks away
- accumulation of looking (listening) times over trials
- differential looking reveals discrimination

Sufficient resolution for music perception

- infants detect smallest meaningful pitch change (1 semitone)
- they detect smallest meaningful timing change

Relational processing

- what music processing is all about

Relational processing

Jyväskylä 2005

- what music processing is all about
- infants recognize melody at different pitch levels *(Trehub et al., 1987)*

Relational processing

- what music processing is all about
- infants recognize melody at different pitch levels *(Trehub et al., 1987)*
- infants recognize melody at different tempos *(Trehub & Thorpe, 1989)*

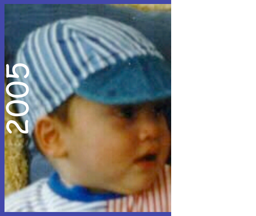
Relational processing

Jyväskylä 2005

- infants respond primarily to pitch contour *(Trehub et al., 1984)*

Relational processing

Jyväskylä 2005



- infants respond primarily to pitch contour *(Trehub et al., 1984)*
- they detect interval changes when the intervals are consonant, or related by small-integer ratios (3:2 or 4:3) *(Schellenberg & Trehub, 1996)*

Relational processing

Jyväskylä 2005

- infants respond primarily to pitch contour *(Trehub et al., 1984;*
- they detect interval changes when the intervals are consonant, or related by small-integer ratios (3:2 or 4:3) *(Schellenberg & Trehub, 1996)*
- they prefer consonant to dissonant music *(Trainor & Heinmiller, 1998; Zentner & Kagan, 1996)*

Relational processing

Jyväskylä 2005

- infants respond primarily to pitch contour *(Trehub et al., 1984;*
- they detect interval changes when the intervals are consonant, or related by small-integer ratios (3:2 or 4:3) *(Schellenberg & Trehub, 1996)*
- they prefer consonant to dissonant music *(Trainor & Heinmiller, 1998)*
- they are sensitive to universal features of music *(Trehub, 200*

Long-term memory for music

Jyväskylä 2005

- infants recognize music after brief daily exposure for 1-2 we
  (Saffran et al., 2000; Trainor et al., 2004)
- involves relational processing

Jyväskylä 2005

Long-term memory for absolute features of music

- infants remember tempo and timbre but not pitch level of instrumental music *(Plantinga & Trainor, in press)*

Long-term memory for pitch level

(Volkova, Trehub, & Schellenberg, submitted)

- sung lullabies instead of synthesized piano tunes
- 7-month-olds exposed to lullabies for 2 weeks
- 2 lullabies (different language, pitch level)

Long-term memory for pitch level

(Volkova, Trehub, & Schellenberg, submitted)

Jyväskylä 2005

- sung lullabies instead of synthesized piano tunes
- 7-month-olds exposed to lullabies for 2 weeks
- 2 lullabies (different language, pitch level)

Long-term memory for pitch level
(Volkova, Trehub, & Schellenberg, submitted)

Jyväskylä
2005

- sung lullabies instead of synthesized piano tunes
- 7-month-olds exposed to lullabies for 2 weeks
- 2 lullabies (different language, pitch level)

Test phase

Jyväskylä 2005

- preferential listening test
- alternating trials with lullaby at old and new pitch level (4ST)

Test phase

Jyväskylä 2005

- preferential listening test
- alternating trials with lullaby at old and new pitch level (4ST)
- German high

Test phase

Jyväskylä 2005

- preferential listening test
- alternating trials with lullaby at old and new pitch level (4ST)
- German high
- German low

Test phase

- preferential listening test
- alternating trials with lullaby at old and new pitch level (4ST)
- German high
- German low
- Results: infants listened longer to lullaby at novel pitch level

Examples of infants outperforming adults

Jyväskylä 2005

- detecting in-key and out-of-key changes *(Trainor & Trehub, 1992)*
- demo: standard and comparison patterns at different pitch levels

Examples of infants outperforming adults

Jyväskylä 2005

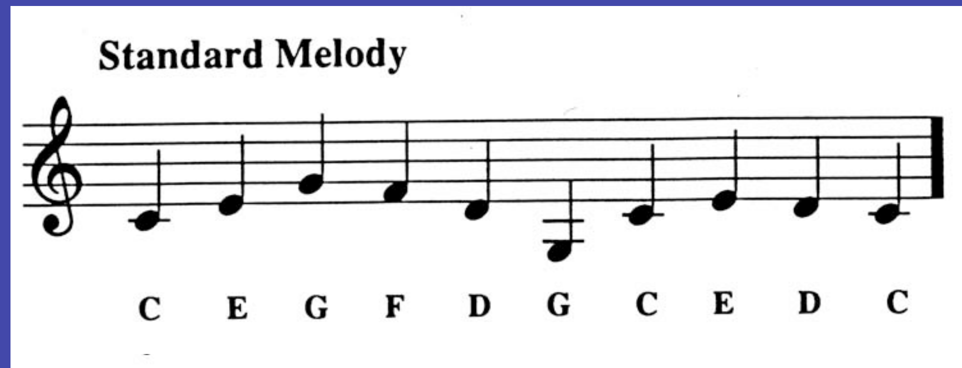
- detecting in-key and out-of-key changes *(Trainor & Trehub, 1992)*
- demo: standard and comparison patterns at different pitch levels

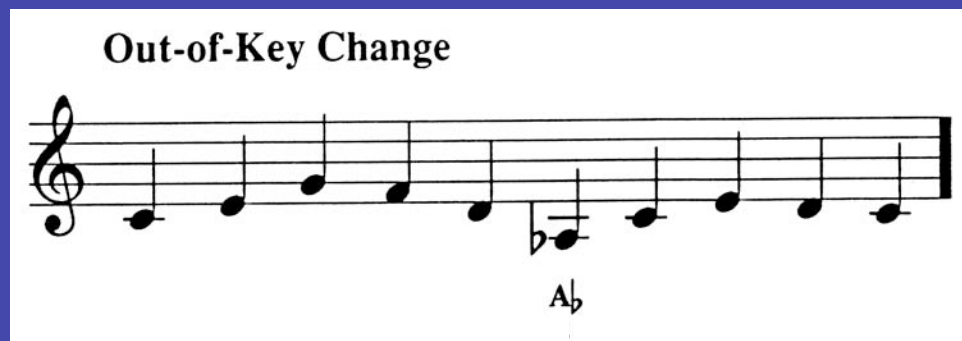
Examples of infants outperforming adults

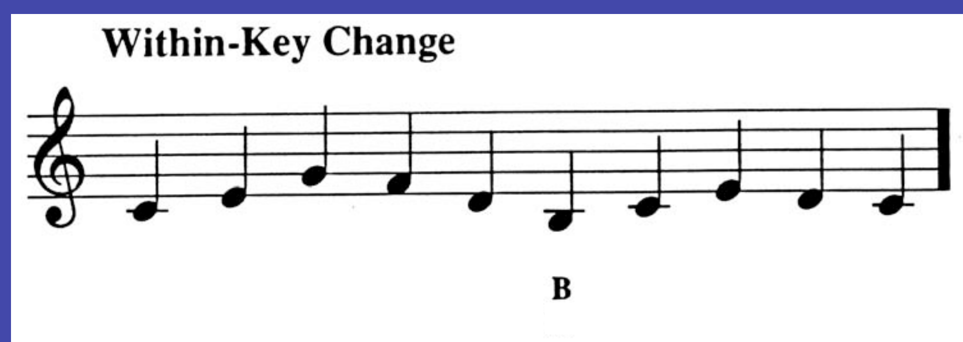
Jyväskylä 2005

- detecting in-key and out-of-key changes *(Trainor & Trehub, 1992)*
- demo: standard and comparison patterns at different pitch levels

The changes







Jyväskylä
2005

Infants' *superior* performance

- reflects ignorance of Western musical conventions
- culture-specific knowledge can interfere with detection of changes
- analogous to difficulty with foreign language sounds

Other examples of infant *superiority*

Jyväskylä 2005

- perception of subtle pitch changes in foreign or unconventional musical material *(Lynch et al., 1990; Trehub et al., 1999)*
- perception of metrical structure *(Hannon & Trehub, 2005a)*

Temporal aspects of music

Jyväskylä 2005

- permit individuals to synchronize their behavior with others
- singing, dancing, clapping, tapping
- may facilitate emotional connections among participants

Types of metrical structure

Jyväskylä 2005

- simple (symmetrical)

  present in all cultures

- complex (asymmetrical)

  Eastern Europe, Africa, South Asia,

  North American jazz

Prevailing view

Jyväskylä 2005

- constraints on metrical processing
- inherent biases for simple meters
- complex meters: exposure or expertise

Jyväskylä 2005

Alternative view

- initial flexibility
- familiar metrical categories interfere with processing of novel metrical categories

  analogous to L1 interfering with L2

Adults: similarity ratings

Familiarization

Test

structure-preserving

Test

structure-violating

Multiple cues to metrical structure

Reduced cues

Adults: similarity ratings

Jyväskylä 2005

Familiarization

Multiple cues to metrical structure

Test

structure-preserving

Test

structure-violating

Reduced cues

Adults: similarity ratings

Jyväskylä 2005

Familiarization

Multiple cues to metrical structure

Test

structure-preserving

Test

structure-violating

Reduced cues

4/4

Adults: similarity ratings

Jyväskylä 2005

Familiarization

Test

structure-preserving

Test

structure-violating

Multiple cues to metrical structure

Reduced cues

4/4

Adults: similarity ratings

Familiarization	Test structure-preserving	Test structure-violating
Multiple cues to metrical structure	Reduced cues	

7/8

Adults: similarity ratings

Jyväskylä 2005

Familiarization

Multiple cues to metrical structure

Test

structure-preserving

Test

structure-violating

Reduced cues

7/8

Adults: similarity ratings

Familiarization	Test structure-preserving	Test structure-violating

Multiple cues to metrical structure

Reduced cues

Adults: similarity ratings

Jyväskylä 2005

Familiarization

Test

structure-preserving

Test

structure-violating

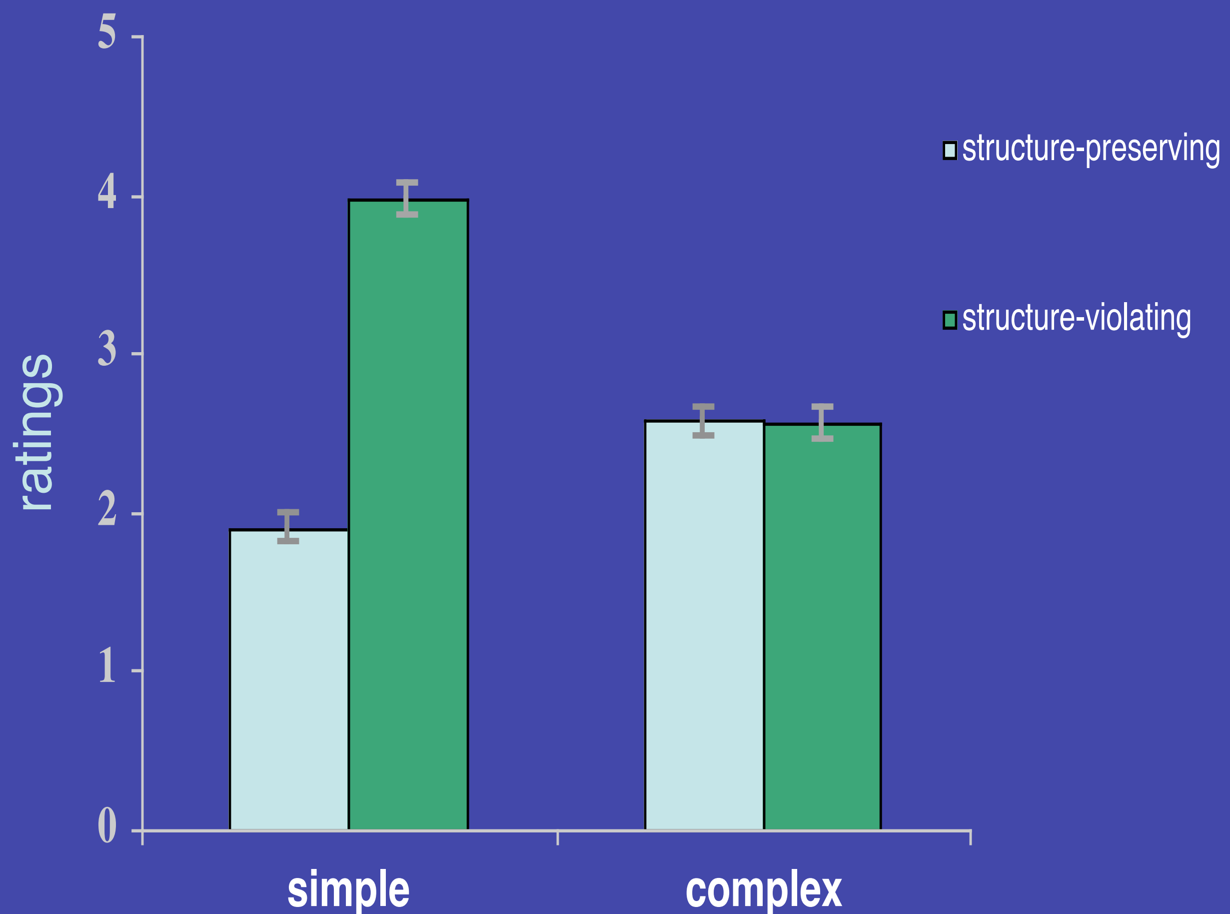
Multiple cues to metrical structure

Reduced cues

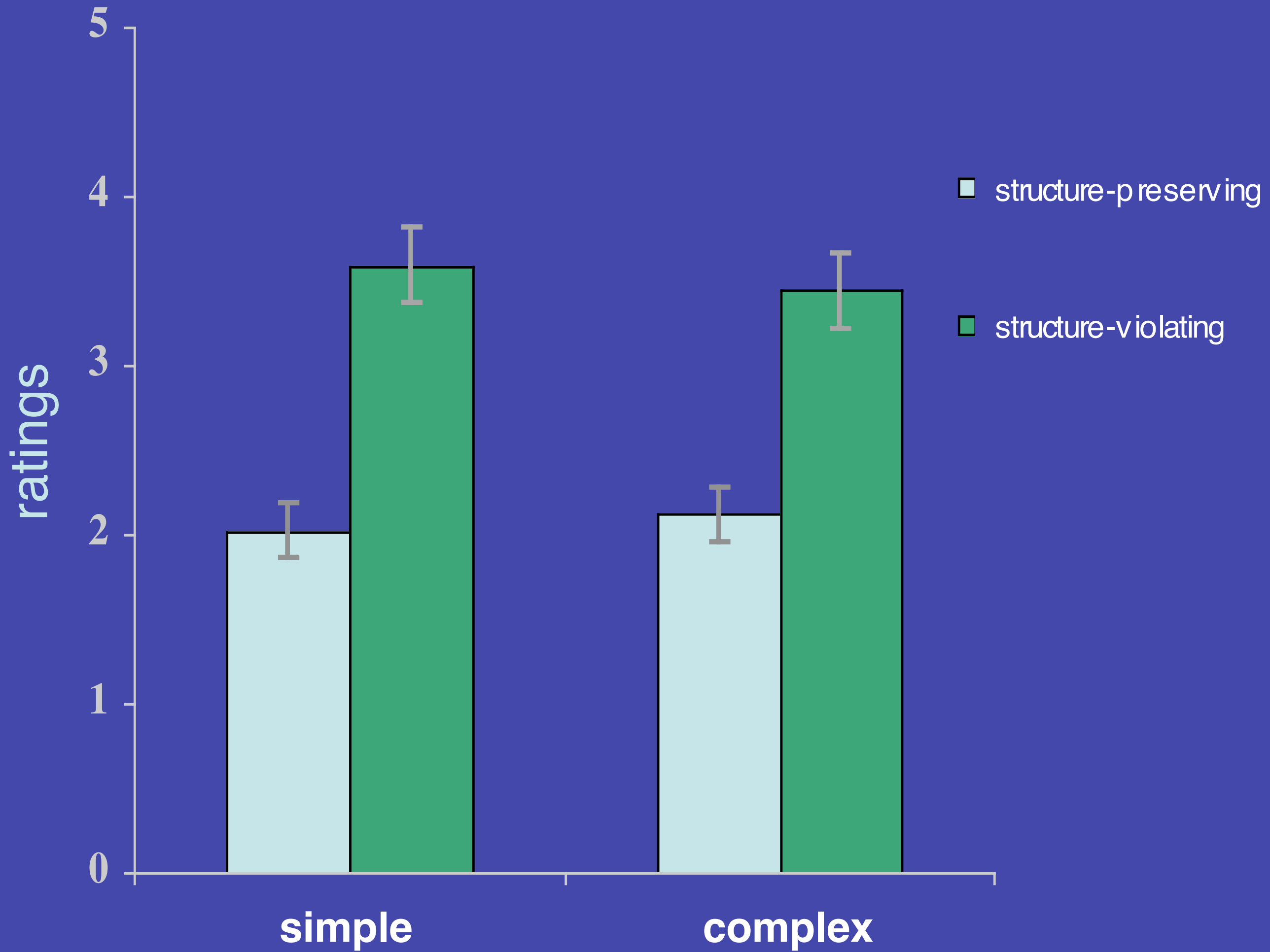
7/8

Western adults

Jyväskylä
2005



Bulgarian & Macedonian adults



Infants: preference test

Jyväskylä
2005

Familiarization

2 min

Test

structure-preserving

Test

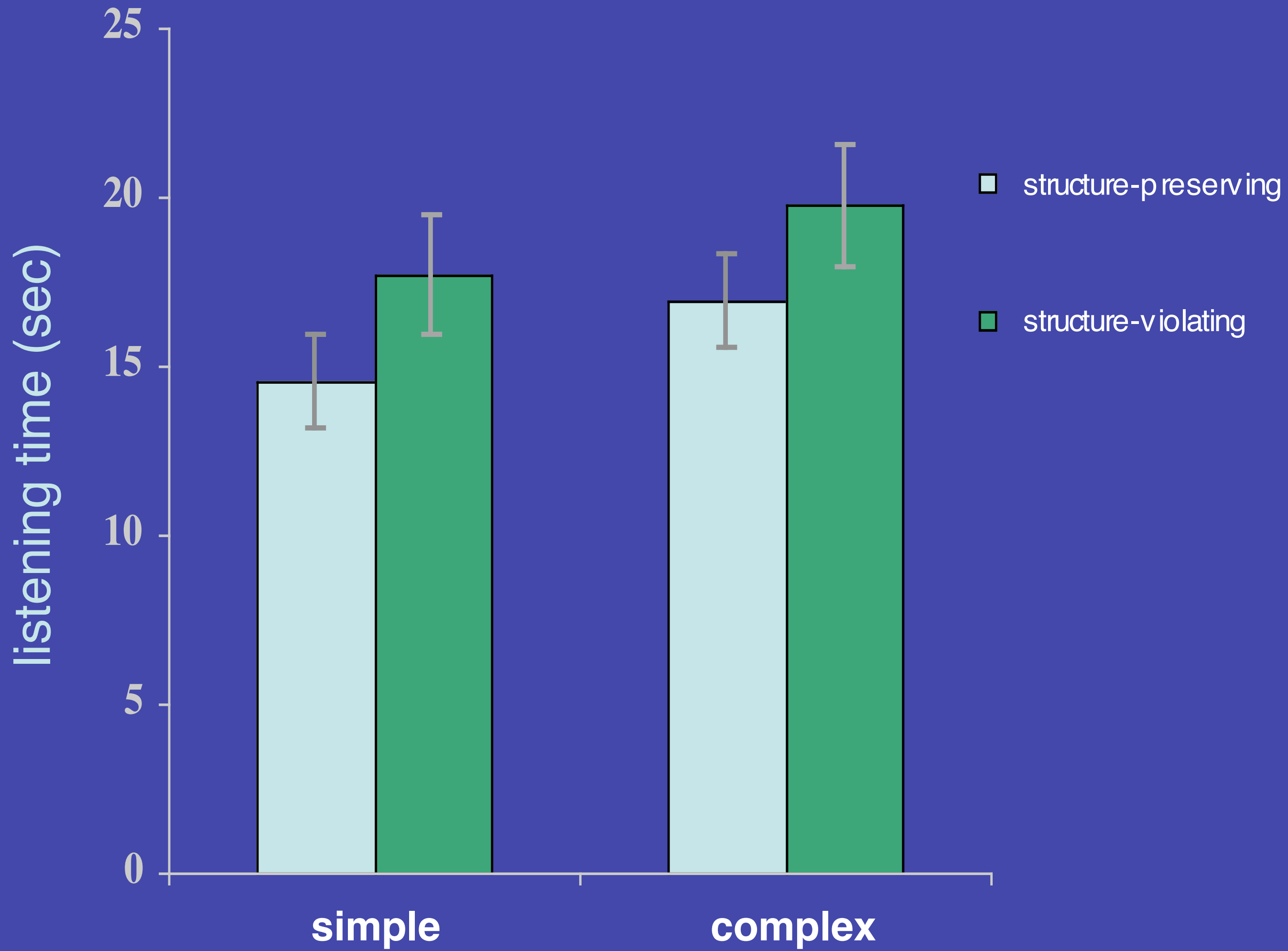
structure-violating

Multiple cues to metrical structure

Reduced cues

Western 6-month-olds

Jyväskylä 2005



Western 6-month-olds respond like Bulgarian and Macedonian adults

Western 12-month-olds

Jyväskylä
2005

- show an adult-like bias for simple meter
- limited exposure to music with complex meter (20 min daily for
  weeks) eliminates the bias
- comparable exposure doesn't change adults' bias for simple met
- 12-month-olds learn more rapidly than adults
- infancy may involve enhanced perceptual learning

(Hannon & Trehub, 2005b)

Role of music in human life

Jyväskylä 2005

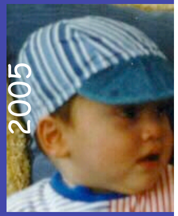
- no culture without music
- every culture: special genre of music for infants *(Trehub & Trainor, 1998)*
- similar features in lullabies across cultures *(Trehub et al., 199[illegible] Unyk et al., 1992)*
- distinctive singing style for infants *(Trainor et al., 1997; Trehu[illegible] et al., 1997)*

Everyday music for infants

Jyväskylä 2005

Everyday music for infants

Jyväskylä 2005



Everyday music for infants

Jyväskylä 2005

Everyday music for infants

Jyväskylä
2005

Maternal music

Jyväskylä 2005

- highly ritualized
- nearly identical pitch level and tempo *(Bergeson & Trehub, 200*
- modulates infant arousal *(Shenfield, Trehub, & Nakata, 2003)*
- elicits greater attention than maternal speech *(Nakata & Trehub, 2004)*

Biological foundations of music

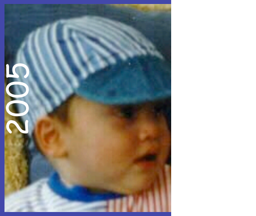
Jyväskylä 2005

- music as *"auditory cheesecake" (Pinker, 1997)*
- inconsistent with ubiquity of music
- universal use in ritual and caretaking contexts

Implications for music educators

- infants are not a blank musical slate
- nature endows them with musically relevant skills
- mothers nurture them with music

Implications for music educators



- children have rich musical experiences before they begin lesso
- they have incredible motivation for music (singing, dancing, play

Challenge for music educators

Jyväskylä 2005

- to maintain the joy of music that is evident early in life
- to build on skills already present
- to recognize parents' role as partners in children's musical education

Jyväskylä
2005

CHILDRENS' REPRESENTATION OF MUSICAL PITCH SPACE: A DEVELOPMENTAL STUDY AND COMPARISON TO ADULTS

Richard Ashley
Northwestern University
School of Music
Illinois USA

ABSTRACT

There has been considerable study of how children represent spatial information, both with visual and verbal materials. The research reported herein builds on our prior research into the internal representation of musical pitch space, and looks at children's categorical and continuous representations of musical pitch space, based on their judgments of the height of different tones. Participants heard tones, played spread evenly over 6 octaves, randomly ordered, and presented in each of three timbres: flute, woodblock, and brass. Participants responded by pointing to a "landscape" to show how high or low the pitch was judged to be. The data we have to date indicate that our youngest participants (ages 3.5-4) use a very restricted classification of tones, only "high" and "low," even when encouraged to use the full and middle range of responses as well. Over increasing age (up to age 10) the granularity of response increases. In general we find that the ordinality of pitches can be recovered from the data, from lowest to highest, but there are significant deviations from "accurate" or linear judgments. These results most closely resemble our adult participants with no musical training.

1. INTRODUCTION

The fields of music cognition and music theory have long used spatial or geometric representations for a variety of phenomena related to musical pitch. Some of the best known of these efforts would be those of Krumhansl and Shepard (for example [5, 6]), but also include other approaches [9]. For the most part these efforts have dealt with representations that operate within a pitch system using octave equivalence, in which pitch height and pitch chroma are treated as (at least partially) separable dimensions. Music theorists have dealt with the notion of pitch height in a variety of ways. One of the most sophisticated and well developed, stems from the work of Robert Morris. In his 1984 treatise, he defines three kinds of musical spaces: contour space, or c-space; pitch-space, or p-space, and pitch-class space, or pc-space [7]. Briefly, the characteristics of each of these are:

1) In c-space, musical events [e.g. notes] are ordered with respect to pitch height or register, but the distances between them are unmeasured except by the number of items in the space from one event to the next; direction from one event to another is ‘up’ or ‘down.’ Thus, c-space is ordinal, linear, and unmetric.

2) In p-space, musical events are ordered with respect to pitch height, and distances between them are measured in terms of some constant unit, such as the semitone. Distances are calculated in terms of the number of these units, prefixed by a sign to show movement up or down, and there are no octave equivalences. Thus, p-space is ordinal, linear, and metric.

3) In pc-space, musical events are mapped onto a cyclically recurring pattern; the examples given replicate the usual concepts of pitch chroma and octave. Distances between events are calculated cyclically, for example modulo the number of chroma in the octave (for Morris, this is usually 12). Thus, pc-space is ordinal, cyclic, and metric.

Earlier work by this author [1, 2] has explored adults’ representations of musical pitch space from both an empirical and a theoretical framework. The empirical work [1] found support for the c-space and p-space framework, related to degree of musical experience. Adults with little musical background were moderately able to ordinally place randomly heard pitches spread over a wide range, as would be consistent with a c-space representation. Musical experts were able to provide not only consistent ordinal judgments but highly accurate distance judgments, by locating the pitches on a vertical line; this latter ability shows evidence for internal representation of pitches in a form resembling Morris’ p-space. Adults with intermediate levels of musical experience fell in the middle; they could represent pitches ordinally but exhibited significant deviations from accurate location of pitches’ distance from one another (revealing itself as a polynomial rather than a linear function of perceived vs. actual pitch height). Following this set of experiments, Ashley [2] explored different cultures’ conceptions of pitch height, including not only metaphors of “high” and “low” but also “narrow” and “broad,” “large” and “small,” and kinship relationships. This study challenged the notion that a mapping of musical pitches onto “high” and “low” is somehow innate or “natural,” as is sometimes claimed.

The current study begins to address the issue of how notions of pitch space develop over childhood, in addition to the evidence for p-space develop with musical training. It should further elucidate issues of “naturalness” or “innateness” and about the categorical and continuous elements of perception and representation of musical pitch in English-speaking children.

2. METHOD

2.1. Equipment

All stimuli were produced and played on an Apple Macintosh iBook computer. Initial stimuli were produced using a MIDI sequencing program (FreeStyle), and played back using QuickTime's General MIDI timbres. These stimuli were converted to individual pitches and stored as SoundEdit format files (16 bit, 22.05KHz sampling rate, monaural). Sounds were presented over JBL 4408 studio monitor speakers. Presentation of stimuli and collection of data was carried out with the PsyScope experiment-management software package. Statistical analyses were carried out using the JMP software package.

2.2. Stimuli

A set of 33 pitches comprised the stimulus set. The goal was to have evenly-spaced pitches covering a wide range, within defined extremes of high and low. Extremes of register were set as F0 and F6. The distance between the extreme pitches is 84 semitones. The experimental stimuli used the eleven pitch-classes remaining once F-natural was removed from the complete chromatic collection. These eleven pitch-classes were deployed in a manner designed to cover a wide range as evenly as possible, use all eleven elements, and avoid any possible tonal references which could skew a perception of registral distance by conflating it with tonal distance. The set of tones was: (D1, G#1, C#2, G2, C3, F#3, B3, E4, A#4, D#5, A5). The distance between each adjacent pair of pitches in this series, in semitones, is (6, 5, 6, 5, 6, 5, 5, 6, 5, 6, 5), roughly alternating intervals of the perfect fourth and the tritone. The series of pitches falls closer to the upper boundary of F6 (8 semitones away) than the lower boundary (21 semitones), biasing toward what was taken to be a more 'normal' musical registral distribution.

Three different timbres were used for presentation of the eleven pitches, in order to investigate the possible influence of timbre on perceptions of pitch space. These timbres were QuickTime's General MIDI Whistle, Tuba, and Woodblock. The Whistle timbre is notably free of upper partials, and thereby very closely approximates a sine wave in steady-state; the instrument does, however, use vibrato. The rate of vibrato does not differ noticeably in different registers and is not, therefore, a clue to registral placement. The Tuba timbre is notably brasslike, although the instrument may variably be identified as a trombone or trumpet depending on register. Vibrato is present in this timbre, as in the Whistle. The Woodblock sound has a distinctive 'woodlike' character in middle and upper registers, and in the lower registers has a sound more like a drum with a loosely tuned head. In all registers it is notably percussive, with a less-clearly-defined projection of a specific pitch and a less-sustaining envelope than the other sounds. There is no vibrato on this timbre.

2.3. Participants

The data reported herein come from 21 participants, children aged 50 to 114 months (four to nine and a half years old). The data from 6 additional participants are not included as they these children were found to use a language other than English as the primary home language (mostly French, which uses "aigu" and "grave" for pitch terms). Discussion with preschool music teachers and a pilot study indicated that children below the age of 4 would not find the task meaningful. Children were recruited from early childhood music classes, and were compensated with a small gift for their participation.

2.4. Procedure

Participants were instructed that they would hear a series of pitches in randomly assigned registers. Their task point to a whiteboard with clouds at the top and a landscape at the bottom to show their estimate of the relative height of the pitch, with the bottom of the line being the 'floor' of the registral possibilities and the top of the line being the 'ceiling.' In order to give a context for the extremes of register, the pitches F0 and F6 were played twice, using the Whistle timbre, as examples of the bottom and top of the range to be used.

Each of the eleven stimulus pitches was played three times, once for each of the timbres used. The ordering of these thirty-three pitches was randomized, so that registers and timbres could freely intermingle. Participants pointed to a whiteboard with clouds at the top and a landscape with a lake at the bottom to show the relative height of the pitches; the distance between the bottom of the clouds and the surface of the lake was one meter. Each session was videotaped and measurements taken from the videotape as to the pointed-to placement of each pitch. The coding of these measurements was in one percent increments of the distance from clouds to lake (a measurement granularity of 100 units). Points above or below the one-meter boundaries were coded as 100 or 0, respectively. The experimental session lasted between three and six minutes.

3. RESULTS

The results found are preliminary due to the small data size, but are nonetheless interesting for the developmental curve that they indicate, for categorical and continuous aspects of pitch perception and for the interactions of pitch and timbre.

3.1. All of the children

Figure 1 shows the distribution of judgments from the children as a whole, combining all three timbres, and also shows the match of their pitch height judgments to a linear function.

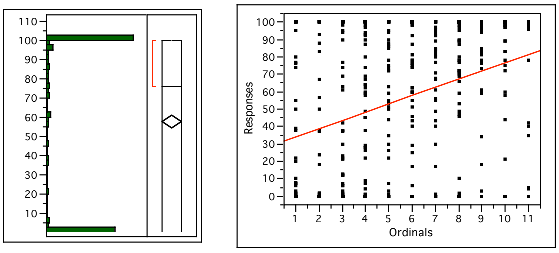


Figure 1. Category distribution and linear fit of judgments vs. ordinal placements of pitches, all participants

The main findings for the group as a whole are threefold: the large influence of the boundary categories "high" and "low", with relatively fewer judgments spread across the rest of the span; the moderate upward slope of the linear fit, showing an overall sense of ordinality, although with many errors in location of pitch height; and the high level of disagreement about the placement of pitches at specific levels. These will be briefly discussed for three age brackets: the youngest, middle, and oldest children.

3.2. The youngest group (0-54 months)

The results from the youngest group of participants are summarized in Fig. 2. The overwhelming influence of only two perceptual categories, "high" and "low," is abundantly clear. What is less clear is that there is very little correlation between these categorical judgments and the actual register of the notes as heard.

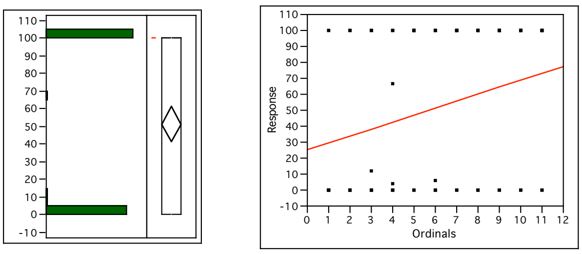


Figure 2. Category distribution and linear fit of judgments vs. ordinal placements of pitches, youngest group

The children are responding about at chance with these two categories; two of them mostly alternated their responses between the clouds and the lake, and one of the French-speaking children (whose data was not used here) adopted a strategy of starting at the maximum and dropping successively for three different levels, then beginning another iteration. It is clear that for some children at this age the task was either too difficult or not conceptually meaningful. Discussions with preschool music teachers indicate that 4-year old children would normally use at best two categories for pitch, and that many are just acquiring these concepts. These anecdotal reports reinforce the data reported here.

3.3. The middle group (55-77 months)

The middle group shows more use of intermediate judgments, but still the bulk of responses fall into the outer categories, with a bias toward the top end (due perhaps to timbre effects, not discussed here for reasons of space). There is still only a moderate linear fit to height judgments, and interestingly a nonlinear component emerges as significant, showing "medium" category tendency might be emerging.

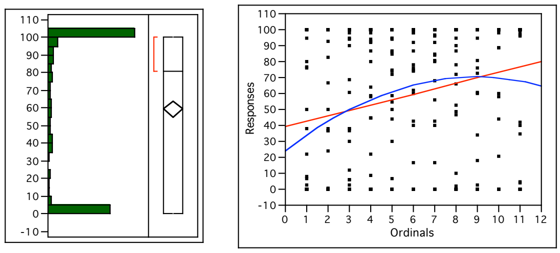


Figure 3. Category distribution and linear/quadratic fit of judgments vs. ordinal placements of pitches, middle group

3.4. The oldest group (78-114 months)

It is in this group that more adult-like responses begin to emerge. The relationship between judged height and actual height becomes stronger in the linear fit, as well as showing a significant S-curve (cubic) component, which was characteristic of moderately experienced adult listeners. In addition, the use of the full range of responses continues to develop, although not consistently for all participants.

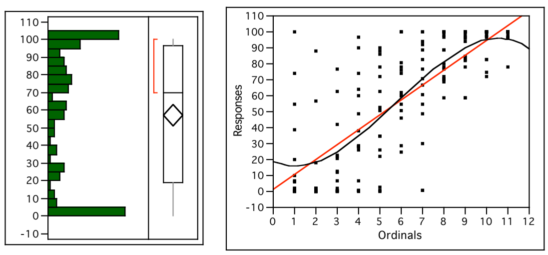


Figure 4. Category distribution and linear/cubic fit of judgments vs. ordinal placements of pitches, oldest group

4. DISCUSSION

4.1. Overall discussion

The results of the data are several. First, the mapping of pitch height onto a high/low dimension or the use of categories "high" and "low" for musical sounds develop over time and are not immediately available to young children. This argues against verticality as a "natural," "innate" metaphor for pitch, and argues instead for a culturally-informed, linguistically-developing conceptual framework. Second, when categories for pitch do begin to emerge consistently, only two—high and low—are used, with midrange pitches assigned into one of these two categories. Third, a substantial use of categories outside high and low does not emerge until perhaps after the age of 6, with more development after age 8. Children after the age of 8 show patterns of pitch judgement resembling those of adults. Children of all ages are influenced by musical timbre to a modest degree; in this study, this was reflected in the brass tone being biased toward "high," perhaps because of its perceptual brightness.

4.2. Future work

Many questions remain to be answered. One pattern that can be noticed in the responses given by the children in this study is that judgments seem to be made relative to the prior note in terms of overall ordinal placement or contour. In the adult studies this served to recover ordinality over the set of pitches as a whole, but this effect was much smaller here. One way of addressing this would be to use paired comparisons, playing only two pitches at a time for the children and having them say "higher" or "lower" for the second pitch. This might help deal with the rather daunting task given them in this study, but would take many more trials. Another issue to examine is the influence of timbre on pitch height judgments, which is at best a side issue here. Another, more difficult to organize, is to control for the effect of musical training as opposed to general developmental factors. Larger groups of participants will be necessary to take the suggestive results here and have more statistically reliable results o this topic. Finally, the question of how language about music might influence a listener's understanding of musical pitch would be fascinating to study, perhaps by using matched groups of English-speaking and Spanish-speaking children. This quasi-Whorfian question has yet to be examined with regard to music in any systematic manner, and has proven to be a fruitful question in other aspects of children's cognitive development.

5. REFERENCES

[1] Ashley, R. Categorical, continuous, and linguistic dimensions of musical pitch space. In R. Kopiez, AC Lehmann, I. Wolther, & C. Wolf (eds.) *Proceedings of the ESCOM 2003 Triennial Conference,* Hannover, 2003.

[2] Ashley, R. Musical pitch space across modalities: Spatial and other mappings through language and culture. In S. Lipscomb, R. Ashley, Rm Gjerdingen, & P. Webster (eds.) *Proceedings of International Conference on Music Perception and Cognition 8*. Causal Productions, Adelaide, 2004

[3] Crawford, L.E., Regier, T, and Huttenlocher, J. Linguistic and non-linguistic spatial categorization. *Cognition* 75, 209-235, 2000.

[4] Huttenlocher, J., Newcombe, N., & Sandberg, E. The coding of spatial location in young children. *Cognitive Psychology* 27, 115-147, 1994.

[5] Krumhansl. C. Cognitive Foundations of Musical Pitch. Oxford University Press, Oxford, 1990.

[6] Krumhansl, C., & Shepard, R. Quantification of the hierarchy of tonal functions within a diatonic context. *Journal of Experimental Psychology: Human Perception and Performance* 5, 579-594, 1979.

[7] Morris, R. *Composition with pitch classes: A theory of compositional design.* Yale University Press, New Haven, 1984.

[8] Newcombe, N. S. & Huttenlocher, J. *Making space: The development of spatial representation and reasoning.* MIT Press, Cambridge, Massachusetts, 2000.

[9] Stevens, S. S., Volkmann, J., & Newman, E.B. A scale for the measurement of the psychological magnitude pitch. *Journal of the Acoustical Society of America* 8, 185-190, 1937.

DOTTED RHYTHM IN JAPANESE AND IN ENGLISH: TOWARDS AN UNDERSTANDING OF THE INFLUENCE OF MOTHER TONGUE ON YOUNG CHILDREN'S MUSICAL BEHAVIOUR

Nozomi Azechi
School of Arts and Humanities,
Institute of Education,
University of London,
UK

ABSTRACT

The influence of a mother tongue on young children's singing, exampled in the case of dotted rhythm, was examined in this study. Music and language are often closely linked, and the boundary between them is ambiguous. As young children's babbling develops the underlying prosodic features, including rhythm, of their mother tongue, so might their singing be shaped by cultural influences towards certain rhythmic patterns.

Japanese and English children aged 3-6 singing two songs "Twinkle, twinkle" and "If You're Happy and You Know It" were analyzed by nPVI (normalized Pairwise Variability Index). The nPVI values were generated from the rhythmic analyses from the actual length of IOIs (inter-onset intervals) in their singing products.

Preliminary analysis of "Twinkle, twinkle" indicates that there is a difference between the two groups at age 4 and above, (mean nPVI value = 23.64 vs. 26.45). The nPVI value of 3-year-old singers suggests no difference between the two language groups. Further differences of dotted rhythm were expected in the second song "If You're Happy and you Know It", from the expected nPVI values calculated from an analysis of the musical score. A difference was found only between 5yo groups (mean nPVI values = 34.62 vs. 68.12). There is a tendency for language effects to become more evident as the children grow up. Just as young children's babbling and early words become more clearly speech, so rhythm in singing begins to reflect dominance in the mother-tongue rhythm.

1. INTRODUCTION

Dotted rhythm is well known among music teachers as one of the "need to be trained" musical skills. Without an attention to hold the note length, duration of the dotted note is usually shorter than the written score. for Japanese music learners, especially for children. An example is a dotted eight note followed by a sixteenth note (e. x). In this rhythm pattern, the ratio of note length should be 3:1 from the score, but is often played closer to a 2:1 ratio, as if in a quarter note plus an eighth note in a triplets rhythm (q e).

This tendency does not appear in trained musicians' performances, but there is evidence that Japanese performance on a dotted rhythm gives a different impression than that from a Westerner performer. The timing of dotted rhythm in Mozart's Piano Sonata K. 331, for example, was found to be different in performances by Westerners and Japanese [1].

The underlying reasons for the relative weakness in playing a dotted rhythm has been investigated, and one supportive theory - the lack of existence of dotted rhythm in Japanese traditional music - was agreed amongst Japanese musicologists and linguists [2. 3, 4, 5]. According to a study on rhythm of Japanese traditional music [4], the basic rhythm of Japanese songs is equal-timed rhythm. Dotted rhythm (a quarter note plus an eighth note in triplets) in children's songs is believed to exist merely as variations of successive equally timed notes, which contain weakened morae[1] in song lyrics. In such cases, the dotted rhythm is sung in a 2:1 ratio, rather than 3:1. In contradiction to this theory, a dotted rhythm (although it was sung in 2:1 ratio rather than 3:1) was found to be the most preferable rhythm for children in a study of their singing [6]. The question remains: How do Japanese children gain the dotted rhythm?

2. YOUNG CHILDREN'S DEVELOPMENT ON MUSIC AND LANGUAGE

The available research literature indicates that music and language are often closely linked, at least in young children's musical development during the first years of life [7, 8, 9]. Children aged between three to five years are often observed singing and playing with words in music-like formulae [10]. Singing and speaking are closely linked to each other and often the boundary between them is ambiguous. It is hypothesized, therefore, that the rhythm of language and of music, also, might be in some form of relationship as part of development.

The development of young children's rhythm in singing might be in some form of symbiotic relationship to

[1] Mora is a sort of phonetic unit, but not same as a phoneme; it is the smallest pronounceable unit in the Japanese language.

their speech rhythm. As the infants' babbling gradually develops into specific rhythms of their mother tongue, their singing rhythmic form also becomes more closely associated with their cultures' musical rhythm. Japanese children's speech, for example, becomes more Japanese-like, meanwhile their singing also begins to be shaped in a Japanese style.

3. AIM OF THIS STUDY

The aim of this study is to discover what influence the mother tongue has on young children's singing behaviour, especially as reflected in their rhythmic sense within their singing in dotted rhythm.

4. METHODOLOGY

4.1. nPVI analysis

In the current study, nPVI (normalized Pairwise Variability Index [11] values were generated from rhythmic analyses of 3-6 year-old Japanese and English children's singing of songs that exist in both cultures.

Originally nPVI was used for rhythmic classification of speech from duration measurements [11]. Soon after, it was applied to the analysis of music to examine the influence of language on music rhythm [12][13]. In these studies, nPVI was calculated from score timing. Thus, it could be termed as a score nPVI.

Unlikely other studies, which have also applied nPVI to music and language, in the current study the actual length of Inter Onset Interval (IOI) was used for the analyses, because of the considerations of further comparison between singing and speech. In addition, the focus for this study has been young children's musical behaviours, rather than that of adults.

$$nPVI = 100 \times \left[\sum_{k=1}^{m-1} \left| \frac{d_k - d_{k+1}}{(d_k + d_{k+1})/2} \right| /(m-1) \right] \quad (1)$$

nPVI value ranges between 0 to 200. A lower value means that the durations of successive notes/syllables are not so random and, therefore, the focus behaviour has a simpler (or more fixed) rhythm. Higher nPVI values means that the duration of the successive notes/syllables are varied and, at the highest values, in a random order. Higher values equate, therefore, to a more complicated rhythm. For example, a musical nPVI value is usually smaller than a language nPVI, because music has more systematic rules (e.g. metre). Also, syllable-timed languages, such as French and Spanish, have nPVI values (43.5 and 29.7) that are reported as lower than stress-timed languages (e.g. English 57.2, German 50.7). The mora-timed Japanese language's nPVI value (40.9) was slightly lower than French. It means Japanese language also has a characteristic of equal-timed rhythm.

In this study, lower nPVI values were expected in Japanese groups compared to English. And this difference was expected to become bigger as the children get older and the effects of culture become more apparent.

4.2. Recordings

Japanese children aged 3yo to 6yo were asked to sing the focus songs in Japanese. This recording session was undertaken in Japan, 2004 at a private kindergarten. English children of the same age groups were asked to sing the same songs in English. The recording was made at a state school's nursery in London during 2004 and 2005.

Mini Disk (MD) recordings were converted to audio files (wav, 44.1 kHz, mono) using SoundStudio2. Then, selected examples (chosen for recording quality) were segmented into each tone/note by hand using WaveSurfer. The vowel-onset was chosen in this study as the onset of interval duration following previous specialist research [14][15].

4.3. Song Materials

"Twinkle, Twinkle" was chosen as the sung material because it has exactly the same rhythm in Japanese as the English version in a written music score. The expected nPVI values of this song, which was calculated from an analysis of the music score, was 22.22 in both language versions. "If You're Happy and You Know It" also has the same rhythm in both language versions, except at the end of the third phrase. Therefore, the expected nPVIs were slightly different between the Japanese and English versions (103.59 vs. 105.46). They were good songs for comparison because of their internal design. "Twinkle, Twinkle" had successive eighth note rhythms, whereas "If You're Happy" has dotted rhythms; one began on a downbeat and the other began on an upbeat.

5. RESULTS

5.1. "Twinkle, Twinkle"

The preliminary analysis of "Twinkle, Twinkle" indicates that there is a difference between the two national groups at age 4+, (mean nPVI value = 23.64 vs. 26.45, no significant difference was found). A lower nPVI value indicates that the rhythm was sung in more equal-timed manner. Therefore, Japanese children's singing rhythm was more equal-timed than the English participants in "Twinkle, Twinkle". This result was exactly the same as expected from the character of the language rhythm, i.e., mora-timed Japanese rhythm and syllable-timed English rhythm. However, the nPVI values of 3yo singers suggest that there is no difference between the two language groups at this age (3yo Japanese and English). It suggests that both Japanese and English children have not yet acquired their cultural rhythm at the age of three.

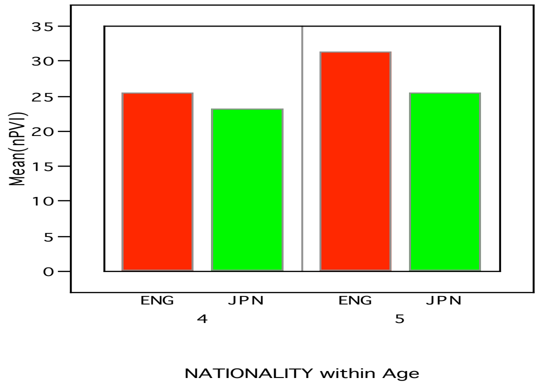


Figure 1. Mean nPVI values of “Twinkle, Twinkle” between English and Japanese, age 4 and 5 groups.

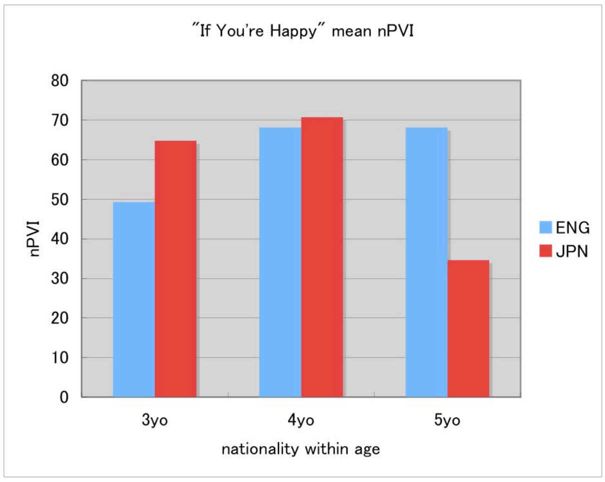


Figure 2. Mean nPVI values of “If You’re Happy” in three age groups.

5.2. “If You’re Happy and You Know It”

The analysis is currently ongoing, but unexpected results were found in the younger age groups, 3-year-olds and 4-year-olds. The youngest age group (3yo) shows less nPVI value than expected (e.g. 4yo English mean = 49.29). It could be considered that the lower nPVI value was caused because of the shortening of the dotted note. In other words, the dotted rhythm was sung in more equal-timed rhythm in 4yo English children’s singing.

At the age 4 and 5, Japanese groups’ mean nPVI value was higher than English group. It suggests that English children’s singing was more equal-timed, close to a 1: 1 ratio rhythm at younger age. In other words, Japanese children’s singing was in more random rhythm. Thus, it could be closer to the score timing dotted rhythm.

The results of 5-year-old groups were differentiate than the younger age groups; a big difference, 33.5 points between 5yo groups (Japanese vs. English =34.62 vs. 68.12). However, unexpectedly Japanese children’s mean nPVI value was fall into 34.62, which was much more lower than the 3-year-old and 4-year-old Japanese groups). 5-year-old Japanese children’s singing rhythm was more equal-timed than younger age groups, and also than English groups while 5-year-old and 4-year-old English children’s mean nPVI value were same.

	3yo	4yo	5yo
ENG	49.29	68.12	68.12
JPN	64.8	70.73	34.62

Table 1. “If You’re Happy” mean nPVI values

6. DISCUSSION

There is little or no difference between the two national groups in the youngest age group compared to the older two. This may be conjectured as initial evidence that there is a tendency for cultural/language effects to become more evident as the children grow up. Just as young children’s babbling and early words become clear in speech speaking, so rhythm in singing begins to reflect the mother-tongue language rhythm. The difference between the two age groups could be considered as the result of development. However, further study is required to judge which factor, music, language or others, is working more effectively on the development.

7. REFERENCES

[1] Ohgushi, K. Comparison of dotted rhythm expression between Japanese and Western pianists, *Proceedings of the Seventh International Conference of Music Perception and cognition*, Sydney, Australia, 2002.

[2] Bekku, S. *Rhythm of Japanese Language: a four-meter-culture theory*. Koudansha, Tokyo, 1977. (in Japanese)

[3] Kindaichi, H. *Japanese Language.* Iwanami, Tokyo, 1988. (in Japanese)

[4] Koizumi, F. *Research on Japanese traditional music 2 rhythm*. Ongakunotomosha, Tokyo, 1984.

[5] Sugaya, K. *Poetic rhythm: a note on Onsuritsu*. Yamatoshobo, Tokyo, 1975. (in Japanese)

[6] Umemoto, T. and Y. Iwabuki. Development on composing melody. *Hattatsu Kenkyu* 6. 1990. (in Japanese)

[7] Malloch, S. N. Mothers and infants and communicative musicality. *Musicae Scientiae* Special Issue, 1999.

[8] Papousek, M. Intuitive parenting: a hidden source of musical stimulation in infancy. In I. Deliege and J. Sloboda (eds), *Musical Beginnings: origins and development of musical competence.* Oxford University Press, Oxford, 1996.

[9] Welch, G. F. Singing as communication, In D. Miell, R. MacDonald & D. J. Hargreaves (eds), *Musical Communication*. Oxford University Press, NewYork, 2005.

[10] Mang, E. Singing competency of monolingual and bilingual children in Hong Kong, *Curriculum Innovation in Music.* C. C. L. L.C.R. Yip, & W.T. Lau. Hong Kong Institute of Education, Hong Kong, 2003.

[11] Grabe, E. and E. L. Low. Durational variability in speech and the rhythm class hypothesis, *Laboratory Phonology 7*. Mouton de Gruyter, Berlin, 2002.

[12] Patel, A. D. and J. R. Daniele. Stress-Timed vs. Syllable-Timed Music? A comment on Huron and Ollen (2003), *Music Perception* 21 (2), 2003.

[13] Sadakata, M., P. Desain, et al. *An analysis of rhythm in Japanese and English popular music.* in press.

[14] Sundberg, J. Review of “The Temporal Structure of Estonian Runic Music” by Jaan Ross & Ilse Lehiste. *Music Perception* 22 (1), 159-162, 2004.

[15] Sundberg, J. Synthesis of singing by rule, *Current Directions in Computer Music Research*, System Development Foundation, Benchmark Series. M. Mathews and J. Pierce. The MIT Press, Cambridge, MA, 45-55, 401-403, 1989.

BODY NARRATIVES – A KEY TO STUDY EARLY SINGING EXPERIENCE?

Maija Fredrikson

University of Oulu, Finland
Department of Educational Sciences and Teacher Education,
Music education

ABSTRACT

Spontaneous singing is a primary tool to experience music in early childhood. Children's first songs appear approximately at the age of one to two, even under the first year of life, with a large variation between children. When observed [1], the quality of the first song varies from early vocalisations and simple melodic contours to more coherent melodic features with some words. These songs are expected to be context and situation dependent, and featured like a performance where singing mostly is linked with movement and play. Experiencing or making music in a very young age is covered by mostly nonverbal communication, where body habitués, sound/voice, movement, eye contact, and mimics label the interaction [2]. Human body has an important meaning in experiencing the world, even the musical world around us. As Perttula [3] mentions, the first experience with a human and her/his life situation is qualified as an emotion, and the human body is the primary situation of life. In this presentation, my attempt is to explore the phenomenon of early singing as an embodied [4, 5] experience. I believe that singing experience or song production in young children can be examined through the experiencing body and the stages of enculturation process [6] with situational and contextual body narratives.

INTRODUCTION

In infants` musical activities, singing has an extra ordinary impact but its origin has been in the margin of the developmental research in music. This can be explained by its challenging nature and the lack of valid research methodology. Early musical perception has been revealed in many research reports, but as Gary McPherson [7] points out, the research literature has not got any answer to the different kind of strategies children use in their informal learning. The studying of these strategies and the many ways children experience the surrounding world has several difficult questions to solve. It is possible to reveal the question through the concept of enculturation [8], where children experience the meaning of the musical world around them step by step by themselves without any instruction [6]. Learning music is a part of the socialization process which is mostly something else than formal education. This only gives us some general features of the musical experience of the child. Knowing the developmental age and the holistic nature of the child's experiencing gives us an opportunity to presume that in infants, aged two to three, these strategies can only be studied by some observable methods. The human body has got a new importance in the study of experience by Maurice Merleau-Ponty [4]. He has pointed out the concept of embodiment which is like a theme in his phenomenology. His task is to describe the human body as a dimension where the constitution of things, space, and time are covered. Young children are holistic, they learn through their distinct and body experience. As observed earlier [6, 2, 9], movement and nonverbal communication belong to children's every music making. I have elsewhere [10] revealed embodiment as a concept and how the concept can be understood pedagogically through some studies [11, 5] as well as embodiment as a part of early musical experience [12, 2, 9]. In this presentation, my aim is to explore the early singing performance or song production as an embodied experience. I also attempt to ascertain the possibility to study this experience through the stages of the enculturation process as well as situational and contextual documented body narratives.

1. EARLY EXPERIENCE IN SINGING

1.1. Enculturation process

Children learn songs and the model for singing from their first nursing adults and the environment they live in to get accommodated to their own music culture and society. This is a lifelong process, where the individual gradually learns her/his own culture. To learn music is a part of the socialisation process which belongs mostly to something else than formal education. The child is enculturated [8] to the music culture in two processes: perception and internalization process. This process involves the meaning systems of music. Imitation is the elementary way to learn music. It is important to learn what is right and accepted in the society. Those habits that are accepted have survived. The child will receive this accumulation of adapted manners; she/he not only learns, by imitating, to survive, but she/he will be enculturated.

This ecological theory makes sense for the singing of young infants as well. Infants process musical information spontaneously in their enculturation process. In my study of young infants´ (children aged one to three) song reproducing [6], I featured a model of enculturation process in four steps. First step is called introspection. Activated schemes or patterns guide the egocentric perception and music is experienced in the body. The typical spontaneously produced song is described as a vocalisation. Second step is featured as an awakening communication and starting universal meanings where children possess the elemental codes of communication. In singing, this can be described as a scheme song where the child captures successive melodic-rhythmic figures in her/his song.

Third phase is featured as communication and codes of interaction as well as elementary meanings of the song models. The melodic-rhythmic features are constructed as a part of the entity, and the developing child is able to capture the meaningful codes of interaction. The corresponding description of the spontaneous song is called as a fragment song, where some part of the original song can be identified as part of the entireness. At this phase, there will also appear a preset song where the song variant becomes close to the original song. Fourth phase or step in the enculturation process is described as an elementary internalization of the meaning systems in music, where the definite use of some meaningful features are recognized in the child's song. The fourth appearance of a spontaneous song is, then, the song with variation. In this enculturation process, children proceed from their own spontaneous songs to the standard songs in their cultural context. Traditional songs construct the basic cognitive models for the singing.

As Arja Puurula [13] has mentioned, this model could construct a model for understanding the small child experiencing any kind of arts.

1.2. Body and mind together in singing experience

In these days, the dichotomy body-mind does not exist any more. One of the most important philosophers in criticising this Cartesian dualism was Maurice Merleau-Ponty. His aim is to describe the body as a dimension where the constitution of things, time, and space actually take place. One of the different features of the bodily appearance Merleau-Ponty mentions is body scheme. That is the practical understanding through which we are instantly conscious about the place of our body parts and at the same time about our place in a certain space. This body scheme is developed in early childhood. [11]

It is important to realize that singing is of a very personal nature. Some music educational methods emphasize the task to educate children to love music (i.e. Kodály Method). This is one of the basics in Suzuki-method as well where children are taught to play an instrument by ear. Päivi Kukkamäki is a Finnish singing pedagogue who conducted her dissertation study on Suzuki Voice Method (see Kukkamäki 2002). Her results are educationally promising. The basic principle is that every child is learning according to her/his own tempo. The concept discovers a very systematic voice school for even an unborn child. Pedagogically the method is based on constructivism; a holistic point of view in development and feedback. With easy songs children learn to succeed and their self-esteem is developed. As Kukkamäki says, "everybody has some kind of singing voice" (Kukkamäki 2002, 19).

1.3. To study context and situation in early singing experience

As it has become out, Merleau-Ponty`s thoughts will be considered as a framework to understand the moving body in infant's singing. The holistic approach understands a child as a living part of an environment where she/he captures information with all her/his senses. Experience has a contextual and situational nature where children experience in interaction between play and movement. Transmissions of the nonverbal, spontaneous expression of the emotions are involved in play situations [2]. Body is expressive with its gestures, mimics, body habitué, and nonverbal communication.

In my earlier study [10], I found that very young children's play contexts and situational changes in this environment did have a remarkable impact on their nonverbal communication and interaction. Body movements and mimics seemed to have an important part in this. If we understand this elementary communicative interaction as body experience (embodiment), we can describe children's embodiment as movement, body gesture, sound and movement together, mimics, and eye contact [2]. Wilfried Gruhn [9] has described young children's body communication like attention, nature of the movement, continuity of the movement, synchronization, and coordination. I have studied embodiment as a concept earlier [10].

My interest is to develop a tool to study young children's body experience in singing. In conceptualizing experience, I prefer Juha Perttula`s thoughts. He says:"Experience is a special connection, a connection of meaning. The structure of an experience is in fact this connection, which unites the subject and the object to entireness. Body is a dimension of life situation which is constructed especially by the emotional experienced subjects." [3]

In this attempt I have approached my earlier research data from a different point of view. In those data, I first used narratives as describing the context and situations where spontaneous songs came up. These narratives are called as song narratives. The same method was used in research data where the musical development of children was evaluated verbally by their parents. I like to demonstrate one example of a song narrative (song 33): "*Lisa (2:11) is getting dressed in the hall to go out, her feet are swinging all the time following the melody rhythm. She is the mother horse repeating only the A-part of the song, and she is singing and telling about her clothes esp. the panda-sweater. Pulse stays almost stable and her feet are synchronized to the tempo. Melody rhythm is strictly following the word rhythm. The song will be interrupted now and then by the educator asking the child to hurry up.*" [6]. This narrative follows almost all the aspects Gruhn [9] has mentioned.

2. BODY NARRATIVE – A HOLISTIC VIEW TO CHILDREN`S SINGING?

Educational research methods in studying young infants should follow the natural research setting. This is challenging. It means that we should explore innovative research methods in those contexts children daily live. Observational methods do not cover the child-centered point of view, although they bring reliable data on habitual responses to music. The musical experience itself will yet be undiscovered. Some preliminary methods to study movement by computer programs, like optical movement tracking system where movement patterns are enabled to a quantified analysis (see Eerola, Luck & Toiviainen, ECDPM 2005 abstracts), and with interactively constructed MIDI environments [12], are extremely promising. They bring the eventual experience closer to the researcher. It is obvious that this is not enough. Although research data on observed and analyzed body movement already construct an important part of the observed musical experience, we still need more personal knowledge from a single child to understand the nature of her/his real experience.

In studying children's embodiment or body experience we have to develop entirely new ways to collect information on the experiencing child. Narrative methodology with triangulation could give some answers for that. Stories or narratives about the body conversation in singing can perhaps give us perspective to an early experience in singing. These narratives would be constructed, then, by several kinds of research data, collected from singing events, such as prosodic documents but even by observed natures of the movement, peer-interaction with non-discursive fragments, child portfolios etc. All this longitudinal material will construct, then, a holistic picture of a child's singing experience where the body has an extremely important role. In the future, these body narratives may be explored as an important way to discover the child's real living and experience in singing.

REFERENCES

[1] Fredrikson, M. "*Lapset musiikin oppijoina. Musiikkileikkikoulun mahdollisuudet oppimisen ohjaamisessa.*" In M. I. Jaatinen (ed.) Keski-Suomen Konservatorion Säätiö 50 vuotta, 2001, pp. 57-76.

[2] Young, S. *Collaboration Between Three- and Four-Year-Olds in Self-Initiated Play with Instruments.* Proceedings of the 8th International Conference on Music Perception & Cognition, Evanston, IL, 2004, pp. 6-10.

[3] Perttula, J. *Kokemus ja kokemuksen tutkimus: fenomenologisen erityistieteen tieteenteoria.* In J. Perttula & T. Latomaa (Eds.) Kokemuksen tutkimus. Dialogia, 2005, pp. 115-162.

[4] Merleau-Ponty, M. *Phenomenology of Perception*. Routledge, New York & London, 1962.

[5] Juntunen, M-L. *Embodiment in Dalcroze Eurhythmics.* Acta Universitatis Ouluensis E73, University of Oulu, 2004.

[6] Fredrikson, M. *Spontaanit laulutoisinnot ja enkulturaatioprosessi. Kognitiivis-etnomusikologinen näkökulma alle kolmevuotiaiden lasten laulamiseen.* Studies in the Arts 43, Jyväskylän yliopisto: Yliopistopaino, 1994.

[7] McPherson, G. E. *From child to musician: skill development during the beginning stages of learning an instrument.* Psychology of Music 33 (1), 5-35, 2005.

[8] Sloboda, J. *The Musical Mind. The cognitive psychology of music.* Oxford: Clarendon Press, 1988.

[9] Gruhn, W. *Phases and stages in early music learning. A longitudinal study on the development of young children's musical potential.* Music Education Research 4 (1) 2002, pp. 51-71.

[10] Fredrikson, M. *Kehollisuus osana musiikillista kehitystä ja oppimista varhaislapsuudessa.* Teoksessa Tuomas Eerola & Petri Toiviainen (toim.) Suomen musiikintutkijoiden symposiumin satoa. URL://www.jyu.fi/musica/symposium/julkaisu2005, 30-33.

[11] Kuhmonen, P. *Kehollisuus ja luonto. Näkökulmia fenomenologiseen ajatteluun.* Lisensiaatintyö, Jyväskylän yliopisto, 1997.

[12] Addessi, A.R., Pachet, F. & Caterina, R. *Children Confronting an Interactive Musical System.* Proceedings of the 8th International Conference on Music Perception and Cognition, Evanston, Ill., 2004, pp. 241-244.

[13] Puurula, A. *Lapsi ympäristönsä peilinä: alle kolmevuotiaiden lasten integroitu taidekasvatus.* Teoksessa S. Karppinen, A. Puurula & I. Ruokonen (toim.) Elämysten alkupoluilla. Lähtökohtia alle 3-vuotiadien taidekasvatukseen. Finn Lectura, 2001, pp. 85-95.

[14] Kukkamäki, P. *Laulun myötä kasvuun. Laulusuzukimenetelmän kehittämisprojekti.* Kehittäjäkoulutus (DocMus-yksikkö), Sibelius-Akatemia. Helsinki: Yliopistopaino, 2002.

SUBJECTIVE THEORIES OF MUSIC CREATING ARTISTS – A PSYCHOLOGICAL INSIGHT INTO THE MINDS OF TODAY'S COMPOSERS

Peter Holtz

Friedrich-Alexander-
University
Erlangen Germany

ABSTRACT

In my studies, I have followed the principles of the research programme "Subjective Theories", proposed especially by Norbert Groeben. In the course of these studies, 17 interviews with classical composers, Jazz musicians, and creators of entertaining music were conducted. Also, a questionnaire study and some experiments were done. In these experiments, a group of participants was given information on the subjective theories of the individual composers. This information enabled them to match the works and composers correctly.

One result of this research was a new model of musical communication, which refers to the well-known works of Schultz von Thun. On the background of this model, it was possible to systematize differences and similarities between musicians of the same and different genres giving a deep insight into the minds of today's composers.

Based on theses results, different prototypes that can be found among today's musicians could be described.

1. INTRODUCTION

In this presentation, I will refer to the results of research projects conducted in the last three years as a part of my dissertation. These studies contained 17 interviews with music creating artists representing different musical genres, like the so-called classical music and the wide area of jazz music. The musicians were of different ages and different degrees of professionalism ranging from hobby composers to experienced professional artists. Also, a questionnaire study was conducted. Approximately 200 questionnaires were sent to musicians all over Germany, Austria, and Switzerland. 80 Questionnaires were sent back and used for further analysis.

The questions of the interviews and the questionnaires were inspired by very different psychological approaches to the creation of music, ranging from introspections of psychologically trained composers to modern cognitive approaches. These questions referred for example to the artist's musical development and his conditions of living, the creative process, the content of the music, the artist's motivation to create music, and the relationship of the musician to his listeners as well as his relationship to the society as a whole.

The main methodical background is the "research programme subjective theories", especially proposed by Norbert Groeben. This research programme tries to connect qualitative and quantitative elements of psychological research. It is based on the idea that human beings are able to reflect on their actions. The reasons for these actions are described as sets of subjective theories which bear resemblance to sets of scientific theories [2 & 3].

These Subjective Theories are explored in different interview sessions. The truth criterion in this first phase of the research process called "communicative validation" is the consensus between the interviewer and the research partner. Both have to agree on the researcher's reconstruction of the subjective theories.

In the second phase, these subjective theories can be treated as theories in a natural scientific meaning and they can be tested in their relation to objective facts by means of experiments. The truth criterion here refers to Popper's principle of falsification. In the case of my study, there was one experiment in which a group of participants was given information on the subjective theories of the individual composers and this information helped them to match the works and the composers correctly.

At a very early stage of this research project, the answers of the participating artists showed up to vary more widely than originally assumed. Thus, it became more and more necessary to search for a psychological framework theory, which could contain as many different points of the musicians' views as possible. Finally, I decided to use psychological theories of communication.

2. MUSIC AS "COMMUNICATION"

2.1. Communication as a framework for a psychological look at the creation of music

In his book "Musik als Kommunikation" – "Music as communication" [4] – Großmann describes two constraints to the assumption that music can be described in terms of theories of communication: First, music must transmit some kind of information to its receiver. The second constraint indicates that a theory of musical communication must yield noteworthy results to the scientific exploration of the creation of music.

Both assumptions have been doubted by some experts in this area. The first assumption for example seems to contradict Eduard Hanslick's theory of the "absolute artwork" [5].

For Großmann the main problem regarding the question if a model of musical communication can yield important results to the research in this area consists in the imprecise and inconsistent terminology of different theories of communication.

In creating my model of musical communication I referred to Schulz von Thun's famous "Square of Communication" which tries to explain the importance of different aspects or different layers of communication [6].

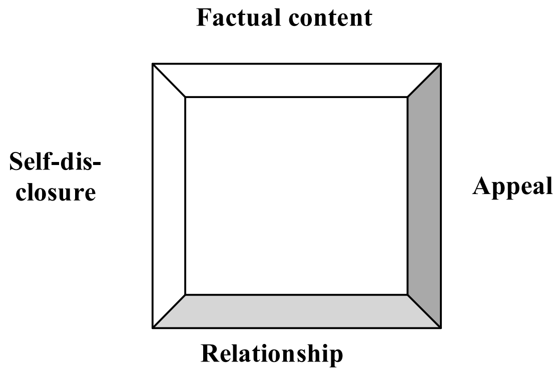


Figure 1. Schulz von Thun: The four sides of a message – a model of human communication

Every lingual communication between humans contains a kind of concrete factual information - the description of more or less understandable and revisable facts. Additionally, communication also discloses information about the social relationship between the people communicating. Especially the sender is disclosing something of his attitude towards the receiving person. Moreover the sender discloses something about his attitude towards himself. Another very important aspect of human communication can be the appeal of the sender for a change in the recipient's behaviour or attitudes.

By using this scheme of analysis, it was easier for me to systematize different dimensions, in which musicians vary or which are very important in their thought systems.

Using this model, I quickly noticed it would be insufficient for a satisfactory model of musical communication at some points. According to my research, at least three very important additional aspects must be integrated in a model like this: The formal characteristics of the music, the consequences of the genre to which a musician feels associated with, and the different modi operandi of the musicians when creating music. Another important point may be the definite and irretrievable progression of music in time.

2.2. Formal aspects of musical communication

One could also describe certain formal elements of a piece of music as a kind of factual information. At least for an educated listener, it is often easy to spot the historical era to which the piece of music belongs. He may remember general characteristics of that era. Also certain musical forms as a scherzo or a scheme of variations can be detected by the listener and thus lead to a modified understanding of the music. Other formal aspects can not be heard even by an experienced listener or are even latent to the composer himself.

Musicians vary by the importance of the formal aspects of their music. For some musicians, these features are central, for others it is more important to display a message or to disclose their inner world. Adherers of the primacy of formal aspects may judge the music of composers who pay not enough attention to the form of their music, as lowbrow and trashy, whereas those, to whom other aspects of musical communication are most important, may judge the music of their colleagues as a kind of intellectual and unsubstantial fooling around.

In my interviews, I experienced very extreme positions among the interviewed musicians regarding this topic. The form or the content of the music may be seen as mere epiphenomena of the essence of music. Although this discussion can be found in different musical genres the formal aspects of the music seem most important to the "classical" composers.

2.3 The musical Genre

The consequences of the affiliation of a musician to a certain genre are very extensive. The form of the music, the modus operandi, and the system of signs and symbols used by the musician must be analyzed against this background.

This point is closely connected to some of the formal aspects discussed earlier but it seems necessary to analyze these points separately: On the one hand, there are formal elements which have importance in different genres. On the other hand, the consequences of the affiliation to a musical genre concern more aspects of the music than just its form.

Every musician has to decide to which extent he wants to follow the rules and typical preferences of his genre. He can be a follower, a rebel, or an innovator.

2.3. Composer's modus operandi

This aspect of musical communication should not be discussed intensively in this presentation, although it is central in many psychological studies.

2.4. A model of musical communication

The diagram of my model of musical communication (figure 2) is based on Schulz von Thun's model discussed earlier. As noted above, a model of musical communication should present formal aspects as a dimension of its own.

As far as the representation of the musicians' modi operandi in this model is concerned, I refer to Julius Bahle's division of two types of musicians. The first type, called the "working type", consciously constructs his works, tends to experimentation, and judges the results of his work with his artistic reasoning. Julius Bahle considers for example Bach, Beethoven, and Reger to be representatives of the working type. The second type is the "inspiration type". These musicians create their music in an unconscious eruption of creativity. Only in later stages of the compositional process rational reasoning takes part.

encies between music and mathematics or philosophy can play a role here.

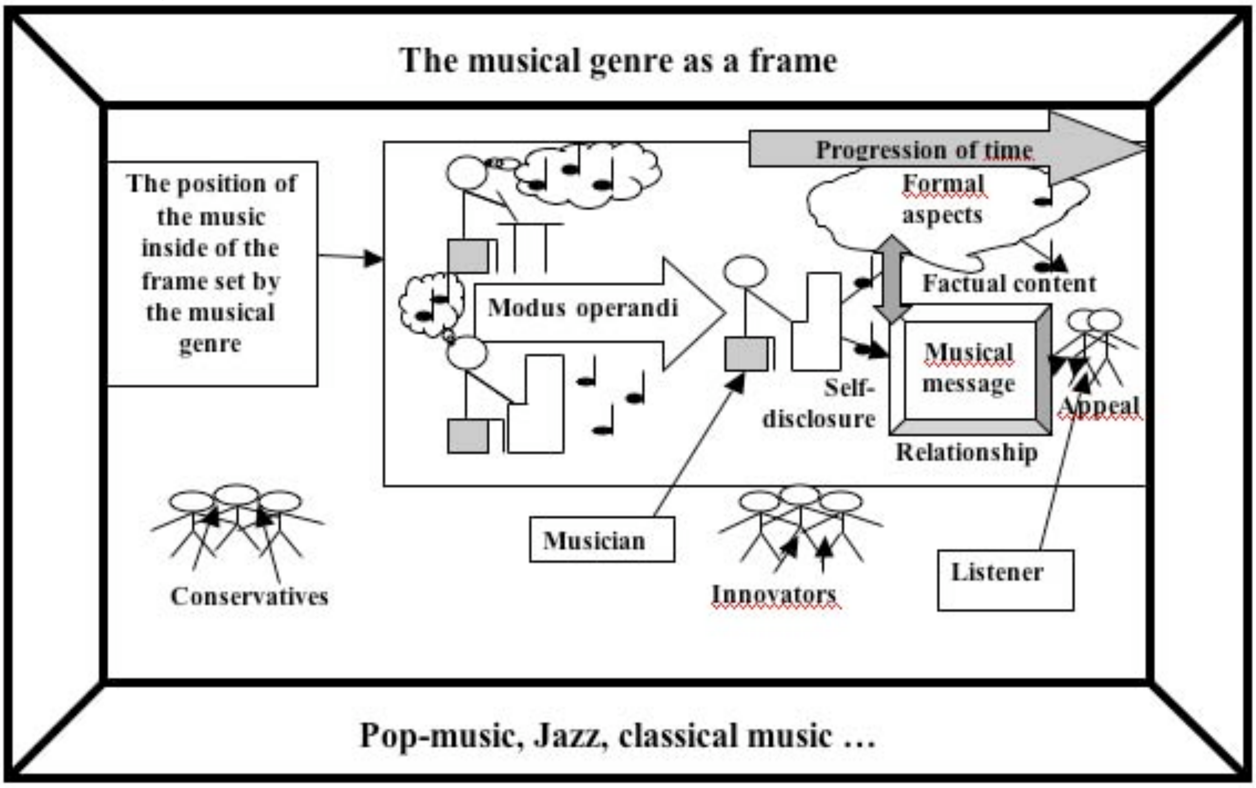


Figure 2. A model of musical communication.

Examples of this type are Schubert, Berlioz, and Tchaikovsky [1]. In my research, I found similar results as Bahle did. However, in my study the role of improvisation in the creative process of different musicians is discussed in more detail.

In this model, the musical genre is represented as a kind of frame, in which a musician or his work can take an either more conservative or a more innovative position.

Another aspect of musical communication that is very important to some musicians is the unique and irretrievable progression of music within a certain time.

3. DIFFERENT PROTOTYPES AMONG TODAY'S MUSIC CREATING ARTISTS

3.1. The "traditional avant-gardist"

This prototype is defined by an outstanding importance of formal aspects of the music. The music ties in with the tradition of European musical art. While the music is meant to continue this tradition, it also should contain something new.

The depicting function of the music is regarded marginal. Only very abstract intellectual concepts or allusions to the history of music can be displayed in the music. The emotional content of the music or its self-disclosing function are of no importance. Interdependencies between music and mathematics or philosophy can play a role here.

Considerations of possible reactions of the listener must not influence the composer's work, even if it may sometimes be unavoidable. The music is written for a group of musical experts, who can appreciate its construction. However, some representatives of this type still hope that also uneducated listeners might find a way of understanding their music, if the music is honest and if it is presented by dedicated musicians. Some of these artists are willing to explain their music to the audience.

The only political component of the music may be its ability to initiate a kind of independent thinking within listeners.

Among this prototype, a group of composers especially in the field of contemporary electronic or electroacoustic music could be separated by the extremeness of their position. I also described this type as the "researcher". The music of these musicians is basically seen as traces of attempts to find out something about the true essence of music.

3.2 The neoromantics

For this group of musicians, the expression of emotions by means of music is central. Most of these musicians see themselves as representatives of the classical European musical culture, but they refuse some of the developments of the 20th century that in their opinion have separated the composers from their listeners. This is why their music ties in with the romantic era.

Obviously, the creation of something new is of less importance here. The most important aesthetic postulate among these musicians is the truthfulness of expression. The musician must be honest towards himself and his listeners. The music should also be comprehensible for the audience. The artist may consider possible reactions of the audience when creating his work. It is possible to tell stories or to transmit political messages through music. Also, pedagogical deliberations may be of importance.

Improvisation during the creational process is more important to these musicians than to the avant-gardists. Music does not have to be explained. It can speak for itself.

Some of the representatives of this type report problems in finding publishers for their works or in being played at important festivals for contemporary music. Some structures in the scene of contemporary composers seem to be dominated by traditional avant-gardists, especially in Germany.

3. 3. The self-disclosing artist

Representatives of this type can be found in different musical genres. To these musicians, the expression of the musician's thoughts, feelings, and attitudes is central. Everything that makes up a musician as a person is an important feature of the music.

The music is created in a very intuitive process. The musician only wants to express himself in the music, so there is no room for any considerations of the listener's reactions. In spite of this, it seems to be quite important for these musicians that their music is liked by the audience and especially by the musician's friends. A rejection of one's music also means a rejection of the musician as a person.

The motivation for these musicians to create music is the wish to express themselves by means of music. This wish is experienced as a vague desire. Some of the representatives of this group experienced early in their lives that they could express themselves easier through music than through words.

3. 4 The jazz musicians

In this part, I am going to present some of the characteristics of the musicians of this genre, although it would have been also possible to classify these musicians similar to the "classical" musicians. Here, also avant-gardists, romantics, and self-disclosers can be distinguished.

Central to all jazz musicians is the eminent importance of improvisation. A large part of the music is created "live" in front of the audience. This spontaneous eruption of creativity is preceded by a longer or shorter period of preparation. The musician is experimenting with sounds and rhythmical and melodic patterns and by this develops a repertoire, on which he can fall back during an improvisation.

As the composer is also the performing musician and as the music is created in front of the audience, the communicational situation of a jazz musician is very different from the situation of a composer. It is possible for the audience to influence the music directly as the audience itself is influenced by the music. Moreover, the communication between the musicians must be taken into account, too.

Looking at the immense variety of different stylistics in the contemporary jazz scene more similarities between some of the jazz musicians and some of the classical composers can be found than between representatives of the same genre.

3. 5. The creators of popular music

Overall, considerations of popular musicians of what their music is and why they make it seem somewhat less elaborated than the ones of their colleagues. Besides there are great differences as, for example, their modi operandi are concerned. Noteworthy is the great importance of the production of a sound storage medium, which is in line with the market.

For this group of musicians, music always has a purpose. Music should make the listeners dance, amuse, or relax. But there is a certain postulation of the music's authenticity, too. The creator should at least like his own music.

3. 6. The medium

Interviewing some musicians for my exam thesis in the year 2000, I found two improvisers, who held a well-deliberated but somehow very exotic view of their music. While most musicians see their music as a kind of medium for something they want to express, these musicians see themselves as a medium for a kind of higher power, which gains physical existence by means of their music. The music is flowing out of, or better flowing through these musicians. No conscious considerations should take place while creating music.

Consequently neither formal aspects nor the content of the music are important. The communicational aspect for these musicians is the sharing of this experience of crude and true creativity with the listener.

Of course, this very extreme point of view is connected with a very esoteric mentality. However, these kinds of thoughts may be likely found in an alleviated way among many musicians, especially among those who improvise.

4. CONCLUSIONS

All results I presented here are not to be seen as a conclusive and unchangeable truth, but as mere hypotheses for future research.

All in all, trying to explain some phenomena of the psychology of the creation of music by terms of psychological theories of communication yielded some results.

It was possible to explain a lot of my findings, which often correspond with findings of Bahle and other authors of his time, by using a model of musical communication.

Of course, an approach like this must somehow be reductionistic. Important features as the biography of musicians and the societal conditions, may not be represented well enough in this approach that focuses – as the research programme "Subjective Theories" implies – on the musicians' systems of thoughts.

Nevertheless, I am convinced that the elements, which can very well be explained by using this approach and this model of musical communication, are substantial and were underrepresented in earlier studies and other approaches to this topic. Hopefully, the exemplary explanation of these complex phenomena by means of schematic representations may facilitate the application of these results, for example, in music classes at school, instrumental lessons, and music therapy.

5. REFERENCES

[1] Bahle, J. Arbeitstypus und Inspirationstypus im Schaffen der Komponisten, *Zeitschrift für Psychologie,* 142, 313-322, 1938.

[2] Groeben, N., Handeln, Tun, *Verstehen als Einheiten einer verstehend - erklärenden Psychologie,* Francke Verlag, Tübingen, 1986.

[3] Groeben, N., Wahl, D., Schlee, J., Scheele, B. *Das Forschungsprogramm subjektive Theorien.* Francke Verlag, Tübingen,1988.

[4] Großmann, R.. *Musik als Kommunikation*. Vieweg Verlag, Braunschweig,1991.

[5] Hanslick, E.. *Vom Musikalisch-Schönem* (20th edition. Reprint of the 16th edition; 1st edition 1854). Breitkopf u. Härtel, Wiesbaden, 1980.

[6] Schulz von Thun, F. *Miteinander reden 1 - Störungen und Klärungen,* (1st edition 1981). Rowohlt Verlag, Reinbek bei Hamburg, 2000.

PEDAGOGICAL CONTENT KNOWLEDGE OF A MUSIC TEACHER

Eeva Kaisa Hyry
University of Oulu
Department of Educational Sciences and Teacher Education / Music Education

ABSTRACT

The purpose of this paper is to present one part of my ongoing doctoral thesis that concerns piano teaching. In this connection, piano teachers are defined as professionally educated piano teachers working in the area of classical music. The subject of my research is the practical theory of the teacher that guides the teacher's everyday choices and shapes the teacher's decisions and actions during lessons. Pedagogical content knowledge is one element of the teacher's practical theory and it refers to the teachers' ways of transforming content into a learnable form for the students. The theoretical basis of this research links to *teacher thinking research*, in which the generally presented goal is to increase our understanding of how and why the process of teaching looks and works as it does.

The research is based on a *narrative-biographical* case study design, and in it, the work of a well-known Finnish piano teacher and artist is analysed. The data consist of audio-taped recordings of his piano lessons and interviews of him and his students. The data has been analyzed by using both *content analysis* and *narrative analysis*.

The results consist of so called "curriculum stories": piano teacher's pedagogical content knowledge comes out in narratives that unite the subject content (piano works or music) to its musical, historical, social, and cultural contexts. Narratives also present the teacher's knowledge of the teaching skills and piano playing that is approached in the study through Polanyi's theory of tacit knowing.

1. INTRODUCTION

In the very beginning of my research I asked, what happens in piano lessons and why does this teacher teach as he does. The question was theoretically linked to *teacher thinking research*, in which the generally presented goal is to increase our understanding how and why the process of teaching looks and works as it does [2]. Several teacher thinking researchers suggest that the basic teaching skill is decision-making [5,15]. Teachers make educational decisions: they may choose actions that are appropriate to the situation and the goals of their teaching. In this study, I am interested in how one piano teacher aims at his goals of teaching during piano lessons and where do the decisions come from. Thus, my theoretical backgrounds come from educational sciences; in my case it is quite natural because, besides piano playing, I have studied also educational sciences and in this research I use the educational concepts as tools.

My research is based on a qualitative case study design, and I study the work of a very well known Finnish piano teacher and artist by analyzing his piano lessons and interviews of him and his students. So, the context is the area of classical music and especially western classic art music. Why did I choose this teacher? I had taken part in his piano masters courses while studying piano playing in a conservatoire in order to become a piano teacher. During his lessons I felt that I really learnt. I was interested in where did that feeling came from – is his teaching something special, extraordinary good teaching. Another reason was that he is able to express himself well and that he himself was eager to take part in this research. In this paper, however, I do not use his name, but it will be used in the final report, as I have agreed with him.

The aim of my study is to formulate a so-called practical theory of the teacher. It is widely accepted that what teachers do, is shaped by their own personal practical theories of teaching. The practical theory includes teacher's personal philosophy of education and conceptions of human beings, knowledge, and learning, and it guides the teacher's everyday choices. In this process, values are important: they are behind the teacher's choices directing those. The practical theory is not a 'theory' with a capital T; it is situationally bound or context specific and lacks generalizability across contexts and across different users, as well. 'Practical' in the practical theory refers that it works in practice. [8]

Practical theories are partly implicit because teachers may be unable to articulate or recall the origins or rationales of their teaching actions. The researcher's problem is how to study them, how to make visible the invisible. We do not have a possibility to go into a teacher's mind. However, knowledge of this kind can be extracted from the teachers' narratives and practices on the grounds that the identification of values is presumed to be based more on action than words. [10] In this research, I thus use, as data, the teacher's narratives and observations of his piano lessons. I also agree with Marland [8] who suggests that there is a need to study different elements of teachers' practical theory, such as teaching goals, student states, teaching strategies and teacher attributes, and teacher's pedagogical content knowledge. He points out that values and beliefs provide a moral framework within which the other elements of practical theory are set. In this paper, I concentrate on the element of pedagogical content knowledge.

2. PEDAGOGICAL CONTENT KNOWLEDGE AND CURRICULUM STORY AS A RESEARCH SUBJECT

Shulman was one of the first researchers who used the concept of pedagogical content knowledge to refer to teachers and the knowledge that links to teaching [21]. Like Shulman also Gudsmundsdottir states that experienced teachers have a unique understanding of the content of their subject that she calls pedagogical content knowledge [4]. Pedagogical content knowledge refers, on the other hand, to teacher's content knowledge, but especially to the teachers' ways of transforming content into a learnable form for the students and in the latter case, it can be understood as the uniqueness of the teacher knowledge. I also agree with Toiskallio [18] who remarks that "teaching is always unavoidable in some amount to represent the world or reality" and with McEwan's [9] idea of teaching as a continuing production of meanings. Teaching is not static, and also the teacher changes while teaching. Also, I understand that pedagogical content knowledge not only transforms content into a learnable form, but it also includes such knowledge that makes it possible to improve the quality of the students' learning experiences [8].

In my study, I approach piano teacher's pedagogical content knowledge from the narrative point of view. I tell how teacher's pedagogical content knowledge comes out in piano lessons in so called curriculum stories, when the teacher organizes content for pedagogical purposes by telling, putting his knowing into telling. Curriculum stories represent a unique interaction between the teacher's personal theory and the practice of teaching [3]. The theoretical background, in the study, is Bruner's idea of two modes of thinking and knowledge. Bruner's paradigmatic (or logic-scientific) mode of thought operates through well-formed arguments, search for universal truths, and organisation of elements into categories and theories (for example scientific thinking), whereas the narrative mode of thought operates by combining elements into well-wrought stories which aspire to be life-like and believable [1]. In this paper I am interested in teacher's narrative mode of thinking that produces curriculum stories.

3. DATA AND ITS ANALYSIS

The data was collected in two stages. The first set of data was collected for my licentiate thesis. It included two interviews with the teacher and his audio-taped or video-taped piano lessons with twelve (12) students, aged between 15 and 25, in piano masters courses and interviews of five (5) students after their lessons. The further data included some articles concerning the teacher or written by himself. In the second stage, I collected supplementary data for my doctoral thesis, including a third interview with the teacher and interviews of his three (3) regular professional students after their lessons, which were also videotaped. The students were in different learning stages: one "beginner", one working on his final Master of Music degree, and one doing postgraduate research. In this paper, only piano lessons are used as data. When referring to lessons in the text, I will use the abbreviations L1, L2, L3, … L15; L=lesson, and the number after it refers to the lesson of an individual student. L1–L12 refer to the lessons in the master's courses, and L13–L15 refer to the lessons of the supplementary data. The duration of lessons varied within 60–90 minutes.

In this paper, I have used the data of the lessons that have been analyzed by using, both, content analysis and *narrative analysis* [13]. I first analyzed the piano lessons by content analysis, in order to describe what happens during the piano lessons; in what way things are being taught; what the relationships between the piano teacher and his pupils are like. Main categories were formed by means of Tait's verbal and non-verbal classifications [16].

The supplementary data was first analyzed in the same way, but I also read those more horizontally to differentiate between the episodes or narratives and to get larger themes. When reading the text as episodes, I discovered that they were like discussions and the student expressed herself/himself or answered also by playing. I then named the episodes as discussions of different themes, concerning the musical and technical aspects of playing, and the piece under work. In these episodes I also recognized curriculum stories: I found out how piano pieces were told to their context and practicing processes and how music and music making were told in their social and cultural contexts in piano lessons. I also searched curriculum stories from the previous data and finally named them as "Re-telling the pieces", "Telling the piece into its musical and historical context" and "Telling the player into the chain of musicians".

4. RESULTS

4.1. Re-telling the pieces

In simplified terms, a piano lesson can be said to consist of numerous sequences. One cycle of sequences includes the student first playing, followed by the teacher's feedback and a new task for the student and, finally, the student's reaction as the basis for the next cycle. Typically, a lesson begins with the student playing the whole piece, mostly by heart. Then, from part by part, the piece is gone through with technical, musical, and practical (how to practice) ideas.

We could say that the piece is re-created or re-told during the lesson. Based on what he hears and sees, the teacher introduces a number of proposals for improvement and alternatives. The piece is gone through part by part, in detail, and the parts are integrated into the larger wholeness. The objective is the final presentation of the piece.

4.2. Telling the piece into its musical and historical context

During the lessons, the teacher often refers to other works of the particular composer and also to the development of the composer. For example when playing Rachmaninov's prelude, the teacher tells about the meaning of the bass lines and multi-level of voices in Rachmaninov's music in general saying: *This is again a typical Rachmaninov situation*. (L3.)

The pieces are also told into their temporary and stylistic context. For example, when playing earlier Liszt's etude from opus 1, the teacher tells about its parallels with Liszt's later compositions and especially with Transcendent etudes, and he also describes the meaning of the piece in the development process of the composer. In addition, he refers to Victor Hugo's poem when speaking about the final version of this piece, so-called Mazeppa-version. (L5.)

The pieces can also be told to a continuum of music history. For example, when teaching Khatsaturjan's Toccata, he starts by introducing different types of toccatas, including Prokofiev's, Schumann's, and Bach's. Next, he tells his student about the background and history of this piece. He says: *This [Khatsaturjan's Toccata] is like a mix of two [Bach's and Prokofiev's]. Thus that here are contrasting things, free periods, even improvised period, and, on the other hand, this beginning that is very marcato.* (L8.)

4.3. Telling the player into the chain of musicians

During the piano lessons, the teacher often refers to other musicians. These so-called musician stories can relate to technical or interpretive aspects in pieces and also in the same situation to practicing process. When for example playing Chopin, he tells his student about one pianist's solution to form a definite phrase in Ballade no. 1, op. 23 (L13) or another pianist's technical ideas in Etude no. 12, op. 25 (L4).

He also tells himself into musicians' stories. For example, he can suggest how he himself would practice the same section in Liszt's Etude: *I would practice this small cell many times, repeating, time after time* (L1). He also typically models his suggestion with his own instrument. He can justify his suggestions with his own experiences. For example, for a student who is practicing Bach's Preludes, he suggests leggiero technique to diminish muscle work and to argue his point he mentions his own good experiences of the practical technique. However, he clarifies that there are also other ways of using your hands when playing Preludes, referring to Horowitz's way. In this short episode, both, the student and the teacher are told into the same chain or group of musicians, who work to achieve ”good results”. (L7.)

As I already mentioned above, this teaching aims at musical objectives, public presentations, as the teacher himself expresses it. The teacher also tells the active audiences into his teaching. For example, for Liszt's player, he emphasizes that *it is important that an audience can hear two separate tunes instead of one* (L1). Or in Kolmikohtauksinen Nocturno [Nocturno with three scenes] by Palmgren, a Finnish composer, in the scene three, ”Yön laulu”, he speaks about the audience that is yearning for the melody: ... *just, that would be great from the audience's point of view that there would be a scarlet thread to pick up* (L9).

5. THE INTERPRETATION OF THE CURRICULUM STORIES AND CONCLUSIONS

5.1. Narrative nature of music and music teacher knowledge

When looking at music teacher's knowledge as narrative, I have asked the same question as Eero Tarasti, a Finnish music semiotician, if narrativity in music is a sort of superstructure or does it come out when a musical work is interpreted, played or performed in a given way. Tarasti also mentions that some musicians, pianists, or violinists are said to possess a 'narrative' touch or sound. We can find a psychological tension in music that consists of tensional arches between the beginning and the end. [17] From the basis of my data, I could interpret that the teacher encourages students to build “incredibly fine arches” in a way that enables audiences to feel more strongly about the arches, as he himself expresses it.

Also, the teacher's references to audiences can be interpreted to refer to musical communication process. The teacher is speaking about an audience or a listener, but equally he could mention a student as the listener of student's own playing, who reacts to musical work in a narrative way.

However, if we are working on the assumption that music doesn't refer to outside of it, we could find out that we give meanings for listened tones on the basis of our experiences of music and culture. Those meanings do not transfer as such from a teacher to students, but they are created; students build their world on the basis of their own starting points [11]. Likewise, other music teaching can be seen as a way of representing world and reality. The goal of music teaching can be said to be, as Westerlund states it, the musical meanings that are reached by using musical skills and knowledge [19]. In piano lessons the musical meanings are building not only between the student and the teacher, but also between the music and the instrument. As Kennell states, music lesson is a four-way conversation among the student, the musical artefact, the instrumental artefact, and the teacher [7].

5.2. Music teacher's know-how

Music teacher knowledge is also knowledge of skill, of playing the piano. With a skill I mean that, on the other hand, the teacher knows how to play, but it also becomes invisible during lessons that when he is playing himself – he can do it! Learning skills can be explained by Polanyi's theory of knowledge. According to Polanyi, there exists knowledge that is not explicit and articulated, so called implicit or tacit knowledge. Tacit knowledge comprises of two kinds of awarenesses, subsidiary and focal awareness. For example, we can swim or even play the piano without having a faintest idea how to do it; so we are only subsidiarily aware of it. [12]

During piano lessons, the teacher needs pedagogical skills to get out of his know-how: his knowledge of how to play comes out while he is reflecting his or the student's playing and usually also when testing his suggestions by himself with his own piano – at the same time his tacit knowing heaves in sight. Tacit knowledge can also be transferred when a student imitates a teacher, maybe also by identifying with him, and adopting the essential features of his playing [6].

5.3. Music teaching as a culture

When telling the students to the chain of musicians, the teacher calls, at the same time, the students to the professional community of musicians or pianists. As Kennell states it: The studio lesson is the interface between the professional community and the individual, who aspires to join that community [7].

Some researchers have spoken about instrumental teaching as a secret garden or secret activity that goes privately behind closed doors. In these visions, piano teaching has been linked to a master-apprentice model: teachers teach as they have been taught and in the student's playing the teacher himself can be recognized. [6, 14, 22] Also, in the stories of this research, the master-apprentice practice is visible, especially some type of modelling. However, in this research the doors were open. The teacher was quite reflective and ready to question both, his own and others' practices. Working in a pianist community is secret, but in those stories hard work is emphasized to attain good results.

From a philosophical point of view a good result is interesting. I think that in this research the conclusion is that by his own practice, as a player and an artist, the teacher is as a pedagogue leading the students to his area's specific action culture, to the ethos of a player. From that point of view, the teacher's advice on practising can be interpreted as educating the student to enter the pianist's world and work, and the western musical culture and tradition. At the same time, the teacher himself represents that world to the student; he is the model of a musician and a pianist. He himself is what he teaches.

6. REFERENCES

[1] Bruner, J. *Actual Minds, Possible Words*. Harvard University Press, Cambridge, 1986.

[2] Clark, M. & Peterson, P. Teachers' Thought Processes. In M. Wittrock (ed.) *Handbook of Research on Teaching* (3. ed.). Macmillan, New York, 1986, 255–296.

[3] Gudsmundsdottir, S. Curriculum Stories: Four Case Studies of Social Studies Teaching. In C. Day, M. Pope & P. Denicolo (eds.) *Insight into Teacher's Thinking and Practice*. Falmer Press, London, 1990, 107–118.

[4] Gudmundsdottir, S. The Narrative Nature of Pedagogical Content Knowledge. In H. McEwan & K. Egan (eds.) *Perspectives on Narrative and Teaching*. Teachers College Press, New York,1995, 24–38.

[5] Kansanen, P., Tirri, K, Meri, M., Krokfors, L., Husu, J. & Jyrhämä, R. *Teachers' pedagogical thinking. Theoretical landscapes, practical challenges*. Lang, New York, 2000.

[6] Kemp, A. E. *The musical temperament*. Oxford University Press, USA, 1996.

[7] Kennell, R.. Systematic Research in Studio Instruction in Music. In R. Colwell (ed.). *The New Handbook of Research on Music Teaching and Learning: A Project of The Music Educators National Conference*. Oxford University Press, New York, 2002.

[8] Marland, P. *Towards More Effective Open & Distance Teaching*. Kogan Page, London, 1997.

[9] McEwan, H. Teaching and the Interpretation of Texts. *Educational Theory* 42 (1), 1992, 59–68.

[10] Ojanen, S. Reflektion käsite opettajankoulutuksessa. Muotihulluus vai kasvatusreformin kulmakivi? In S. Ojanen (ed.) *Tutkiva opettaja 2*. Helsingin yliopiston Lahden tutkimus- ja koulutuskeskus, Lahti, 1996, 50–61.

[11] Pettersson T., Postholm, M. B., Flem, A & Gudsmundsdottir, S. Cultural scaffolding: The arts and craft-teacher's mediation with her students with behavioral problems, *European Conference on Educational Research, ECER,* Edinburgh, Scotland, 2000. Available in: http://www.svt.ntnu.no/ped/sigrun/publikasjoner/ecertp.html. 31.8.2004.

[12] Polanyi, M. *Knowing and Being*. Routledge & Kegan Paul, London, 1969.

[13] Polkinghorne, D. Narrative Configuration in Qualitative Analysis. In J. Hatsch & R. Wisniewski (eds.) *Life History and Narrative*. Falmer Press, London, 1995, 5–23.

[14] Rostvall, A.-L. & West, T. Analysis of Interaction and Learning in Instrumental Teaching. *Music Education Research* 5 (3), 2003, 214–226.

[15] Shavelson, R.. What is the Basic Skill? *Journal of Teacher Education* 24, 1973, 144–151.

[16] Tait, M. J. Teaching Strategies and Styles. In R. Colwell (ed.) Handbook of Research Music Teaching and Learning: a Project of the Music Educators National Conference. Schirmer Books, New York, 1992, 525–534.

[17] Tarasti, E. On the Modalities and Narrativity in Music. In V. Rantala & L. Rowell & E. Tarasti (ed.) *Essays on the Philosophy of Music*. Acta Philosophica Fennica. Vol 43. Societas Philosophica Fennica, Helsinki, 1988, 110–131.

[18] Toiskallio, J. *Tieto, sivistys ja käytännöllinen viisaus*. Turun yliopiston julkaisusarja. Sarja C, osa 99, 1993.

[19] Westerlund, H. Musiikki päämääränä ja välineenä. Deweyn kasvun ja kokemuksen käsitteet musiikkikasvatuksessa. *Musiikki* 4, 2003, 7–21.

[20] Wilson, S. M., Shulman, L. S. & Richert, A. E. 150 Different Ways' of Knowing: Representations of Knowledge of Teaching. In J. Calderhead (ed.) *Exploring teachers' thinking.* Cassell, London, 1987, 104–124.

[21] Young, V., Burwell, K. & Pickup, D. Areas of Study and Teaching Strategies in Instrumental Teaching: a Case Study Research Project. *Music Education Research* 5 (2), 2003, 139–155.

EXPLORING AND LEARNING MUSIC THROUGH EMBODIED EXPERIENCES

Marja-Leena Juntunen
University of Oulu,
Finland

ABSTRACT

This paper examines musical learning in the context of Dalcroze Eurhythmics. Dalcroze Eurhythmics is an approach of music education that incorporates body movement, ear-training, and improvisation. The paper studies how Dalcroze Eurhythmics offers a possibility for students to explore music through bodily involvement, and to learn through embodied experiences. It also studies how embodiment is reinforced by Dalcroze teachers' actions and how teaching procedures reinforce the mind-body connection.

The philosophical framework of my study is based on Maurice Merleau-Ponty's (1908-1961) phenomenological philosophy. For Merleau-Ponty, perceptual experience always precedes knowledge. He suggests that the body and bodily involvement with the world are the primary tools of knowing the world and oneself.

My paper suggests that embodied experiences advance knowing at a deep level, while often incapable of expression in words. It also suggests that bodily exploration of the musical world enhances bodily knowing, musical understanding, listening, and the sense of self. In addition, it argues that the bodily exploration reinforces the mind-body connection, for example, by combining sensing, feeling, thinking, and action.

1. INTRODUCTION

This paper is based on my doctoral study [9] and examines musical learning in the context of Dalcroze Eurhythmics. Dalcroze Eurhythmics is an approach of music education that builds on Émile Jaques-Dalcroze's (1865-1950) ideas. Jaques-Dalcroze defines eurhythmics as education through and into music [5]. It can be seen as a process for awakening musicality and developing musicianship in a broad sense. According to Jaques-Dalcroze, eurhythmics gets students to listen and to imbue the whole of their bodies and being with musical sounds; this, in turn, reinforces sensations, regulates habitual actions, and awakens imaginative faculties [6].

The theoretical framework of my research is drawn from Maurice Merleau-Ponty's (1908-1961) phenomenology. Following Merleau-Ponty, embodiment refers to living body-subject through which one experiences and knows the world subjectively. In the immediate bodily exploration of the world, the sense experiences and sensations blend with one's inner world. The body is considered a constitutive element of cognition and creativity. The perspective of embodiment tries to bring out how human beings think and act holistically. Pre-reflectively, we do not experience psychophysical causal relations between the mind and body.

Merleau-Ponty seems to have struggled with the same challenges in a theoretical way within philosophy as Jaques-Dalcroze did in a practical way within music education. Merleau-Ponty's [13] work can be interpreted as an effort to unify the world and our experience of it and to turn our attention to the importance of embodied, pre-reflective experience. Jaques-Dalcroze [3] suggests that we come to know the musical world and ourselves through meaningful mind-body exploration and experiences that combine music and movement.

2. BODILY EXPLORATION OF MUSIC

In a Dalcroze lesson, learning experiences originate in exploring some musical subject or phenomenon. This exploration includes exercises that combine, for example, listening, moving, singing, thinking, improvising, and imagining—a variety of mind-body involvements within given musical culture. A Dalcroze teacher's responsibility is to enable and guide this exploration through physical activities and exercises. The exercises integrate music and body movement using the body as a musical instrument. The movement within Dalcroze Eurhythmics aim to mirror listening to music so that the qualities of movement (speed, energy, intensity, direction, etc.) correspond as closely as possible to the qualities of the music heard. There is no right way to move; instead, movements are individual but reflect some cultural influences as well. Thus, teaching is indirect rather than didactic conveying of information, and learning integrates many experiences.

It seems that the actual role of bodily exploration is seldom discussed in music education. I argue that educative bodily exploration with music can transform bodily knowing, musical understanding, expression, and listening, as well as the sense of self [10].

2.1. Bodily knowing

Dalcroze Eurhythmics aims to develop general bodily knowing. Bodily knowing originates in the body's interaction with the world and has a direct connection to the senses and bodily awareness as well as to psychomotor abilities, skills, and actions [14]. It includes the realization and understanding of the movement as well as being able to accomplish it. This knowledge is acquired through observing our own movements and through 'listening to' our kinaesthetic sensations. Bodily knowing encompasses the sense through which we know ourselves as whole; it is the foundation of all our knowing and the sense of self.

Within the Dalcroze approach, bodily knowing is developed primarily in order to create a finer and subtler instrument for musical expression. In learning psychomotor skills, it is the body that comprehends new motor significances through kinaesthetically attuned bodily involvement. Thus, bodily habits make the expression of music possible without having to concentrate on bodily actions moment by moment.

2.2. Musical understanding

In interpreting how body movements relate to and can facilitate musical understanding, musical understanding can be seen as a habit of musical action. By applying Merleau-Ponty's notion of *habit* [13], understanding of a musical phenomenon as a habit of action implies bodily knowing of its meaning in use. Thus, a musical action, including body movement, can be seen as a bodily understanding of musical meaning. In this light, the Dalcroze approach primarily seems to develop pre-reflective and mindful modes of knowing, 'a bodily way of being in sound' (including sensing, feeling, and thinking) that form the basis for subsequent reflective thought. Through transforming musical actions, embodied involvement also transforms thinking and, consequently, shapes both thinking-in-action and thinking-as-action [18].

One way to interpret how body movements relate to musical understanding is to analyze their use as a physical metaphor. Bodily exploration of a musical phenomenon can imply various things: The teacher can either aim to direct the students through physical metaphors and experiences towards a definite musical idea (e.g., a certain rhythmic pattern) or can offer a musical phenomenon (e.g., phrasing of a piece of music) as a metaphor for bodily exploration which aims at individual understanding of the music.

In the first case, the process is primarily designed to teach students to be able to understand, name, recognize, read, or notate a certain musical phenomenon—or all such possibilities. Such a process, especially with children, often starts by connecting daily movement experiences, images, and sounds with a certain musical phenomenon. Then, the students are encouraged to become attended to the qualities of their movement in relation to those of music. Finally, the written form and (or alternatively) the name of the musical phenomenon are introduced. In this example, body movement can be seen as physical metaphor that has been abstracted from the concrete (physical) experience.

In the second case, the teacher offers a musical phenomenon as metaphor for bodily exploration in order to generate diverse performance options and to foster improved understanding of the music. This process could involve a musical phrase, for example. Thus, the students can be asked to explore different ways of exemplifying the phrase through movement; that is, different movements that can expressively mirror the phrase. However, because a metaphor is at stake, the question also can be asked in reverse: How is the music like or different than the movement? This approach can generate entirely different and new ideas. Such exploration encourages the development of personal understanding since the students' movement responses and experiences are unique. However, a student's understanding can also be expanded through observing or mirroring the movements of other students. With Dalcroze teaching, students are primarily asked to find their *own* way to express in movement what they hear in music but they are also encouraged to learn from each other. Then, because the same musical idea is represented in various ways, each student can become aware of other possibilities for motion and action.

2.3. Musical listening, expression and sense of self

In the Dalcroze approach, body movement is used to intensify musical listening. There are also other reasons for integrating listening and bodily action: Bodily involvement gives students something concrete to do as it, at the same time, supposedly clarifies and reinforces listening and the understanding of musical phenomena. It compels students to react in bodily 'terms' and - in order to be right - to concentrate. All students can participate simultaneously and have a possibility to learn from each other. In addition, the teacher is able to see the responses of all of her/his students all at once.

One reason for integrating body movement into music teaching is that musical sounds naturally vibrate in the whole body and cause bodily reactions. When we listen to a musical performance, we do not just hear or think, we participate with our whole bodies. Music is not purely intellectual; it works through the senses and sets the whole sensory being to echo the vibration of sound. Dalcroze Eurhythmics aims at reinforcing this cross activation so that all sensations from different senses can fuse into one synergetic experience.

By applying bodily involvement with listening to music and by encouraging students to listen sensitively to their own reactions in the body, Dalcroze teaching also aims at making 'musicing' more personal and connected to one's own self. The moving and sensing body, by resonating through sounds, contributes a sense of wholeness [16].

Moving with music is likely to initiate emotions and feelings, whether one is aware of them or not. Thus, we do not only *move with* music, but we also are *moved by* music; music 'affects' us. To have been moved by the music is to have discovered something new in the interaction of body and sound, something that changes how we know ourselves in relationship to the evolving sound. Especially, the spontaneous reaction to the music—being-in-the-sound—enables feeling (and understanding) music by the listening body as a whole [11,15]. The expression "being-in-the-sound" implies that feeling and doing are spontaneously and inextricably integrated.

Listening, that is paying attention and being attuned through the body's felt sense, can also develop our capacity to think; the capacity to think in a way that is not just more ‘reasoning’ and ‘reflecting’, but thinking which listens just as it can develop listening that is thoughtful [11].

3. HOW EMBODIMENT IS REINFORCED BY DALCROZE TEACHERS ACTIONS AND TEACHING PROCEDURES

The variations of applications of Dalcroze Eyrhythmics, and the teachings styles are plentiful [8]. The subjects include, for example, studies in theory, solfège, rhythm, and performance; choral and band rehearsals and conducting; as well as studies for solo instrument and voice. The practical applications of Dalcroze Eurhythmics seem to be shaped according to each teacher’s individual preference. Nevertheless, there are many commonly shared aspects: All the applications more or less aim at the same instructional goals[1]. In teaching, it is typical for students to be constantly challenged to be alert, to pay attention, and to use their imagination.

In Dalcroze lessons, working individually, with a partner, and in small groups are all included. Teachers who use the approach stress that Dalcroze Eurhythmics allows learning from experience and in an individual way [7] but it also allows learning from observing and interacting with the others present. Thus, in this respect, Dalcroze Eurhythmics incorporates both subjective (individual) and the sociocultural (shared) aspects of learning.

Within a Dalcroze lesson, learning through embodied experiences is reinforced in various ways. Usually, a Dalcroze lesson starts with a ’warm up’ that aims at leading students towards a state of concentration, and at making them kinaesthetically focused and aware. During a given lesson, exercises are paced to result in a balance between the mental and physical energy required for each activity. Varying the level of difficulty of the exercise also helps to keep the students motivated. The teaching proceeds in accordance with the students’ reactions and learning. This means that students are not taught more, or faster, than they can deal with effectively.

One way to reinforce the mind-body connection is to establish communication between sensations and action. In Dalcroze teaching, the connection between music and movement is established first by accompanying students’ natural movements with appropriately improvised music and then by making students follow the music with their movements. Students are also encouraged to accompany movement with their voices or body percussion.

To think of, to remember, and(or) to express in words one’s experiences reinforce the mind-body connection and initiate new connections, images, and(or) ideas. Words also initiate awareness of ‘I’ as the subject of the experience. In reflection, the experience is questioned and its qualities are imaginatively changed and extended. Through reflection, the experiences are connected to earlier ones and to earlier understanding, and they are, then, restored in clearer images. These images can later be consciously recalled, for example, when playing an instrument, singing, reading, or writing music.

Within a lesson, as well as in the long term, making students kinaesthetically and thus qualitatively aware of their movements, and establishing a connection between, listening, thinking, and moving, are all important goals. This connection is in fact required for the experiences of Dalcroze Eurhythmics to be personally meaningful. Kinaesthetic awareness can be awakened through various exercises. One way of making students aware of their natural movements and their qualities is to ask them to remember bodily actions and experiences and (or) to use simple words to analyze them. Asking the students to do things in different ways also reinforces kinaesthetic awareness.[2] The issue of imaginative bodily involvement imagining a movement before doing it (i.e., a considered response), or re-experiencing a movement through images in mind, without moving—is also important. It is an aspect that has also been recognized in some recent studies of learning [10].

Other types of Dalcroze exercises can also be applied. One is called the technique of *excitation and inhibition* in a constantly changing musical environment.[3] Another way to increase bodily awareness in relation to musical sounds is to study the gestural points of departure and arrival: anacrusis, crusis and metacrusis [4]. These phases can also be named as preparation, attack, and prolongation.

In Dalcroze teaching, the importance of joy in learning is stressed. In order to create an atmosphere of play and joy, many Dalcroze exercises are shaped as games (e.g., show the phrasing of the music with your arms; step the rhythm of the music in canon; when you hear a high note, change direction). All these exercises are designed to necessitate rapid and direct communication between (analytical) thinking, feelings, listening, and action and they are designed to encourage spontaneous interaction between a student and the music. Thus, in Dalcroze teaching the importance of one’s emotional state in learning is recognized. Joy arises when students experience balance between present capacities and the task in question. Csikszentmihalyi [1] refers to this experience of balance by the notion of flow. Furthermore,

---

[1] The shared instructional goals are, in particular, deepening musical understanding, improving bodily knowing, developing concentration, hearing and listening skills, enlivening musical expression, bringing students in contact with their inner selves, and enriching their musical experiences.

[2] When accomplishing any movement for the first time, we become aware of its felt qualitative character [15]. Thus, in order to get a sense of this original experience in habitual movements, such as walking, we need to try different ways of doing them.

[3] For instance, students walk with the pulse of the music. Every time they hear a triplet, they stop or start walking again. However, they are not supposed to react to any other kind of change in the music, for example to stop walking if the music stops; in other words, they have to resist the 'natural' reaction. They have to be simultaneously ready to react and to resist reaction. This sort of exercise forces constant attention and conscious control over the kinaesthetic processes

positive experiences foster positive motivation toward study. Merely acquiring information does not generate motivation because motivation is not embodied in cognition [17]. Motivation, rather, comes from and is experienced by the 'felt' body.

REFERENCES

[1] Csikszentmihalyi, M. *Flow. The psychology of optimal experience.* Harper and Row, New York, 1990.

[2] Jaques-Dalcroze, É. La grammaire de la rythmique (préparation corporelle aux exercices de la méthode), *Le Rythme* 17, 2–9, 1926.

[3] Jaques-Dalcroze, É. *Le rythme, la musique et l'éducation*. Fœtisch, Lausanne, 1920/1965.

[4] Jaques-Dalcroze, É. Lettre aux rythmiciens, *Le Rythme*, 32, 1-8, 1924.

[5] Jaques-Dalcroze, É La grammaire de la rythmique (préparation corporelle aux exercices de la méthode), *Le Rythme* 17, 2–9, 1926.

[6] Jaques-Dalcroze, É. Petite histoire de la Rythmique, *Le Rythme* 39, 3–18, 1935.

[7] Juntunen, M.-L. From the bodily experience towards internalized musical understanding – How the Dalcroze master teachers articulate their pedagogical content knowledge of the approach, *Proceedings of the 25th Biennial World Conference and Music Festival. ISME* 2002.

[8] Juntunen, M.-L. The practical applications of Dalcroze Eurhythmics, *Nordic Research in Music Education Yearbook* 6, 75-92, 2002.

[9] Juntunen, M-L. *Embodiment in Dalcroze Eurhythmics.* Ph.D. diss. University of Oulu, 2004 (http://herkules.oulu.fi/isbn9514274024).

[10] Juntunen, M.-L. & Hyvönen, L. Embodiment in musical knowing - How body movement facilitates learning within Dalcroze Eurhythmics, *British Journal of Music Education* 21(2), 1-16, 2004.

[11] Levin, D.M. *The listening self. Personal growth, social change and the closure of metaphysics.* Routledge, New York & London 1989.

[12] Matthews, J.C. *Mindful body, embodied mind: somatic knowing and education*. Ph.D. dissertation, Standford University, CA, 1994.

[13] Merleau-Ponty, M. *Phénomenologie de la perception.* Gallimard, Paris, 1945.

[14] Parviainen, J. Kehollinen tieto ja taito [Bodily knowing and skills.] In S. Pihlström (ed.) *Ajatus 57*. The yearbook of the Finnish Philosophical Association, 147–166, 2000.

[15] Stubley, E. Being in the body; being in the sound: a tale of modulating identities*, Journal of Aesthetic Education* 32(4), 93–106, 1998.

[16] Stubley, E. Musical listening as bodily experience, *Canadian Journal of Research in Music Education* 40(4), 5–7, 1999.

[17] Sheets-Johnstone, M. *The primacy of movement*. John Benjamins, Amsterdam, 1999.

[18] Westerlund, H. & Juntunen, M.-L. Music and knowledge in bodily experience: Dalcroze's challenge to David Elliott, In D. Elliott (ed.) *Praxial music education: Reflections and dialogues*. Oxford University Press, Oxford, 112-122, 2005.

THE MOTIVATION AND MEANING OF PLAYING AN INSTRUMENT AND THE HOLISTIC CONCEPTION OF THE HUMAN BEING

Erja Kosonen
Jyväskylä University
Department of Music
Finland

ABSTRACT

The subject of this paper is the mental significance of playing some instrument, e.g. piano in early adolescence. Individual meanings, experiences in our consciousness are connected with the social and cultural life and environment of the player.

The theoretical approach of my research is existential phenomenology with a holistic conception of man – the human being can exist and act merely as a whole being [4, 6, 7]. This philosophical framework is based on the phenomenological tradition of Husserl and Heidegger. It enables perceiving both the experiences of music and playing and the life situation, cultural values, and expectations of the young players.

1. INTRODUCTION

The goal of this paper is to describe the mental significance of playing and the motivation to play an instrument (e.g. the piano) in early adolescence, concentrating on individual meanings, experiences rooted in music, and playing, which are connected with the social and cultural life and the environment of the player. I am taking the view to instrument players as experiencing human beings, as well as to experiences and meanings of music.

My studies consist of both quantitative (Kosonen [2], N= 240 players) and qualitative research (Kosonen [3], N= 14 piano players) on the motivation to play. The results indicate that the most important meanings and motives for playing are rooted in music both when you are playing alone or with friends. ”It feels good” is a popular motive, including effects and experiences of music and playing.

Many young players like to play different kinds of music, both popular and classical. Classical music is usually covered by formal tuition and popular music alone or with friends, mainly on free time. Emotions connected to the played music and mastery (skill) are the most important issues, connected to the cultural background and the surroundings of players.

2. “IT FEELS GOOD”

The most important meanings in playing are the played music, the joy of playing, the feeling of mastery in playing, the music you like to play, the playing and enjoying music together with friends, and the formal tuition you enjoy. ”It feels good” includes strong emotions and effects of music in your body and consciousness. Music and its direct effects – experiences rooted in music, are the strongest *meaning(ful) relations* when you are playing or singing, alone or with friends.

Music and playing make you happy, they feel good and they do you good. Many players prefer the fact that playing is a good way to be alone with your own thoughts and feelings, to discuss with oneself. This “own space” is often so private that you do not like to share it with anyone – and you cannot share it with anyone because of the uniqueness of your experiences. There, in your own musical space, you can handle your feelings and experiences, deep inside yourself.

The feeling of mastery can be divided into technical and emotional mastery. Technical skill is a condition for playing - but it is not a goal in itself. Emotional mastery means that you can enjoy and experience the music you play. One important prerequisite for emotional mastery is that you accept yourself as a kind of player you are and you can play music you really like to play.

Many young piano players like to play both popular and classical music. Classical music and technical skills are usually covered by formal tuition. Popular music is played alone or with friends, mainly on free time – with or without singing. Popular music covers a variety of genres, including e.g. film music and various kinds of songs of which many are learned at music lessons at school. It is interesting that self-accompanied singing is never associated with piano studies.

What are they expecting of piano studies? They require the instrument teacher to be skilled, but she/he must also be an encouraging friend, and an adult who is interested in the pupil as a unique person. Technical skills and musical knowledge can be overshadowed by important emotions raised by the music. Many players do not like the traditional system of studying towards goals and examinations. They are like customers in music markets and have their own way of making music – with formal or private tuition, or without any tuition.

3. THE HOLISTIC CONCEPTION OF MAN

The ontological and theoretical approach of this research is the holistic conception of man in association with existential phenomenology. Phenomenology is a particular philosophical point of view, Brentano, Husserl, and Martin Heidegger being famous phenomenologists. Lauri Rauhala, a finnish psychologist and philosopher, has connected the holistic ontology and phenomenological philosophy in existential phenomenology.

The holistic conception of man is based on the idea that a human being can exist and act merely as a whole being [4, 6, 7]. This philosophical framework is based on the phenomenological tradition of Husserl and Heidegger. You can perceive and research the experiences of playing, singing, or making music as well as experiences of receiving and listening to music. All of these are in relation with the life situation, cultural values, and expectations of players. These are things you should not neglect if you are interested in the process of motivation and meanings in music.

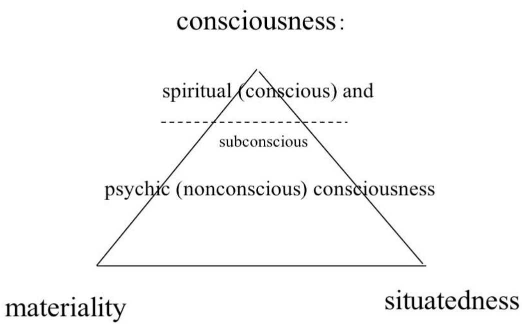


Figure 1. The triangularity of a human being and the levels of consciousness.

According to the holistic theory, the existence of a human being is realized as three existential modes: *materiality, consciousness and situatedness* – the triangularity of human beings. The materiality refers to organic processes, such as the biological and physiological processes in our body. Our heart is beating and we are breathing in and out without consciousness. We react to e.g. pain spontaneously, but the feeling of pain becomes conscious because of our consciousness.

Consciousness refers to existence as qualities of experiencing and meanings. It can be divided into *psychic* and *spiritual* consciousness. The spiritual consciousness is the conscious level of consciousness whereas the psychic consciousness is subconscious or unconscious. The ability of conceptualization is one example of spiritual consciousness. The term ”spiritual” refers, in this context, to the self-reflective and self-objectifying process of the conscious mode of being [4].

The basic characteristic and an essential and even ultimate structure of the human consciousness is *intentionality*: consciousness is always directed towards something. That is: Intentionality connects human consciousness to the world where you have been situated both in single contexts and the whole situation of life. It refers both to what is outside - such as concrete and abstract objects like the music you listen to or play or sing etc. - and to the world itself – like your experiences when listening to music or singing or playing it.

The situatedness, the third part of the triangularity of being, consists of the world, the culture, and the environment of human beings as well as your body and consciousness that you are in relation with. Our culture and our environment, including music cultures, values, and attitudes, are an essential part of our life and existence. Attitudes and musical tastes change when you grow older, but many values of music are connected with your own background, history, and cultural environment as well as with your different musical and other experiences.

4. EXPERIENCES

Experiences are substantive meanings that are constituted in intentional relations to the human world. Experiences are personal experiential meanings concerning this world, including the self. Experiences are constituted according to the basic structure of the conscious mode of being. Outside consciousness, there are no experiences at all. [4] That means: the body does not experience, but you experience *in* your body, *through* your body, and *from* your body, but you need in it your consciousness.

What is a meaning? The world of the human beings is the world of meanings [9]. A meaning – or a meaning relationship – is the way in which an object is experienced. It is a special relationship between a subject (an experiencing human being) and some object. Some examples: When you are listening to music, you are the subject and the music you are listening to, is the object. This situation is always a new experience to you. The object exists to you and it means something to you. It is a bit problematic to explain the meanings of the word ”experience” when it is just one word in English. In German, it is two different words: das Erlebnis – in Finnish ”elämys – koettu elämä” and die Erfahrung – in Finnish ”kokemus”.

When you experience music, the meanings are mainly non-reflective (see [8]). The reflective mode of being makes it possible to conceptualize them as meanings. Motivation consists of meaning relations and a motive is a meaning relation. When you have experiences and a meaning relationship with some music that you want to listen to again or play again, you have a motive, a conscious or unconscious reason to do it again. When the reason is in the music itself, I call it a *motive rooted in music*.

How to investigate experiences? Instead of *choosing* the method, the method should be *formed,* keeping in mind the specific nature of the empirical phenomenon under investigation [4]. My goal was to ascertain the phenomena behind piano playing. I could find answers to this only through qualitative investigations, which I made with 14 adolescent piano players. The method I have used is the method of *descriptively oriented empirical hermeneutic psychology*, which is based on the phenomenological psychological method presented by Amedeo Giorgi [1] and developed by the Finnish psychologist and expert on existential phenomenology, professor Juha Perttula [4, 5]. The idea of this method is *the descriptive stance***,** to describe the experiences and the experiential world of the research subjects without saturation and generalization. You have to study *what is* according to *how* this particular what is [4]. You have to return to the things themselves and describe phenomena exactly as they present themselves.

5. DISCUSSION

What about music and playing and the life situation of young players? Adolescence is a time of independent development when young people choose their hobbies and interests. Music and playing can be very important tools in the building of one's self-esteem. For most piano players the playing is a meaningful hobby without professional ambitions. Playing and music is a private area, a private space to be with yourself and this should be enough. It feels good! You do not need any other reasons to play and make music – or to enjoy it.

Our duty as adults and music educators is to make it possible. Our duty is to train our children and adolescents in a favourable environment and musical contexts with rich and varied musical experiences. It is not an easy task because of the many realities of the life style today - everything should be comfortable and you should get it quickly.

6. REFERENCES

[1] Giorgi, A. The phenomenological psychology of learning and the verbal learning tradition. In A. Giorgi (ed.) *Phenomenology and psychological research*. Duquesne University, Pittsburg, 22-85, 1988.

[2] Kosonen, E. *Soittamisen motivaatio varhaisnuorilla (The motivation of instrument playing of young adolescents).* Jyväskylän yliopisto. Musiikkikasvatuksen lisensiaattityö, 1996.

[3] Kosonen, E. *Mitä mieltä on pianonsoitossa? (What is the point of playing the piano? Experiences of 13–15-year old piano players.)* University of Jyväskylä. Jyväskylä Studies in the Arts 79, 2001.

[4] Perttula, J. *The Experienced Life-Fabrics of Young Men. (Nuorten miesten koettu elämänkudelma.)* University of Jyväskylä. Jyväskylä Studies in Education, 136, 1998.

[5] Perttula, J. Kokemuksesta tiedoksi: fenomenologisen metodin uudelleen muotoilua. *Kasvatus* 31 (5), 428-442, 2000.

[6] Rauhala, L. The hermeneutic metascience of psychoanalysis. *Man and world* 5(3), 273-297, 1972.

[7] Rauhala, L. *Psyykkinen häiriö ja psykoterapia filosofisen analyysin valossa.* Weilin+ Göös, Helsinki, 1974.

[8] Rauhala, L. *Ihmisen ainutlaatuisuus*. Yliopistopaino, Helsinki, 1999.

[9] Varto J. *Laadullisen tutkimuksen metodologia.* Kirjayhtymä, Helsinki, 1992.

ABOUT THE THERAPEUTIC MEANING AND POTENTIALS OF MUSIC AND MUSICAL INTERACTION IN MUSIC EDUCATIONAL CONTEXT

Liisa-Maria Lilja-Viherlampi
Turku Polytechnic, Arts Academy
Finland

ABSTRACT

This presentation deals with my ongoing doctoral study. In my study, I observe and illustrate the areas music therapy and music education have in common. I study how the basics and methods of music therapy could be reflected in music education, and analyze the therapeutic needs within (music) education that could be met by the means of music therapy.

This study consists of synthesizing three elements. Firstly, there is the theoretical material about the fields of music, therapy, and education, and furthermore, about the music education, music therapy, and the therapeutic approaches in general education. Then there are the interviews of nine experts in the themes of the theoretical examination. The third element consists of reports of students studying music therapy in Turku Polytechnic under my tuition in 2003-2004. They aimed for integrating music therapy in their own work as teachers.

As a result, I define the concept of 'therapeutic' in music educational context. I clarify the aspects of therapeutic needs and therapeutic goals in music instruction and music classroom situations, therapeutic elements in musical interaction therein, and outline (the pupil's) therapeutic experiences enabled.

1. INTRODUCTION

The Finnish education is seen as high-level, as well regarding the general education as the music education. However, there are critical voices pointing out that music education produces indeed diligent music students and musicians of a high standard, but, on the other hand, people who have only learned that music is not for them! [13]

On the other hand, promoting mental health and well-being as well as coping with emotions are important topics in today's educational discuss [15, 19, 21]. Yet another point is that mental problems and anxiety among even "normal" pupils have increased and require evaluating of the educational tasks and pedagogical methods.

We can ask, what are the real contents and goals of education and how are we going to reach those goals? The old explication (Hollo 1932) that one should see education as promoting growth, is topical again, and yields thoughts about "pedagogical love"[19] and therapeutic pedagogy [14].

In music therapy, music is seen as a medium for the integration and development of the person [6]. Its meaning is built up in the musical interaction and the focus there is the personal relationship that the client has with music. Music is seen as an important mean of communicating feelings, through which a person can advance personal resources or work out problems [1,12].

Music therapy as a treatment is accounted for by a professional therapist. However, the therapeutic knowledge of the aspects of music and musical interaction and its possibilities is usable for anyone interested in it, especially teachers. "The father of music therapy in Finland", Petri Lehikoinen, stated [9] that using music therapeutically at schools would in many cases obviate the actual therapy later.

In my study, I view the "trialogue" between music, therapy, and education. I have met nine persons, who I rated as experts in their own area: music, therapy, or education – or music therapy or music education. They are: Jorma Heikkilä (professor in education), Hannu Riikonen (jazz-musician, lecturer in music education), Jari Sinkkonen (paediatric psychiatrist and therapist, flutist, author), Liisa Tenkku ("The Grand Old Lady" of Finnish music education), Einojuhani Rautavaara (composer), Kari Kurkela (professor at Sibelius-Academy, pianist), Timo Korhonen (guitarist, principal lecturer in Turku Music Academy), Varpu Ruohonen (musician, class teacher), and Jaakko Erkkilä (professor in music therapy). Through dialogue with my interviewees' opinions and literature, I highlight the therapeutic aspects in music instruction and music classroom situations. Those aspects are as well those that are built in and existing there as potential.

Furthermore, I will clarify those aspects with the texts produced by students of music therapy. In their self-reflections, reports of practical training, and final reports, they articulate their conceptions of the therapeutic oriented music education.

2. ABOUT THE MUSIC EDUCATIONAL CONTEXT

Music education occurs in all of the musical interaction the pupil is participating in. On one hand, there are the experiences *of music* itself and on the other, there is the contact and interaction that occurs *with music*: singing, playing, and experiencing music with other persons.

As Anttila emphasizes [3], the main task in music education is not to teach music, but to teach the pupil, and more: foster the growth and development of the whole person as The National Board of Education states it [17, 20].

The field of my study is the music education which takes place at comprehensive schools and music schools. Although my study is a general outlining of the therapeutic aspects in music education, it is in many respects based on the practical views of teachers.

The music education in this study is seen to cover studying music in general (at schools), studying to play an instrument at a music school, or getting involved in musical interaction within any lessons in the classroom situations.

3. ABOUT MUSIC AND MUSICAL INTERACTION

Music is a power that has significance and an evident influence on individuals and groups. Music is a multidimensional phenomenon - acoustic, physical, psychic, artistic, social, spiritual etc. - whose importance is constructed by people experiencing music. Musical interaction is a process, where internal transforms to external, and external transforms to internal [12]: music is an external, perceptible manifestation of an inner process [11]. In music, one can experience and express projections of one's "interior" that are transformed into music. [11]

The meaning of music is based on the early world of a baby, furthermore, of a foetus. The early experiences of rhythm, sound, voices, forms etc. are the elements forming the comprehensive psycho-physical schemas, which, for one, direct the perception of other stimuli. The early experiences of sense perceptions are amodal: sound is colour, colour is movement, movement is sound and so on. The baby is sensing qualities of experiences, vital affects. These are e.g. 'accelerating', 'decelerating', 'soaring', 'lowering' which are feelings and forms at the same time. [4,12]

The earliest musical interaction is the one between the baby and its mother. Early experiences of receiving, giving, and being accepted are composed of the musical-like interaction there. The mother and the child are tuning in the same wavelength (attunement; Stern 1985) [2]. This means primal experiences of sharing emotions as well as experiences of different musical elements combined with feelings and interaction by that attunement. Those elements are found in music: pitch (melody), rhythm, timbre, dynamics, tempo, harmony, and form.

The musical experiences interconnect then with the symbolic process [11,12]. The emotional contents of musical or "musical-like" interaction are forming by themselves at the psycho-dynamic level and, through learning, at the cognitive level [4]. According to Lehtonen [11], there are "connections between music and the child's early attempts to give shape to the world". Music, musical interaction, and "musical-like" experiences are building up significances, serving as objects[1] for the child's mental processes. The isomorphism of musical and psychical occurrences is serving in the psychic work an individual is doing while growing up. Creativity as an element of human life and well-being is anchored in the transitional world of the infant [11].

Music as a "language" is based on those early forms of interaction and the symbolic process [12]. Although, music is a non-discursive language without any specific contents, it can be true in a way that spoken language could never be. The musical forms bear contents of meaning that are beyond spoken words and can mediate communication very delicately intrapersonally as well as interpersonally. The form of music and musical interaction presents "open schemas" into which one can project the contents of the psyche [10].

4. WHAT'S THERAPEUTIC?

The word 'therapeutic' means strictly defined "relating to the treatment of disorders" [22]. On the other hand, there are viewpoints [9,14,19] about 'therapeutic' being a proper word to explicate helping and growth-promoting aspects in the teacher-pupil-interaction, too. In Skinnari's theory of Pedagogical love (2004), the main task of the teacher is to "help the pupil to become who he or she is". That is, to become a person who is individual, unique, and a responsible member of the society.

I see the therapeutic attitude of a teacher as an implication of 'pedagogical love'. "Love" is here seen as a way "to confirm one's existence" [5]. A teacher with the therapeutic attitude is conscious and responsible of the pupil's comprehensive growth. The teacher is motivated and able to promote the *whole* learning and growing of the pupil, also including the growth of the emotional life and self-respect. The teacher is serving the pupil [14] within his or her personal relationship with the subject. Sometimes it means also nurturing ways of action when the teacher is helping the pupil with the problems and difficulties unfolding in the learning situations.

Music and musical interaction could be the concrete medium of pedagogical love and teacher's therapeutic attitude. It arises from music being the object of learning as well as the means of learning and growing. There is the *learning of music and growing to music* with its meanings and, on the other hand, there is *learning and growing with music.*

Music represents emotional enjoyment and the "catharsis" in musical perception, expression, or creation [10]. At the same time, there are many levels of interpersonal interaction and multiple learning experiences activated in the musical context. On one hand, the base for this is the symbolic process releasing psychic material from its original connections [10] and, on the other hand, the mental and bodily principles, built in the musical interaction, convey contents that could be transferred to other situations [8].

The core of the therapeutic orientation in music education is the teacher's consciousness of the pupil's *personal relationship* with music (from a short moment with music to a wider musical interest), which is the field of interaction. The therapeutic teacher is not teaching music, but helping the child to learn music and to grow by music. The child's personal relationship with music is nourished by the enjoyment of music.

[1] On the basis of the theory of object relations (Klein 1936), Lehtonen has discussed music as a transitional object, a self-object, and as a bad object. In all these aspects, music is "doing" psychic work on behalf of an individual. [10]

4.1. Examples of the practical applications of the therapeutic meaning and potentials in music education

The main themes in discussion with my interviewees were:

- What kind of a phenomenon is music and where are its origins?
- Why music is important to human beings?
- What are we talking about when we talk about education? Is "teaching" the same thing as "promoting growth"?
- What do 'education' and 'therapy' have in common?
- What kind of action or orientation could be seen as 'therapeutic'?
- What aspects can we point out if we think about music as a therapeutic phenomenon?
- What aspects are included in if we think education or teaching as a therapeutic phenomenon?
- What kind of activities in educational interaction could be seen as therapeutic?
- What are the current goals and challenges in music education?

The students, for their part, put these themes into action. They explicated in their texts some concrete goals and elements they had when working with their pupils with therapeutic orientation, and discoveries they made of their perceptions.

In the following, I make an outlining of the therapeutic aspects that could be brought up of music and musical interaction in educational context, based on the opinions of my interviewees and students. This example is my construction and synthesis and I can explicate it this far. At the moment, I'm having an ongoing dialogue with all my transcribed material.

Some of the therapeutic aspects that could be found in musical interaction and discussed in music educational context are:

a. *Calming down, relaxing, reposing.* By music, one can experience rhythmical alternation of rest and activation and learn skills to calm down.
b. *Settling for thinking, introspection, concentration.* By music and projected to music, one can manage one's inner world, perceive and work out own thoughts and experiences. Concentrating to music is to construct "own space" with its boundaries. Musical experiences are individual property. Concentrating in musical interaction requires also the control of impulses.
c. *Creative procession and activity, problem-solving.* Processing musical elements and tools is to work creatively. Music presents a way to produce individual experiences and musical products, to promote creative talents, and to appreciate creativity both in oneself and in others. Music represents a creative form for one's impulses.
d. *Empowerment, encouragement, self-expression.* By music a person can experience that his own feelings, experiences, and imagery can form an audible and bodily expression. It is also a matter of getting space to express oneself. Being in touch with the emotions of oneself and the others, develops the skills of self-reflection, self-expression, and empathy [7].
e. *Achieving, managing, mastery.* By music, a person can experience enjoyment and success, and integrity at different levels of his world of experiences. The person can experience that there is a creative and sounding effect and meaning in what he is doing with music. By music, one can try things, make mistakes, fall down – "the music does not break down, get hurt or die" [18].
f. *Communion, cooperation, sharing.* Music does not discriminate, but is equal from its starting points. Each person can participate in music in his own way. An ensemble is more than a sum of its parts. Playing and singing together produces experiences of working together, succeeding together, and sharing emotions together. It's also a matter of communicating, giving, and receiving, and having experiences of being accepted. Music produces and promotes interaction and communication.
g. *Experiencing music.* "The music sounds like how I feel "[1]. The music conveys contents of aesthetic significance and cultural values. By music, there is an opportunity to temporarily break away from everyday life and its realities. Through music, different experiences of non-discursive significant contents are enabled (i.e. empowerment, grief work, experiences of holiness). Music also activates bodily experiences and produces comprehensive psycho-physical experiences where i.e. many different brain-areas are activated. Meaningful experiences are also "learning-aids": situations with strong emotions and enjoyment are a sort of "glue" for remembering and learning [16].
h. *Auto therapeutic attitudes.* Through positive experiences by music, a person can gain tools for auto therapy. With music, he can then work out his emotions, and investigate and reflect his "interior" by himself, integrating the different aspects in his life and personality. Musical interest brings also many opportunities to live meaningful life and fulfil oneself.

5. CONCLUSION

Music is a significant phenomenon among human culture. Being a form of art and a form of social interaction are its evident aspects. Socializing children to members of the culture has been one of the main objectives in education, in music education, too [13].

However, also music therapy could formulate the contents of 'music'. The focus in music therapy is that, first of all, music is significant because of the personal relationship one has with music and because of the interaction therein. In music therapy, the main objective is to help a person to solve his problems, win his limitations, and develop his personal resources. The development and progression of the individual, and the individual as a whole, is in the main role, not the music culture or musical conventions where the child should be socialized and taught to absorb. In music therapy, music can "ask" with its own voice and the voice of the therapist: "How can I serve you in becoming the person you are?"

If we consider the therapeutic orientation and possibilities we could include in music education, we can become aware that through music and musical interaction the pupil could gain learning experiences that affect all levels of the personality from the depths of the early interaction to the present emotional, cognitive, and social aspects of life. When music is the medium, the pupil **is** in the midst of emotional communication and creative work that could essentially construct the skills of living and well-being, and personality.

6. REFERENCES

[1] Ahonen, E. *Musiikki sanaton kieli. Musiikkiterapian perusteet.* 3., korjattu painos. Oy FinnLectura Ab, Helsinki, 2000.

[2] Ahonen-Eerikäinen, H. *Samalle aaltopituudelle.* Kirjayhtymä, Helsinki, 1999.

[3] Anttila, M. *Musiikkiopistopedagogiikan teoriaa ja käytäntöä.* Joensuun yliopiston kasvatustieteiden tiedekunnan opetusmonisteita 39, 2004.

[4] Erkkilä, J. *Musiikin merkitystasot musiikkiterapian teorian ja kliinisen käytännön näkökulmista.* Väitöskirja. Jyväskylä Studies in the Arts, Jyväskylän yliopisto, 1997.

[5] Falk,B. *Auttajan peili.* Resurssi, Tampere, 1998.

[6] Garred, R. *The Ontology of Music in Music Therapy – a Dialogical view.* Voices: Main Issues. Vol.1 no.3, Released November 1, 2001. http://www.voices.no/mainissues/Voices1(3)Garred.html

[7] Kalliopuska, M. *Empatia – tie ihmisyyteen.* Kirjayhtymä, Hämeenlinna, 1983.

[8] Kurkela, K. *Mielen maisemat ja musiikki. Musiikin esittämisen ja luovan asenteen psykodynamiikka.* Sibelius-Akatemian musiikin tutkimuslaitoksen julkaisuja: 11, 1993.

[9] Lehikoinen, Petri. *Parantava musiikki.* Musiikki Fazer, Helsinki, 1973.

[10] Lehtonen,K. *Music as a Promoter of Psychic Work. A psychoanalytical study of the educational possibilities of music therapy.* Turun yliopiston julkaisuja C: 56, 1986.

[11] Lehtonen, K. Reflections on Music Therapy and Developmental Psychology. *Nordic Journal of Music Therapy* 2(1), 3-12, 1993. Republished: http://www.hisf.no./njmt/artikkellehton21.html. 2001.

[12] Lehtonen, K. *Musiikki, kieli ja kommunikaatio. Mietteitä musiikista ja musiikkiterapiasta.* Jyväskylän yliopiston musiikkitieteen laitoksen julkaisusarja A: tutkielmia ja raportteja 17, 1996.

[13] Lehtonen, K. *Maan korvessa kulkevi... Johdatusta postmoderniin musiikkipedagogiikkaan.*Turun yliopiston julkaisuja B:73, 2004.

[14] Mäki-Opas, A. *Murtuneet siivet. Auttamisen ja muuttumisen mahdollisuudet.* Kirjayhtymä Oy, Helsinki, 1999.

[15] Niemi,P. *Oppimisen ja opetuksen tunneympäristö.* Turun yliopiston kasvatustieteen tiedekunnan Studia Generalia-luento 26.10.2004.

[16] Paloheimo,M. *Viivyttelyn viisaus.* Tammi, Helsinki, 1977.

[17] *Perusopetuksen opetussuunnitelman perusteet.* Opetushallitus. Helsinki, 2004.

[18] Rechardt, E. *Minuuden kokeminen musiikissa.* Musiikkitiede 2/91, 1991.

[19] Skinnari, S. *Pedagoginen rakkaus. Kasvattaja elämän tarkoituksen ja ihmisen arvoituksen äärellä.*PS-kustannus, Jyväskylä,2004.

[20] *Taiteen perusopetuksen musiikin laajan oppimäärän perusteet.* Opetushallitus, Helsinki, 2004.

[21] Uusikylä, K. *Vastatulia inhimillisen kasvatuksen ja opetuksen puolesta.* PS-kustannus, Jyväskylä, 2003.

[22] www.oxfordreference.com

WHAT KIND OF A SINGER I AM:
THE VOCAL SELF-IMAGE OF THE STUDENT TEACHER

Anna-Mari Lindeberg
University of Joensuu
Savonlinna Department of Teacher Education
Finland

ABSTRACT

The aim of the study is to examine how student teachers experience themselves as singers. The phenomenon in focus is designated as vocal self-image. The study describes the ways singing is experienced as real and meaningful by student teachers. The data was collected in the Savonlinna Department of Teacher Education by interviewing student primary school and kindergarten teachers (n=8). Both musically active and less active students were chosen.

The research method used is phenomenological philosophy in a broad sense. More specifically, it is an analytical method based on phenomenology and it is created for this particular study. It is systematically applied to the material.

The results are examined on two levels. The first level is an analysis of the student teachers´ individual narratives, based on their experiences of singing. In these narratives, the student teachers express their views of themselves as singers, the kind of singers they would like to be, and the singers they admire. The interviews reveal the interviewees' relationship to their own bodies as well as to the emotional nature of singing.

The second level of examination is a general one. In the phenomenological narrative, the vocal self-image is delineated as a dialogical and existential relationship. The dialogical relationship is a personal relation towards one's experiences of singing; Singing as an existential relationship signifies the relationship with the life-world existentials, which are Lived Time, Space, Body and the Other.

The research results provide the field of musical education new information about the experiential nature of singing.

1. INTRODUCTION

Singing is one of the main ways of making music in Finnish music education. Although, the content in music education has been enriched and the approaches to music have become diverse, singing belongs to everyday activities in kindergartens and schools. Kindergarten teachers and class teachers form a very important group of teachers because they are greatly responsible of Finnish Music Education. This is why I have been interested in the ways the student kindergarten teachers and primary school teachers view themselves as singers and as future teachers of children's singing.

2. THE VOCAL SELF-IMAGE

In this research [3], the term self-image refers to a person's own view of him/herself. The self-image is defined as a conscious conception of what a person is like. The self-image is understood as a part of a person's ego. The self-image is in the core of a person's phenomenal field, i.e. the world is viewed and interpreted through the self-image.

The vocal self-image is a personal conception of one's own singing. It arises from the experiences of singing and is temporally and contextually confined.

The vocal self-image begins to develop when a person situates singing as an object of discussion. This idea is based on the classical division of self, introduced by William James [2]. When I say or do something, for example sing, I act as a subject. When I afterwards think or evaluate my activities or singing I am in a subject—object relationship with myself. The development of vocal self-image can be seen as a dialogical event of this kind.

The vocal self-image can also be seen as a narrative. Generally, narratives are an important part of our efforts to organize the world, i.e. to give meaning to our life. The narratives of singing are not pure copies of the singing experiences, but they make the experiences meaningful. Through explaining his/her singing experiences, the student teacher both structures his/her own experiences and creates his/her own vocal-self-image.

3. PROBLEMS AND METHOD

The study describes the ways singing is experienced as real and meaningful by student teachers. The main research problem is following: What is the student teachers vocal self-image like?

The data was collected in the Savonlinna Department of Teacher Education by interviewing student primary school and kindergarten teachers (n=8). Both musically active and less active students were chosen. In the beginning of the interview, every student sang a song chosen by themselves; the singing was videotaped and the interview started by watching the video. This turned out to be a good starting point to the individual world of singing: many students had never seen their performance or heard their own singing voice.

The experiental-centered viewpoint of singing is fresh because the research interest has not focused much on the meaning of experiences to the musical life.

The main research problem is complemented by additional questions which are linked to themes of life-world existentials introduced by van Manen [4]. These life-world existentials are general themes which exist in the life-world of all human beings. These themes are Lived Space, Lived Body, Lived Time and Lived Other.

The theme of Lived Space links us with the place. The researcher of vocal self-image tries to understand how the experience of singing is shaped by the specific nature of lived place. The next life-world existential, Lived Body, refers to the phenomenological fact that the experiental centre of a human being is one´s own body. As Merleau-Ponty argues, I am not in front of my body, I am in it, or, rather I am it [5]. The third theme, Lived Time, fixes us on the subjective time which is the opposite of objective time measured by a clock. The subjective time intertwines the past, present, and future together. When a student teacher examines his/her childhood singing experiences of the past, he/she interprets them again and gives new meanings to the experiences. At the same time, he/she as a future teacher has to examine singing from the viewpoint of challenge in his/her future professional activity. The fourth life-world existential is Lived Other which connects our existence on other people and everything we share with them.

The experiental viewpoint of the phenomenon in focus requires an adequate research method. Phenomenology is interested in the experiental life. The phenomenological question in this study focuses on the experience of singing. I do not ask who sings well or less well. I do not evaluate or put to the order of superiority. I want to know what the vocal self-image, based on the singing experiences, is like.

The research method used is phenomenological philosophy, more specifically an analytical method based on phenomenology and created for this particular study. It is systematically applied to the material.

4. RESULTS

The results are examined on two levels. The first level is an analysis of the student teachers´ individual narratives based on their experiences of singing.

Most of the student teachers were satisfied with the way they saw themselves; soulfulness, courage, and development as a singer were the most common wishes. For example, Ismo, a 24-year-old male student kindergarten teacher, explains that during the interview he thought of singing and playing more than ever before. He feels sad that nobody has given him instructions in singing because he would like to be able to sing better and with more courage than he does.

The basis of the vocal self-image is founded on the experiences from the early childhood and the first years at school. Despite, when singing was not practiced by the whole family, the atmosphere towards singing being encouraging, the student teacher's own attitude has taken a positive and respectful shape. If the family's atmosphere towards singing was negative, the relationship towards one's own voice and singing remains indefinite and active singing may lack completely.

School is a very significant social context of singing. Generally, there are no prejudices against singing during the first years at school; the experiences of singing are positive. The significant role of the teacher in awakening enthusiasm for singing is evident.

The adolescent voice change is a turning point for many boys and changes the relationship towards singing, one way or another. Singing might be totally abandoned or at least the voice change generates doubts about the condition of one's voice or loss of the musical ear. In this data, girls do not talk about the problems of voice change.

In this data, boys have more dramatic experiences of the singing tests in school than girls: some boys said that they could never forget the strong impression of humiliation.

The individual narratives reveal the interviewee's relationship to their own bodies. The dimensions of body experiences vary: on one hand body is experienced as undefined and quiet; Matti, a 23-year-old male student class teacher, describes his experience as follows:

…"I have no idea what happens. I don't think in any ways that now I have to fill my lungs with air and start the abdominal respiration on time and start to sing, no!"

On the other hand, body is experienced as very significant, present, and essentially linked with bel canto and singing. Especially students who had studied singing under the guidance of a teacher were very conscious of the body's presence.

Maija, a 21-year-old female student class teacher, describes her experiences as follows:

…"*of course I think about my singing technique a lot and how I should stress my voice as little as possible*…"

The emotional nature of singing comes up in the narratives of the student teachers. Emotions are regarded, on one hand, as internal sensations and, on the other hand, as emotional messages, which are transmitted to the audience.

The student teachers had a very realistic view of their expertise to teach singing in their future profession. Those who were confident of their personal know-how thought they have good possibilities to cope with music education and singing. Jaakko, 29-year-old male student teacher, explains that he is good in making music together with children. It is easy to be stimulated to sing with them. Secondly, he thinks he is good in encouraging and not depressing children's singing. Two male student teachers, Arto and Ismo, agreed that teaching singing to children is completely impossible because of their distrust of their own skills. Ismo, 24-year-old student kindergarten teacher, explains his situation as follows:

"I can´t possibly keep up with it.... I know that it is not my business. I know that if you teach music you have to know your stuff. If I went to teach music, I felt so unskilled that it's no use."

On the general level of examination, the vocal self-image is delineated as a dialogical and existential relationship. The dialogical relationship is a personal relation towards one's experiences of singing. Singing as an existential relationship signifies the relationship with the life-world existentials, which are, as mentioned earlier, Lived Space, Lived Body, Lived Time and Lived Other.

5. DISCUSSION

The research results arouse a need to discuss the experiences of singing and music learning within the teacher education. To reflectively reminisce about one´s own history helps the student teacher understand his/her present and future.

The results suggest that a broad base of positive singing experiences in childhood and early school years is vital for positive constitution of a vocal self-image. Therefore, it is important that the focus in kindergartens and schools is on the singing practice, the use of the voice, and on the training of the multifaceted repertoire. This viewpoint emphasizes making music together in which case it is less important to control the individual performance. This idea is supported by the research results suggested by Ahonen [1]. The musical ear develops only by practise and the first school years form the significant period for the positive development. This indicates that music educators play a vital role in introducing music to children in meaningful ways. An inspiring teacher remains in pupil's mind as do the songs which are sung under the guidance of a proficient expert.

The research results provide the field of musical education new information about the experiential nature of singing. They also have a pragmatic significance. They can be made use of in teacher education, e.g. in the planning of courses of voice and singing. In addition to the musical-pedagogical, i.e. the instrumental aims, the contribution of the study can also be viewed as unifying. This suggests complementing the instrumental duty of the teacher training with the educating one and taking notice of the student's internal, personal growth.

6. REFERENCES

[1] Ahonen, K. *Johdatus musiikin oppimiseen*. Finn Lectura, Helsinki, 2004.

[2] James, W. *The Principles of Psychology.* Macmillan and co, London, 1890.

[3] Lindeberg, A-M. *Millainen laulaja olen. Opettajaksi opiskelevan vokaalinen minäkuva.* Joensuun yliopiston kasvatustieteellisiä julkaisuja 104, Joensuu, 2005.

[4] van Manen, M. *Researching Lived Experience. Human Science for Action Sensitive Pedagogy.* The University of Western Ontario, Canada, 1990.

[5] Merleau-Ponty, M. *Phénomélogie de la perception*. Gallimard, Parins, 1945/ 1990.

TONAL DEVELOPMENT OF A CHILD'S SONG IMPROVISATIONS – A CASE STUDY

Aino Louhivuori
University of Jyväskylä
Department of Music
Finland

ABSTRACT

In the present study, the development of tonality was studied longitudinally by analyzing song improvisations of one child from the age of 2 years 6 months to the age of 4 years 9 months. Song improvisations' pitch-class distributions and intervals (two-tone transitions) were compared to a folk-song collection's pitch-class distributions and intervals. The results show that as the child gets older, the improvisations' distributions become more similar to the folk-song collections' distributions. The child uses minor third and the fifth as tonal reference points in the early improvisations, but at the age of 4 years 7 months the diatonic scale begins to appear in the pitch-class distributions. There is a clear qualitative shift in the child's capability to produce tonal melodies at the age of four.

1. INTRODUCTION

There is a strong music psychological tradition supporting the research of tonal hierarchies, identified by Krumhansl (1990). The notes of the tonic triad and diatonic notes are evaluated as fitting better into the key than notes that are not included in the key [7]. The perception of tonal hierarchies has been studied on infants [1,12] and on school-age children [2,8,9,13]. There are studies of the development of children's early singing [3,4,5,10], but little is known about the development of tonal hierarchies in 2-4-year old children's song improvisations. There are numerous methodological problems in the study of young children's improvisations. It is difficult to gather large material of the improvisations at different times of the child's development, and there is not yet a standard method for analyzing them.

1.1. Aims

In the present study, the focus is on the production of tonal hierarchies. Improvisations are a good way to study the development and understanding of tonal hierarchies because in improvisations the child creates his/her own melodic material instead of imitating familiar songs. In the present study, the development of tonality was studied longitudinally by analyzing song improvisations of one child from the age of 2 years 6 months to the age of 4 years 9 months. The aim of this study was to investigate the tonality and development of tonality of the song improvisations by calculating the pitch-class distributions and intervals of the songs and comparing them with the pitch-class distributions and intervals of a folk-song collection[1] which represents the tonal hierarchies of Western tonal music.

2. METHODS

2.1. Material

The material was gathered by the child's father, who recorded the child's singing during a two-year period. The child comes from a musical family and has grown in a musically stimulating environment, so her musical development can be ahead of an average child. The recordings were made at the child's home in a very natural setting, so that all possible disturbing factors (e.g. strange situations or persons) were absent. The recordings contain standard songs and song improvisations, talking and playing. 103 improvisations were separated from the tapes and divided into eight groups according to the time of recording and the child's age (Table 1). A song was considered to be an improvisation when no effects of standard songs could be heard. Unfortunately, there are different amounts of material in each age period. This decreases the reliability of the conclusions drawn especially from the periods of small amounts of material, but this was considered in the analysis.

2.2. Procedure

The songs were converted to MIDI-format using a pitch to midi conversion (Opcode, Studio Vision). The transcription of small children's songs is challenging because they include microintervals, glissandos, and ambigous tones. In this study, the transcription was made as accurately as possible so that the "western ear" of the researcher would not effect the results. Glissandos were analyzed as several pitch-classes and microintervals were reduced to the nearest chromatic note. A computer application [6] was used to calculate improvisations' pitch-class distributions and intervals. To be able to compare them statistically to the folk-song collection, improvisations were transposed to C major or

[1] The Essen collection contains 6252 folk songs that are mainly from Germanic regions in Europe. See Eerola & Toiviainen (2004) for an analysis of the statistical features of the collection.

C minor according to Krumhansl-Kessler algorithm [6,7]. The averages of the pitch-class distributions and intervals of each age period were compared to the folk-song collection's pitch-class distributions and intervals. Correlation coefficient and city block distance were used as statistical measures. City block distance describes the similarity between distributions, and is calculated according to

$$\Sigma i \mid ai - bi \mid \quad (1)$$

where a and b denote the distributions. The averages of the improvisations' pitch-class distributions are shown in Figures 1, 2 and 3.

3. RESULTS

3.1. Statistical measures

The results show that the correlation of the improvisations' pitch-classes and folk-song collections' pitch-classes increases as the child grows older, although the correlation is significant only when the child is 4 years 7 months and 4 years 9 months old. A closer analysis reveals that when the child is 2,5-4,5 years old, the improvisations correlate better with folk song collection's minor melodies, but when the child is 4 years 7 months and 4 years 9 months, the correlation is stronger with major melodies. The city block distance decreases as the child gets older, and this is in line with correlational values. Improvisations' intervals become more similar with folk song collection's intervals (2-3 years, $r=0.678$ $p<.001$; 4 years, $r=0.788$ $p<.001$), although they are quite similar already at the beginning (Table 1). This might be due to the fact that folksongs include mostly small two-tone transitions. At the age of three years, there is a decrease in the correlational values and a slight increase in the city block distance. The child is starting to use the beginning of the diatonic scale (C, D, E), but with the cost of losing the tonal reference point of the fifth (G) that has been quite stable in the songs (Figure 1, 2). This might be due to a developmental crisis, when the child is moving from using universal tonal reference points to the use of diatonic scale structure.

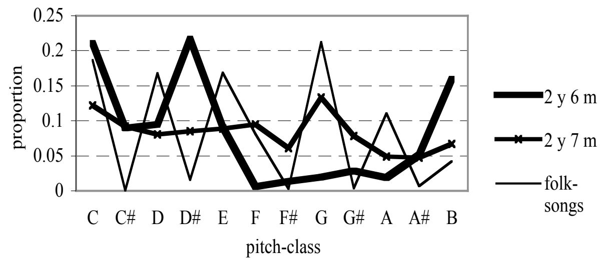
Recording sessions	Age	Pitch-classes	Pitch-class distrib. correlations	p-value	Pitch-class distrib. city-block values	Two-tone transitions correlations	p-values	Two-tone transitions city-block-values
A1-A2 29.4-22.5.94	2y 6-7m	542	0.198	n.s	0.912	0.695	p<.001	0.688
A3 11.8.94-30.8.94	2y 10m	2371	0.505	n.s	0.892	0.713	p<.001	0.674
A4 1.9.94-24.9.94	2y 11m	232	0.456	n.s	0.861	0.663	p<.001	0.743
A5 9.10.94	3y	287	0.381	n.s	0.884	0.641	p<.001	0.732
B1 23.3.96	4y 5m	1227	0.445	n.s	0.839	0.753	p<.001	0.572
B2 6.5.96-23.5.96	4y 7m	978	0.657	p<.05	0.713	0.789	p<.001	0.536
B3 1.7.96	4y 9m	364	0.720	p<.01	0.569	0.823	p<.001	0.492

Table 1. Statistical values of the similarity of the improvisations' and folk-song collections' distributions.

3.2. Pitch-class distributions

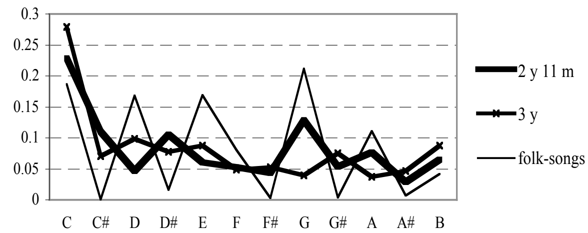
Already in the first improvisations, the use of augmented fourth is remarkably low, and it seems that at the age of two years the child understands that the tonic and augmented fourth do not fit well together. In the earliest improvisations, the child uses the first (C), fifth (G) and third (minor, D#/Eb) notes of the diatonic scale as tonal reference points (Figure 1). Minor third has been suggested to be a universal interval in children's singing, although Dowling (1984) suggests the fifth instead. In the present study, the use of the fifth is more stable than the use of the third, and minor third is more stabile in the early improvisations than major third.

Figure 1. Pitch-class distributions of improvisations from ages 2 years 6 months and 2 years 7 months, and pitch-class distribution of the folk-song collection.



At 2 years 11 months the tonal reference points are the first (C), minor third (D#), fifth (G), and sixth (A) notes of the scale (Figure 2). At the age of 3 years, the tonic is quite stable, and the child uses the first notes of the diatonic scale slightly more than non-diatonic notes, but this is the only age-period when the use of the fifth decreases. It is possible that the child is able to concentrate on the use of the diatonic scale on the cost of losing the tonal reference of fifth.

Figure 2. Pitch-class distributions of improvisations from ages 2 years 10 months and 2 years 11 months, and pitch-class distribution of the folk-song collection.



At the age of 4 years and 7 months and 4 years 9 months, the beginning of the diatonic scale (C, D, E) begins to stabilize in her improvisations, and the pitch-class distributions correlate significantly with folk song collection's major melodies (Figure 3).

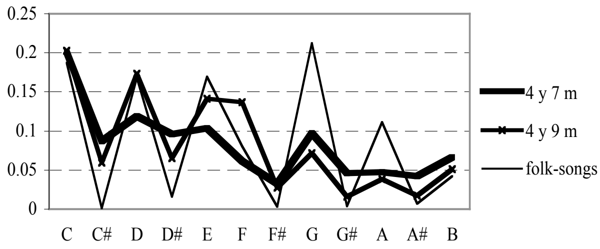


Figure 3. Pitch-class distributions of improvisations from ages 4 years 7 months and 4 years 9 months, and pitch-class distribution of the folk-song collection.

4. DISCUSSION

The child seems to understand already at the age of 2 years 6 months the dissonant character of augmented fourth and she uses it less than other pitch-classes. Tonal reference points are minor third and fifth. Improvisations' distributions develop towards the folk-song collection's distributions as the child gets older and there is a clear qualitative shift in the child's capability to produce tonal melodies at the age of four. The averages of the pitch-class distributions from ages 2 years 6 months to 3 years do not correlate significantly with the folk-song collection's distributions, but the averages of the improvisations' pitch-class distributions from ages 4 years 5 months- 4 years 9 months correlate significantly ($r=0.607$ $p<.05$) with the folk-song collection. It is possible that when the child is younger, she uses universal intervals (fifth, possibly minor third) as tonal reference points in her improvisations, but at four years of age, enculturation and surrounding musical culture start to affect the tonal hierarchies of her improvisations so that the beginning of the diatonic scale starts to appear in the pitch-class distributions. The first signs of the diatonic scale appear already at the age of three years, but at this age the child does not use the tonal reference of fifth (G) which has been quite stable in her songs. At the age of three years, also the statistical values show a decrease in the similarity of distributions. This might be due to a developmental crisis where two systems are competing – one based on the possibly universal fifth and third, and the other based on the diatonic scale structure. At the age of four years the diatonic scale begins to stabilize (Figure 3).

Unfortunately there is quite a lot of variation in the amount of material from each age-period. This decreases the validity of conclusions drawn from periods with small amounts of material. Still, it seems that by the end of the fourth year, the beginning of the diatonic scale is beginning to appear in the song improvisations, and the child can produce song improvisations, where the tonal hierarchies are quite similar to typical tonal hierarchies of Western music. The child's abilities in this area might be ahead of an average child because of the musically stimulating environment.

Using a computer makes the analysis and transcription more objective in decreasing the effect of the researcher's "musically trained ear", and creates the possibility to study the global tonal hierarchies of the songs. Quantitative analysis can also distance the researcher from the original material, when songs are transferred into numbers and distributions. It is important to keep in touch with the original material.

While listening to the recordings, it can be heard that the child sometimes attempts to produce tonal patterns, but due to her young age and lack of control of her own voice, she does not always succeed in this. Thus, the perception of tonal hierarchies might be more developed than the ability to produce them in the early recordings. In future research, the development of tonal hierarchies in children's improvisations will be studied on a larger amount of research subjects, and the same children will be studied for the development of perception and production of tonality.

5. REFERENCES

[1] Chang, H. & Trehub, S. Auditory Processing of Relative Information of Young Infants. *Journal of Experimental Child Psychology* 24, 324-331, 1977a.

[2] Cuddy, L. & Badertsher, B. Recovery of the tonal hierarchy: Some comparisons across age and levels of musical experience. *Perception & Psychophysics* 41 (6), 609-620, 1987.

[3] Davidson, L, McKernon, P. & Gardner. *The Acquisition of Song: A Developmental Approach*. R. Taylor (Ed.) Documentary Report of the Ann Arbor Symposium. MENC Reston, Virginia, 301-316, 1981.

[4] Dowling, W. Development of Musical Schemata in Children's Spontaneous singing. In W.R. Crozier & A. J. Chapman (Eds.) *Cognitive Processes in the Perception of Art.* Elsevier Science Publishers B.V, North-Holland, 145-163, 1984.

[5] Dowling, W. Tonal structure and children's early learning of music. In J.A. Sloboda (Ed.): *Generative processes in music. The psychology of performance, improvisation and composition*. Clarendon Press, USA, 113-128, 1988.

[6] Eerola, T. & Toiviainen, P. MIDI Toolbox: MATLAB Tools for Music Research. University of Jyväskylä: Jyväskylä, Finland: Kopijyvä. http://www.jyu.fi/musica/miditoolbox/, 20.10. 2004.

[7] Krumhansl, C. *Cognitive Foundations of Musical Pitch*. Oxford Psychology Series No. 17. Oxford University Press, USA, 1990.

[8] Lamont, A. Music, Education and the Development of Pitch Perception: The Role of

Context, Age and Musical Experience. *Psychology of Music* 26, 7-25, 1998.

[9] Lamont, A. & Cross, I. Children's Cognitive representations of Musical Pitch. *Music Perception*. 12 (1), 27-55, 1994.

[10] Moog, H. *The Musical Experience of the Pre-School Child*. Schott, London, 1976.

[11] Swanwick, K. *Music, Mind and Education*. London, Routledge, NewYork, 1988.

[12] Trainor, L. & Trehub, S. A Comparison of Infants' and Adults' Sensitivity to Western Musical Structure. *Journal of Experimental Psychology: Human Perception and Performance*, 18 (2), 394-402, 1992.

[13] Trehub, S., Cohen, A., Thorpe, L., & Morrongiello, B. Development of Perception of Musical Relations: Semitone and Diatonic Structure. *Journal of Experimental Psychology: Human Perception and Performance* 12 (3), 295-301, 1986.

MELODIC IMPROVISATION AT THE AGE OF 6–11 YEARS: DEVELOPMENT OF PITCH AND RHYTHM

Pirkko Paananen
University of Jyväskylä
Department of Music
Finland

ABSTRACT

The keyboard melodic improvisations of 6–11-year-old children (n=36) were explored for age-related development and representational types of production. The hypotheses were founded on a model of musical development by the present author. The participants heard a 24-bar ABA-formed. Section A was tonal and section B modal. Age was a significant factor in the development of the tonal hierarchy. The 6–7-year-old children's general emphasis was on the first five tones of the diatonic scale. The 8–9-year-old children preferred tones present in both sections (event hierarchical orientation). In the 10–11-year-old children's products, the tonic triad was prominent throughout the piece. The profiles of all age groups correlated strongly and significantly with Krumhansl & Kessler's (1982) tonal profile, cultural models, and the distribution of tones of the accompaniment. The number of rhythm motives and variations correlated with age. Metre affected the selection of tones in all age groups. Age correlated with the strongest beat of the measure. Eleven *representational types* were found. As the model predicted, the hierarchical structures of tonal music developed sequentially: In the first substage, children focused on either melodic-rhythmic surface or deep structures (tonality, metre); in the next substage, surface and deep structures began to coordinate, and in the final substage, they were fully integrated.

1. INTRODUCTION

This study has two main purposes: a) to examine direct age-related differences in melodic-rhythmic, tonal, and metrical features in 6–11-year-old children's melodic improvisations, and, b) to investigate the representational differences of the improvisations in order to *explain* how structures coordinate to form more abstract structures.

Previous studies on school-aged children's musical improvisation have varied from descriptive case studies to investigations of the process and the products of composition and improvisation. These studies point to the development of many features of the melodic-rhythmic surface, tonal organization, and metre between the ages of 5 and 12:

Kratus [7] investigated keyboard melodies composed by 5–13-year-old children. In 5–7-year-old children's melodies, the pitch range was large, tonal closure rare, and metrical organization uncertain. A stronger sense of tonality emerged at the age of 9. The 11-year-old children's melodies included melodic motives, a restricted pitch range, clear metrical organization, and a strong sense of tonality.

In contrast with Kratus [7], Swanwick and Tillman [21] found that rhythms composed as early as 5–8 years of age were metrically regular (2, 4 or 8 bars).

Brophy [3] examined the xylophone melodic improvisations of 6–12-year-old children. The correlation between the melodic characteristics (melodic range, melody type, melodic motives, closing tone) and age was positive, but weak. The sense of pulse, beat divisions, and rhythmic motives increased with age. The rhythms created by 9–12-year-old children differed from those of 6–8-year-old children, who did not produce motives, a steady beat or phrases.

The acquisition of tonal hierarchy (see Krumhansl & Kessler [10]) is not reported in any of the studies, except for the closing tone, which, among the 7-year-old participants, seems to be other than the tonic. The *perceptual probe tone studies* [9, 11, 12] imply that the hierarchic organization of tonal functions develops by the age of 11 years. At the age of 6 years children distinguish diatonic tones from the chromatic tones. Between 9 and 11 years of age, the preference of tones of the tonic triad and, finally, the tonic, develops. However, when using very simple material with the descending scale as context, children may perform at adult level [20]. The tonic triad in a typical cadence context elicited the tonal hierarchy in perception more clearly [9, 12] than the randomized diatonic melodies and the diminished triad, which produced a flat profile and, consequently, did not provide sufficient context to produce a sense of key [5]. Thus, the published literature does not provide a clear prediction of children's ability to use tonal functions in improvisation.

According to Lerdahl & Jackendoff [13], metrical accent is inferred from patterns and cues implied by phenomenal accents. Palmer & Krumhansl [17] found that the goodness-of-fit judgements of adult listeners were positively correlated with these music-theoretic predictions of metrical levels, as well as the frequency distributions of musical events in Western tonal music.

The studies on children's improvisation described earlier suggest that metre *might be* present as early as in 6–7-year-old children's productions, while others show a fundamental change around the age of 8–9 years. Younger children seem to focus on melodic and rhythmic patterns, and perhaps, use repetition as a device to keep the pulse steady. Earlier studies on improvised rhythms have relied on judge evaluation. However, it would be possible to analyze metric hierarchies by statistical distribution (see [17]).

Studies on school-aged children's *graphical descriptions* of rhythm suggest that younger children represent rhythm either figurally or metrically, older children being more flexible. Figurally oriented children focus on grouping (rhythm patterns), while metrically oriented children attend to pulse and metric properties of events [1]. Upitis [22] discovered that also the descriptions of *metric hierarchy* reflected differences in orientation. However, the figurally oriented seem to have an understanding of metre [19]. Hypothesis on the orientational differences in improvisation are considered in the present study.

2. DEVELOPMENTAL HYPOTHESIS

The developmental hypothesis is based on Paananen's [15, 16] model of musical development, which is an application of Robbie Case's [4] developmental mechanism, as follows: 1) in the sensorimotor stage (4–18 mos), the relations of general parametrical changes of sound develop, 2) in the relational stage (1.5–5 yrs), the polar relations between and within musical patterns develop, and 3) in the dimensional stage (5–11 yrs), hierarchical relations of the musical event structure develop as a coordination of the *melodic-rhythmic surface and the deep structure of metre and tonal hierarchy.*

Following Case [4], each major stage includes substages of 1) unifocal coordination, when a new structure can be applied in isolation, 2) bifocal coordination, when two such units can be applied in succession, and 3) elaborated coordination, when two or more units can be applied simultaneously and integrated into a coherent system:

In the *first substage,* children are assumed to focus on one hierarchic level only. They are expected to focus on rhythmic or melodic patterns. The metrical organization of these improvisations is expected to be local or irregular, and the tonal stability controlled in a global manner. However, it is theoretically possible that children focus on either the metre or tonally stable tones, being unable to produce clear patterns.

In the *second substage,* children are expected to focus on both the surface and deep structures, but not consistently. Focusing on groups out-of-phase with metre is assumed to result in an unsteady or discontinuous control of pulse, which is comparable to Case's concept of the *dimensional conflict*[1]. In parallel, attention can be focused on both the (local) melodic surface and the underlying (global) tonal structure, but *only when these two dimensions have parallel effects.* Children are expected to emphasize some tones of the diatonic scale; furthermore, the absence of the tonic is predicted to affect their sense of global tonality.

[1] A conflict between a local and a more global goal. In the quantitative domain, the dimensional conflict can be seen in problems in which "there is no difference on the more salient independent variable, and only a small difference on the less salient variable."(Case [4]).

In the *substage of elaborated coordination,* the different levels of the surface and deep structures coordinate. In addition to producing clear melodic-rhythmic patterns, diverging effects of grouping and metrical hierarchy are being controlled, as well as local and global tonal events. Tonally stable events are emphasized in melodic improvisation. The tonic triad is assumed to gain an emphasis in the tonal sections of the piece.

3. METHODS

3.1. Participants

Thirty-six children from Norssi School of Jyväskylä participated in the tasks (n=36). All, except one, had some experience of playing a keyboard instrument. Five had received formal music training. Six children were in Grade 0 (preschool) (6.25–6.50 yrs), five in Grade 1 (7.17–7.83 yrs), six in Grade 2 (8.25–8.92 yrs), six in Grade 3 (9.25–9.83 yrs), six in Grade 4 (10.80–10.92 yrs) and six in Grade 5 (11.17–11.83 yrs).

3.2. Accompaniment

Figure 1 presents the 24-bar ABA-formed accompaniment (piano, bass, drum-set, percussions), in which section A is tonal (C major) and section B modal. The chords were played at root positions at strong metrical positions, in the tempo M.M=130.

Figure 1. The accompaniment of melodic improvisation.

Section A employs the structurally most important chords I, IV and V (see [2, 18]). Section B forms a modal sequence of chords, where the tonic triad is absent. The most frequently occurring tones in section A are G (V) and C (I), while in section B they are E (III), G (V), D (II) and B (VII°) (fig. 3). In the global distribution of tones, the most emphasized ones are those of the tonic triad. The global distribution, the distribution profiles in Western classical music [8] and the folk music in the Essen collection [6] are highly similar, except for the tone D (II), which is not as frequent in the accompaniment as in the latter ones (fig. 2).

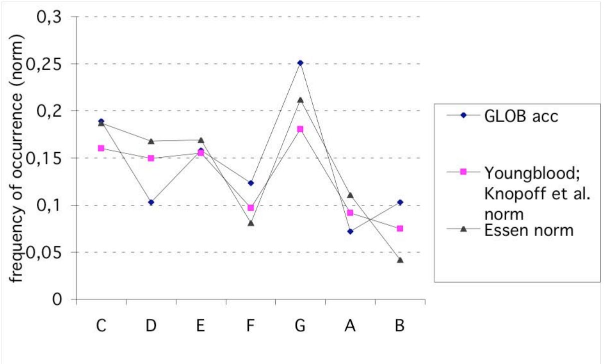


Figure 2. The global distribution of the accompaniment, the distributions of Western classical music (Youngblood, 1958; Knopoff & Hutchinson, 1983; in Krumhansl [8]) and the folk music in the Essen collection [6].

3.3. Procedure

The child was encouraged to try out the eight marked keys (C major) of the synthesizer (a synthetic keyboard sound). The child was told to 'invent a song of your own, so that it will sound good together with the accompaniment'. A one-bar metronome click preceded the accompaniment, which was then listened to. The child was encouraged to improvise three versions, each on a separate track (Micro Logic Version 3.5), each of which were listened to after production.

4. RESULTS

Variable *(clustered variables in italic)*	**Correlation with age (r)**	**Single factor ANOVA for groups of 6–7, 8–9 and 10–11 yrs. F(2,33)**	**ANOVA significance (p)**	**ANOVA Sheffé post hoc–test signif. difference between groups**
Figural organization of the melodic-rhythmic surface				
Frequency of primes and seconds	0.252	2.18	p >.05	Nonsignif
Structural organization of melody	0.030	1.19	p >.05	Nonsignif
Rhythm motives	0.357*	2.69	p >.05	Nonsignif
Rhythm motive variations	0.379*	3.41	p <.05	6-7 and 10-11 yrs
Rhythm motives total	0.406*	3.68	p <.05	6-7 and 10-11 yrs
Repeated rhythm motives	0.266	1.72	p >.05	Nonsignif
Number of events	0.007	2.24	p >.05	Nonsignif
Global distribution of tones				
I+III+V	0.345*	2.24	p >.05	Nonsignif
(I+III+V) – II	0.493**	4.31	p <.05	6-7 and 10-11 yrs
Distribution of tones in A-sections				
I	0.192	0.365	p >.05	Nonsignif
I+III+V	0.412*	2.84	p >.05	Nonsignif
(I+III+V) – other diatonic tones	0.375*	2.22	p >.05	Nonsignif
(I+III+V) – II	0.516**	4.65	p <.05	6-7 and 10-11 yrs
Distribution of tones in B-section				
Chord tones	0.292	3.41	p >.05	Nonsignif
I+III+V	0.289	2.01	p >.05	Nonsignif
Distribution of tones at 1st beat				
I+III+V	0.426**	2.59	p >.05	Nonsignif
Ending tone				
I+III+V	0.441**	2.71	p >.05	Nonsignif
I	0.200	1.60	p >.05	Nonsignif
Metrical positions (1/8-level)				
Metrical position 1	0.420*	2.15	p >.05	Nonsignif
Metrical position 1, 5	0.240	0.58	p >.05	Nonsignif

Table 1. The results of correlation and single factor ANOVA for the variables in melodic improvisation (*clustered variables in italics).*

The improvised melodies were analyzed statistically with the focus on *a) the melodic-rhythmic surface:* the melodic intervals, the degree of the structural organization of the melody, the number of different rhythm motives, different rhythm motive variations, different rhythm motives and variations combined, repeated rhythm motives, and events. *b) the tonal structure:* the distribution of the diatonic tones in the whole piece, sections A and B, the first beat of the measure, and the closing tone; the distribution of the chord tones in the section, and *c) the metrical structure,* by calculating the distribution of the tones in relation to the eight positions of the metre (1/8-level). The distributions of the tones were analyzed by correlation with the cultural models [6, 9] and Krumhansl & Kessler's [10] tonal profile. Table 1 presents the correlations between age and single-factor ANOVAs for the three age groups (6–7, 8–9 and 10–11 yrs), for each variable, as well as ANOVA significance values and Scheffé post hoc tests. In order to find the *types of representation,* the scores of the participants were grouped by hierarchical cluster analysis (average linkage between groups).

4.1. Melodic-rhythmic surface

Melodic intervals were examined for the frequency of the primes and the seconds. All age groups favoured these intervals.

The structural organization of the melody was analyzed by a computational model that divided the melody into subsequent groups of 3, 4, 5, or 6 tones, and measured the similarity of pitch and the intervals for a pitch group, and the immediately following group of equal length (see Maidín [14]). This variable did not produce significant age-related results.

Age was a significant factor in the development of the number of the rhythm motives and rhythm motive variations as well as both combined.

4.2. Tonal structure

The 6–7-year-old children emphasized the first five tones of the diatonic scale, the profile being somewhat flat (fig. 3). The 8–9-year-old participants' emphasis was on the tones E (III) and G (V). In the profile of the 10–11-year-old participants, the tonic triad was clearly prominent.

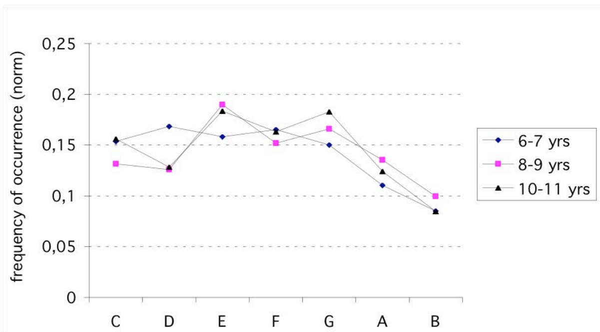


Figure 3. The global distribution of improvised tones for the three age groups (6-7, 8-9 and 10-11 yrs).

The correlation of the global distribution of the tones of the 6-, 7-, 8-, 9- 10- and 11-year-old children in relation to the distribution of the tones of the accompaniment, Krumhansl and Kessler's [10] tonal profile and the cultural models [6, 9] was strong or very strong in every age group, growing with age. However, a collapse occurred at the age of 8–9 years.

Age was a significant factor in the development of tonal stability in the global distribution of tones (the frequency of the tones of the tonic triad (I+III+V), and the tonic triad in relation to the second degree [(I+III+V)-II]), and in section A (the frequency of the tones of the tonic triad (I+III+V), the tonic triad in relation to the other diatonic tones [(I+III+V)-(other diatonic)], the tonic triad in relation to the second degree [(I+III+V)-II]).

The 6–7-year-old children perceived section A2 as more similar to section A2 than B. In contrast, the 8–9-year-old participants' distribution of tones section A2 correlated more strongly with the B than A1. As regards the 10–11-year-old children's distribution, there was a very strong correlation between both A-sections and between A2- and B-sections, the correlation being the strongest between the two A-sections.

The most favoured ending tone was C (I) at 6–7, E (III) at 8–9, and C (I) at 10–11 years of age. The oldest seldom used other tones than of the tonic triad. The frequency of these tones increased with age significantly.

4.3. Metrical structure

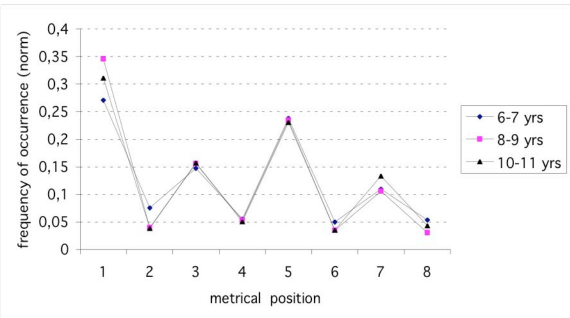


Figure 4. The distribution of improvised tones on eight metrical positions (4/4-beat at 1/8-level) for 6–7, 8–9- and 10–11-year-old children.

Figure 4 demonstrates the distribution of tones on eight metrical positions (4/4-beat at 1/8-level) for 6–7-, 8–9- and 10–11-year-old participants. The metrical structure was hierarchic in all age groups. Age correlated with the metrical position 1 (the strongest beat).

Metre affected the selection of tones. The frequency of the tones of the tonic triad at the 1st beat correlated significantly with age. The youngest preferred F (IV), the 8–9-year-old preferred E (III), D (II) and G (V), and, finally, the 10-11-year-old preferred C(I), E (III) and G (V) at the strongest metrical position.

4.4. Representational types

Eleven clusters were found and classified into substages (1-3) according to their features: tonal 1, rhythmic 1a and 1b, rhythmic-tonal 2, melodic-metric-tonal 2, metric-tonal 2a and 2b, melodic-metric 2, melodic-rhythmic 2, melodic-metric-tonal 3 and melodic-rhythmic-metric-tonal 3 types. At level 1 (tonal 1, rhythmic 1a (fig. 5) and 1b) focus was on the rhythmic surface or tonally important tones.

Figure 5. *Rhythmic 1a* type improvisation, focused on the motivic relations of the melodic-rhythmic surface (the child's age 6 yrs 3 mos).

At level 2 (rhythmic-tonal 2, melodic-metric-tonal 2, metric-tonal 2a and 2b, melodic-metric 2 (fig. 6), melodic-rhythmic 2) focus was mostly on two or sometimes three elements of the following: melodic structure, rhythm motives, metre and tonally stable tones.

Figure 6. *Melodic-metric 2* type improvisation, focused on strong beats and melodic motives, which are coordinated by metre (the child's age 9 yrs 10 mos).

Figure 7. *Melodic-metric-tonal 3* type improvisation, focused on melodic-rhythmic surface, metre and tonal stability, including the tonal closure (the child's age 11 yrs 2 mos).

At level 3 (melodic-metric-tonal 3 (fig. 7), melodic-rhythmic-metric-tonal 3) melodies included clear motives, and were coordinated to the metre. Tonally stable tones were emphasized, and tonal closure emerged.

5. DISCUSSION

The number of rhythm motives increased with age, in accordance with earlier studies [3, 7]. In contrast with Kratus [7], rhythmic repetition did not increase. The structural organization of the melody did not increase with age, in parallel with Brophy [3].

Between 6 and 11 years of age, the diatonic collection acquired its hierarchical features, in accordance with Krumhansl & Keil [9] and Lamont & Cross [11]. The production of the tones in a high position in the tonal hierarchy increased with age. The 6–7-year-old participants' distributions indicated a global preference on the first five tones of the diatonic scale. A global shift and return could be seen between the sections. Section B, probably caused a dimensional conflict in the age of 8–9 yrs, as predicted: abstract information and local features were coordinated by using 'a common denominator', E (III) and G (V). The 10–11-year-old children preferred the tonic triad throughout the piece. The distributions of all age groups correlated strongly and significantly with Krumhansl & Kessler's tonal profile [19], cultural models [6, 9] and the accompaniment of the task. Tones were distributed to metrically strong positions, especially in the B-section, where the chord changed at every half note, along with the hi-hat cymbal. The metrical structure was hierarchic in all age groups, this tendency increasing with age. Accompaniment evidently supported metrical production.

Representational types were varied combinations across the melodic and rhythmic surface, as well as metre and tonal hierarchy, this finding being novel. Paananen's [15, 16] model of musical development gained support for the dimensional stage, and Case's [4] theory proved useful in the domain of music. The sequence was not strictly related to age.

Statistical distribution proved to be suitable for analyzing tonal and metrical organization of children's accompanied keyboard melodic improvisations. Comparison of different test materials, instruments (especially singing) as well as improvising pieces of different length is required in the future.

6. REFERENCES

[1] Bamberger, J. *The Mind Behind The Musical Ear. How Children Develop Musical Intelligence.* Harvard University Press, Cambridge, Mass., 1991.

[2] Bharucha, J. J. & Krumhansl, C. L. The Representation of Harmonic Structure in Music: Hierarchies of Stability as a Function of Context. *Cognition,* 13, 63-102, 1983.

[3] Brophy, T. S. The Melodic Improvisations of Children Aged 6-12: A Developmental Perspective. *Music Education Research,* 4 (1), 73-92, 2002.

[4] Case, R. *Intellectual Development. Birth to Adulthood.* Academic Press, Orlando, 1985.

[5] Cuddy, L. L. & Badertscher, B. Recovery of the tonal hierarchy. *Perception and Psychophysics,* 41, 609-620, 1987.

[6] Eerola, T. & Toiviainen, P. *Midi Toolbox. MATLAB tools for music research.* University of Jyväskylä, Jyväskylä. 2004.

[7] Kratus, J.K. *Rhythm, Motive, and Phrase Characteristics of Original Songs by Children Aged Five to Thirteen.* Doctoral dissertation. Nothwertern University. UMI, Ann Arbor, 1985.

[8] Krumhansl, C. L. *Cognitive Foundations of Musical Pitch.* Oxford Psychology Series No. 17. Oxford University Press, NewYork, 1990.

[9] Krumhansl, C.L. & Keil, F. C. Acquisition of the hierarchy of tonal functions in music. *Memory & Cognition,* 10, 243-251, 1982.

[10] Krumhansl, C. L. & Kessler, E. J. Tracking the Dynamic Changes in Perceived Tonal Organisation in a Spatial Representation of Musical Keys. *Psychological Review,* 98 (4), 334-368, 1982.

[11] Lamont, A. Music, Education, and the Development of pitch perception: The Role of Context, Age and Musical Experience. *Psychology of Music,* 26, 7-25, 1998.

[12] Lamont, A. & Cross, I. Children's Cognitive Representations of Musical Pitch. *Music Perception,* 12 (1), 27-55, 1994.

[13] Lerdahl, F. & Jackendoff, R. *A Generative Theory of Tonal Music.* The MIT Press, Cambridge, Mass., 1983.

[14] Maidín, D. Ó. A Geometrical Algorithm for Melodic Difference. In W. B. Hewlett & E. Selfridge-Field (Eds.) *Melodic Similarity. Concepts, Procedures, and Applications,* Computing in Musicology 11. Stanford University. The MIT Press, Stanford, 65-72, 1998.

[15] Paananen P. Cognitive development and music composition in childhood. Third Triennal ESCOM Conference, Uppsala 7.-12.6.1997. In Gabrielsson, A. (Ed.), *Proceedings of Third Triennal ESCOM Conference* (pp. 451-457). Department of Psychology, Uppsala University, Sweden, 1997.

[16] Paananen P. *Many Paths to Music – Monta polkua musiikkiin. Tonaalisen musiikin perusrakenteiden kehittyminen musiikin*

tuottamis- ja improvisaatiotehtävissä ikävuosina 6-11. Doctoral Dissertation in Music Education. Jyväskylä Studies in Humanities 10. University of Jyväskylä, Finland, 2003.

[17] Palmer, C. & Krumhansl, C. L. Mental Representations for Musical Meter. *Journal of Experimental Psychology. Human Perception and Performance,* 16 (4), 728-741, 1990.

[18] Piston W. *Harmony.* (4. Revised edition). Norton, London, 1965.

[19] Smith, K. C. & Cuddy, L. L. & Upitis, R. Figural and Metric Understanding of Rhythm. *Psychology of Music,* 22, 117-135, 1994.

[20] Speer, J. R. & Meeks, P. U. School Children's Perception of Pitch in Music. *Psychomusicology,* 5, 49-55, 1985.

[21] Swanwick, K. & Tillman J. The Sequence of Musical Development. A Study of Children's Composition. *British Journal of Music Education* 3 (3), 305-339, 1986.

[22] Upitis, R. Toward a Model for Rhythm Development. In J. C. Peery, I. W. Peery & T. W. Draper (Eds.) *Music and Child Development.* Springer-Verlag, New York, 54-79, 1987.

REGULATION AND GRATIFICATION: THE EMOTIONAL MEANINGS OF MUSIC IN ADOLESCENCE

Suvi Saarikallio
University of Jyväskylä
Department of Music
Finland

ABSTRACT

Moods and emotions have a central role in the psychological meaningfulness of music, but their complexity has hindered theory development. The purpose of the study was to rise to the challenge of deepening the theoretical and conceptual understanding of the emotional meanings of music. The phenomenon was approached through inductive theory construction. The data was gathered from adolescents through group interviews and follow-up forms, and analyzed with constructive grounded theory methods. The study resulted in a model of the psychological processes that direct the construction of emotional meanings of music. The model consists of two fundamental processes: mood regulation, and gratification of satisfying other psychological goals.

1. BACKGROUND

Moods and emotions appear to be essential in understanding the psychological meaningfulness of music. A great number of studies have shown that emotional issues have a central role in musical experiences and reasons for engaging in musical activities [6, 7, 12, 16, 17, 23, 27, 32, 37, 40]. The emotional reasons for music consumption seem to vary according to contextual and situational demands [21, 30, 33, 41], affective states and mood-regulatory goals [3, 30, 37, 39, 40], arousal levels [13, 22, 39, 40], and different personality styles and developmental issues [5, 20, 26, 29, 33].

Even though the emotional aspect has been acknowledged as a central feature of musical meaning and scientific interest for the topic has grown, theory development of the emotional issues has been slight. Sloboda and Juslin [31] argue that the reluctance for theory development is due to the extreme complexity of the phenomenon. Researchers have engaged in investigating emotional experiences of music in everyday life, but there is a serious lack of theoretical grounding regarding the psychological functionality of these experiences. However, a comprehensive understanding of the psychological meanings of musical emotions is possible only through systematic exploration of the underlying psychological goals, motivations, and processes.

2. AIM AND APPROACH

The purpose of the study was to rise to the challenge of deepening the theoretical and conceptual understanding of the emotional meanings of music. The focus was on the psychological emotion-related meanings of music in adolescence. The perspective was fundamentally psychological, in a sense that the focus was on the individual's psychic processes and psychological goals that the musical activities served. Thus, the study was not so much about music as it was about the individual making music. The approach is comparable to the 'uses and gratifications approach', which studies individuals as active agents who use media for their personal needs [1, 2, 8].

The study focused on adolescents. Music appears to have its strongest relevance particularly in youth: the amount of music consumption by adolescents is enormous [5, 6, 23, 40], and the strongest experiences of music occur in adolescence and early adulthood [10]. Adolescence is also an important transitional period with demanding developmental challenges. Since the psychological meanings of music have been shown to be related to developmental issues [5, 17, 20, 29, 33], exploration of emotional meaning of music during this age period was considered fruitful, not only for understanding musical behavior, but also for understanding adolescent development.

3. METHOD

The exploration of a complex and conceptually vague phenomenon required an inductive approach. The data was gathered through group interviews and follow-up forms and analyzed with constructive grounded theory methods. The approach focused the analysis on psychological processes and mood-related goals, but the emergent goals and processes were inductively grounded on the data.

Eight adolescents participated in the study. The selection of the informants was based on purposive sampling [28], which aimed at obtaining informative cases, and enabled the selection of heterogenic informants in terms of age, sex, and musical background. The informants were divided into two age groups: a group of 8th graders in junior high school (mean age 14 years), and a group of 2nd graders in high school (mean age 17 years). Both age groups had two group discussions which consisted of fairly informal conversations about musical activities, preferences, emotional experiences, and motivational factors. In addition, each informant privately completed a follow-up form each time he or she engaged in some musical activity during one week. The form consisted of three parts: description of the situation, description of the affective experience, and reflection on the described experience. Two different data collection methods were used to reach the full richness and diversity of the subjective experiences, insights, and meanings.

Constructive grounded theory was chosen for the analysis method, since it is specifically designed for inductive theory construction [4]. A more and more analytic picture of the phenomenon was constructed piecemeal on the grounds of the data through line-by-line, selective, and axial coding, comparing, and memo-writing. The analytic process resulted in a theoretical understanding of the abstract concepts, categories, processes, and relationships of the subject matter.

4. RESULTS

A theoretical model of the psychological processes that direct the construction of emotional meanings of music was constructed. Music seemed to create emotional meaning through satisfying different psychological needs of the individuals. These emotional needs were grouped into two fundamental categories. On one hand, music was employed directly for regulating affective states. On the other hand, music affected moods and emotions indirectly by promoting the attainment of central psychological goals, which, in turn, offered the adolescents gratifying experiences and improved their mood. These two processes are demonstrated in Figure 1.

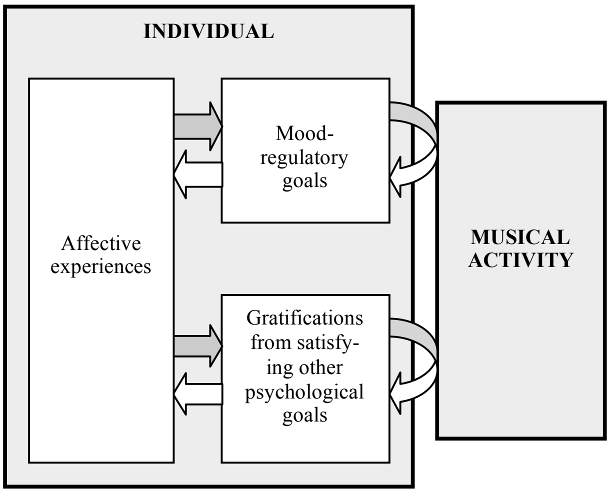


Figure 1. The two fundamental ways of how music creates emotional meaning.

4.1. The mood-regulatory goals

Music proved to be a versatile means for mood regulation. The mood-regulatory goals were hierarchically grouped into two main goals and seven sub-goals, which served as regulatory strategies for reaching the main goals.

4.1.1. The mood-regulatory goals

The two main goals identified in the analysis were the need for controlling one's own feelings, and the desire to feel good or better, and they were labeled mood control and mood improvement, accordingly. Even though these main goals were more or less implicitly expressed in the statements of the adolescents, they did, nevertheless, come up repeatedly, and all the regulatory strategies seemed to contribute to their attainment.

4.1.2. The mood-regulatory strategies

The sub-goals were labeled entertainment, revival, strong sensation, diversion, discharge, mental work, and solace. Even though these sub-goals were partly overlapping and simultaneous, they all had their distinct characteristics, and could be considered as separate regulatory strategies.

The strategy of entertainment included the use of music simply for feeling good, creating a nice atmosphere and lifting spirits. In a mood regulatory sense, this strategy aimed mainly at maintaining a current positive mood.

When used for revival, music served as a resource for personal renewal and recovery. It was a relaxing and enjoyable activity that gave the adolescents new strength and energy after stress and drudgery. A typical example of this strategy was to listen to music, lying in one's bed, after a rough day at school.

Music evoked strong emotional experiences, excitement, and bodily sensations in the adolescents. Sometimes, the adolescents really wanted to put their soul into the music. The employment of music as a means to experience, sense, and feel intensely was labeled strong sensation.

The adolescents appeared to employ music effectively in distracting themselves from stress, worries, and disturbances, and this strategy was named diversion. Peaceful music could make the adolescents calm down, or happy music could cheer them up. Music was an enjoyable activity, which made the adolescents forget about their worries.

Music seemed to be a means for expressing, discharging and venting negative emotions. Listening to or playing hard and angry music served as an emotional disclosure, a way of letting the anger out. Music could also help to discharge sadness and grief. Thus, the strategy was labelled discharge.

The strategy of mental work represents occasions when music seemed to promote mental imagery and reflection. It gave the adolescents new insights, aroused memories of the past and thoughts of the future, and helped them to confront and work through conflicting issues that were on their mind.

The last strategy was labelled solace, representing finding comfort in music. When feeling sad and troubled, the adolescents felt that in some way music understood them, felt sorry for them, gave them attention and consolation. Music also comforted them by reminding about close friends and good times.

4.2. Emotional gratifications related to other psychological goals

The other fundamental way of how music affected emotional experiences was through satisfaction of basic psychological goals and needs of the individual. Music seemed to offer gratifying affective experiences by promoting the satisfaction of at least four central psychological goals: belonging, identity construction, agency, and self-actualization. These processes were considered functionally different from mood-regulatory processes, since, here, the fundamental goal of the musical activity seemed to be something else than the regulation of a mood state. Positive affect could be seen as a by-product, a representation of the satisfaction of these other goals.

4.2.1. Belonging

Shared musical experiences created feeling of togetherness and belonging. Musical activities were having fun together, doing things together, and working for common goals. Music served as conversation topic and atmosphere creator in social settings. Music could also create a symbolic connection to significant people by evoking memories of them.

4.2.2. Identity construction

Musical choices and preferences seemed to represent the identity and values of the adolescents. The adolescents appreciated music that reflected something they considered meaningful. They used personal musical preferences to express their independence and to separate themselves from other adolescents. Certain bands and songs had become very important to them, a part of their identity, representing something of themselves, and creating a certain sense of continuity in their identity.

4.2.3. Agency

Music provided the adolescents with possibilities for learning, mastering, and showing their skills for others. Approval and respect of peers was important especially for the younger adolescents. Even though the adolescents were worried about failing and becoming humiliated by their mistakes, music was mostly felt as a means for gaining more self-confidence. Music offered experiences of capability and success, and strengthened the adolescents' self-esteem.

4.2.4. Self-actualization

Music was something that the adolescents themselves were interested in. It was a variety for schoolwork, a voluntary and informal activity, time for oneself. Music was also an arena for self-expression, for doing something creative, pursuing own ideas, and investing effort on something personally meaningful

5. DISCUSSION

The emotional meanings of music are generated in the complex entity of individual's psychological processes. In the current study, a theoretical model of the structure of these processes was constructed based on qualitative data-analysis. The model describes two fundamental ways of how the emotional meanings are psychologically created: either through mood-regulatory processes or through affective gratifications derived from the satisfaction of other psychological needs. Emotional meanings are highly abstract level constructs and difficult to reach. It is possible, that additional goals to the ones presented in the model may exist, but they have not been reached through analyzing the informants' experiences. However, the purpose was not to speculate about possible processes, but to present the ones that emerged directly from the data. The current study seemed to succeed in creating a comprehensive abstract understanding of the phenomenon. The constructed model can be used as a theoretical basis for understanding the emotional meaningfulness of music in the wholeness of individual's psychological functioning.

Considerable similarities exist between the psychological processes found in the current study and processes that have been reported in previous research. Mood improvement is comparable to hedonic motivation, which has been recognized as a major and important goal for mood regulation [18, 19, 34, 35, 38, 39]. Mood control is fundamentally related to the whole framework of self-regulation. It has parallels with concepts like self-determination, power, and personal control [25, 36] and has resemblance to the control or system theory of mood regulation, which considers mood regulation as an attempt to minimize discrepancies between current state and desired state [14, 18]. Psychological goals related to belonging, identity, agency, and self-actualization have been recognized as reasons for musical activities also in previous research on music [5, 8, 15, 17, 20, 29]. The process of creating emotional meaning by satisfying psychological goals is somewhat identical to emotion psychology's notion about emotions arising as a response to events that either satisfy or threaten individual's goals [9].

Emotional meanings are intervened with the most fundamental questions of human psyche, motivation, and behavior. A question remains, what are the interactions between the two fundamental processes presented in the model? Do mood-regulatory goals and satisfaction of other psychological goals contribute to each other? How does affect regulation relate to basic need satisfaction? The regulatory goals do occur simultaneously with the other psychological goals. For instance, engagement in mental work for clarification of emotional experiences may simultaneously include aspects of self-reflective identity construction. Engagement in music for strong emotional sensations may simultaneously be an act of self-expression and self-actualization, or a unifying experience with other players, which satisfies the need for belonging. Even though the everyday musical behavior consists of several goals and needs that interact and occur in parallel to each other, the underlying psychological functionality of the different goals is possible to be theoretically categorized in a way it was done in the presented model. Intriguing discussion about the role of affect regulation in the context of general self-regulation has been promoted by Gross [11] and Larsen [19], among others. Larsen's views of affect regulation being simultaneously a regulation task among other regulatory tasks, and a feedback that drives other goal-oriented behavior, seems to have parallels with the structures found in the current study.

Important insights into the meaningfulness of music to adolescent development were brought out in the current study. Music provided the adolescents with means to regulate mood and satisfy multiple psychological and developmental needs. The relatedness of music to several fundamental psychological goals provides theoretical grounds for explaining the passion for music that so many adolescents share. The model may prove to be applicable in studying the emotional meanings of music also in other age groups. However, it is based on the experiences of adolescents, and does include processes and goals that seem to fit especially well to this challenging age period. Adolescents have to reconstruct their conception of self and establish adult identity, reformulate their significant relationships to parents and peers, learn self-regulation and gain emotional autonomy and control over their own life, and sustain their self-esteem in the demanding search for balance between their personal and environmental exigencies and resources. Thus, the connections of emotional meanings of music to belonging, identity, agency, self-actualization, and mood regulation resonate strongly with the developmental tasks of adolescence.

The model provides a framework for understanding the psychological processes that further the creation of emotional meanings. It does not, however, describe which processes become important in certain situations and for certain individuals. The most important mood-related needs and goals seemed to differ between the informants according to their personalities and the life events they had encountered. Some differences were also found between the age groups. The younger group stressed competence and success in music, the impact of their peers' opinions to their conceptions of their musical abilities, and the importance of personally constructed musical taste. Hence, the results imply that 14-year olds, more than 17-year olds, may wrestle with concerns related to peer pressure, independence, and self-confidence. However, the small number of the informants prevents drawing any broad conclusions about differences between groups, and possible differences based on age, sex, and other factors, are challenges for future research. The model of the current study provides a comprehensive theoretical grounding for these future inquiries.

Adolescents need effective means to cope with the challenges of their developmental period, and music may provide means for that. The importance of music in adolescent development and well-being must not be underestimated. Comprehension of the psychological mechanisms that create emotional meanings of music is essential for all professionals working with music and adolescents. The current model demonstrates that the issues of psychological development and well-being are an integral part of our everyday musical activities.

6. REFERENCES

[1] Arnett, J.J. Adolescents` Uses of Media for Self-Socialization. *Journal of Youth and Adolescence* 24 (5), 535-549, 1995.

[2] Arnett, J.J., Larson, R. & Offer, D. Beyond Effects: Adolescents as Active Media Users. *Journal of Youth and Adolescence* 24 (5), 511-518, 1995.

[3] Behne, K. The Development of "Musicerleben" in Adolescence: How and Why Young People Listen to Music, in: I. Deliége and J.A. Sloboda (eds.) *Perception and cognition of music.* Psychology Press, Hove, UK, 1997.

[4] Charmaz, K. Grounded Theory: Objectivist and Constructivist Method, in Denzin, N.K. and Lincoln, Y.S. (eds.) *Strategies of Qualitative Inquiry.* Sage Publications, Thousand Oaks, California, 241-291, 2003.

[5] Christenson, P.G., DeBenedittis, P. & Lindlof, T.R. Children's Use of Audio Media. *Communication Research* 12 (3), 327-343, 1985.

[6] Christenson, P.G. & Roberts, D. F. *It's Not Only Rock & Roll: Popular Music in the Lives of Adolescents.* Hampton Press, Cresskill, New Jersey, 1998.

[7] DeNora, T. Music as a Technology of the Self. *Poetics: Journal of Empirical Research on Literature, the Media, and the Arts* 26, 1-26, 1999.

[8] DeNora, T. Aesthetic Agency and Musical Practice: New Directions in the Sociology of Music and Emotion, in P. N Juslin and J.A. Sloboda (eds.) *Music and Emotion: Theory and Research.* Oxford University Press, New York, 71-104, 2001.

[9] Fridja, N. H. The Laws of Emotion. *American Psychologist* 43 (5), 349-358, 1988.

[10] Gabrielsson, A. & Lindstöm Wik, S. Strong Experiences Related to Music: A Descriptive System. *Musicae Scientiae* 7 (2), 157-217, 2003.

[11] Gross, James J. The Emerging Field of Emotion Regulation: An Integrative Review. *Review of General Psychology* 2 (3), 271-299, 1998.

[12] Hargreaves, D.J. & North, A.C. The functions of music in everyday life: Redefining the social in music psychology. *Psychology of Music* 27 (1), 84-95, 1999.

[13] Hodges, Donald A Appendix A: Physiological responses to music, in: D. A. Hodges, (ed.) *Handbook of Music Psychology*, 1980.

[14] Hoeksma, J.B., Oosterlaan, J., & Schipper, E.M. Emotion Regulation and the Dynamics of Feelings: A Conceptual and Methodological Framework, Child Development 75 (2), 354-360, 2004.

[15] Kosonen, E. *Mitä mieltä on pianonsoitossa? 13-15-vuotiaiden pianonsoittajien kokemuksia musiikkiharrastuksestaan. Doctoral* Dissertation. University of Jyväskylä, 2001.

[16] Laiho, S. *Musiikki Nuorten Kehityksen ja Psyykkisen Itsesäätelyn Tukena* [Music as a Resource for Self-regulation and Development in Adolescence]. Master's thesis. University of Jyväskylä, 2004.

[17] Laiho, S. The Psychological Functions of Music in Adolescence. *Nordic Journal of Music Therapy* 13 (1), 49-65, 2004.

[18] Larsen, R.J. Toward a Science of Mood Regulation. *Psychological Inquiry* 11 (3), 129-141, 2000a.

[19] Larsen, R.J. Maintaining Hedonic Balance: Reply to Commentaries. *Psychological Inquiry* 11 (3), 218-225, 2000b.

[20] Larson, R. Secrets in the Bedroom: Adolescents´ Private Use of Media. *Journal of Youth and Adolescence* 24 (5), 535-549, 1995.

[21] Lull, J. Listener's Communicative Uses of Popular Music, in: J. Lull (ed.) *Popular music and communication.* Sage Publications, Newbury Park, California, 1987.

[22] North, C. A. & Hargreaves, D. J. Musical preferences during and after relaxation and exercise. *American Journal of Psychology* 113 (1), 43-67, 2000.

[23] North, A.C., Hargreaves, D.J. & O`Neill, S.A. The Importance of Music to Adolescents. *British Journal of Education Psychology* 70, 255-272, 2000.

[24] Oatley, K. & Jenkins, J.M. *Understanding Emotions.* Blackwell, Cambridge, Mass, 1996.

[25] Peterson, C. & Stunkard, A.J. Cognates of Personal Control: Locus of Control, self-efficacy, and explanatory style. *Applied and Preventive Psychology* 1, 111-117, 1992.

[26] Rentfrow, P. J. & Gosling, S. D. The Do Re Mi's of Everyday Life: The Structure and Personality Correlated of Music Preferences. *Journal of Personality and Social Psychology* 84 (6), 1236-1256, 2003.

[27] Roe, K. Swedish youth and music: Listening patterns and motivations. *Communication Research* 12 (3), 353-362, 1985.

[28] Saunders, M., Lewis, P., & Thornhill, A. *Research Methods for Business Students.* Pearson Education, Harlow, England, 2003.

[29] Schwartz, K.D. & Fouts, G.T. Music Preferences, Personality Style, and Developmental Issues of Adolescents. *Journal of Youth and Adolescence* 32 (3), 205-213, 2003.

[30] Sloboda, J.A. Empirical Studies of Emotional Response to Music, in: M.R. Jones and S. Holleran (eds.) *Cognitive bases of musical communication.* American Psychological Association, Washington, DC, 1992.

[31] Sloboda, J.A. & Juslin, P.N. Psychological Perspectives on Music and Emotion, in P.N Juslin and J.A. Sloboda (eds.) *Music and Emotion: Theory and Research*. Oxford University Press, New York, 71-104, 2001.

[32] Sloboda, J.A. & O'Neill, S.A. Emotions in Everyday Listening to Music, in P.N Juslin and J.A. Sloboda (eds.) *Music and Emotion: Theory and Research*. Oxford University Press, New York, 2001

[33] Thompson, R. L. & Larson, R. Social context and the Subjective Experience of Different Types of Rock Music. *Journal of Youth and Adolescence* 24 (6), 731-744, 1995.

[34] Tice, D.M. & Bratlawsky, E. Giving in to Feel Good: The Place of Emotion Regulation in the Context of General Self-Control. *Psychological Inquiry* 11 (3), 149-159, 2000.

[35] Tice, D.M. & Wallace, H. Mood and Emotion Control: Some Thoughts on the State of the Field. *Psychological Inquiry* 11 (3), 214-217, 2000.

[36] Vuorinen, R. Persoonallisuus ja minuus [Personality and self]. WSOY, Juva, 1990.

[37] Wells, A. & Hakanen, E.A. The Emotional Use of Popular Music by Adolescents. *Journalism Quarterly* 68 (3), 445-454, 1991.

[38] Zillmann, D. Mood Management through Communication Choices. *American Behavioral Scientist* 31 (3): 327-340, 1988a.

[39] Zillmann, D. Mood Management: 'Using Entertainment to Full Advantage, in: L. Donohew, H.E. Sypher, and E.T. Higgins (eds.) *Communication, social cognition, and affect.* Lawrence Erlbaum, Hillsdale, New Jersey, 1988b.

[40] Zillmann, D. & Gan, S. Musical taste in adolescence, in D.J. Hargreaves and A.C.North (eds.) *The social psychology of music*. Oxford University Press, Oxford, 161-187, 1997.

[41] Ziv, N. The Relationship between Social Circumstances and Recounted Musical Experiences. *Proceedings of the 8th International Conference on Music Perception and Cognition,* Evanston, IL, August, 2004.

WHO AM I?: IMPLICATIONS OF MUSICAL IDENTITY IN THE TRAINING OF MUSIC TEACHERS AND MUSIC THERAPISTS

Patricia L. Sabbatella
University of Cádiz – Faculty of Sciences Education
Spain

ABSTRACT

The study, based on an action-research design, focuses on the relationships between Music Education - Music Therapy and Music Identity, studies the musical identity of Spanish Music Education and Music Therapy students and analyses the influences of teaching strategies and its implications in the process of music making. Participants were students of Music Education Degree and Music Therapy Master Programme of the University of Cádiz (1997-2004). Results highlight the importance of musical identity in the process of making music of participants. Implications for Music Education and Music Therapy are discussed.

1. MUSIC EDUCATION, MUSIC THERAPY AND MUSICAL IDENTITY

During the last years, contributions between Music Education and Music Therapy influenced the background of the Music Educators' curriculum and vice versa [2, 6, 7, 8]. Educational and curricular perspectives of Music Therapy training offer a field to link experiences between Music Education and Music Therapy. Within their training, the Music Therapists and the Music Teachers need to develop specific musical and non-musical competences and skills that include:

- Capacity for applying theory in practice in innovative ways
- Capacity to adapt to new situations
- Ability to work in an interdisciplinary team, problem solving, and decision-making
- Ability to communicate with experts in other fields
- Ability to retrieve and analyse information from different sources
- Capacity for organisation, planning and evaluating teaching and therapeutic process
- Capacity for generating new ideas (creativity) and musical activities according to the needs of the students or the clients
- Ability to create an appropriate musical environment for teaching and therapy
- Capacity to adapt musical activities to students with special needs education
- Flexibility in performance and improvisation; Musical fluency

Achieving these competences demand from the students the ability to be a "musical being" [10], both in music therapy sessions and in music classroom. The ability to be a "musical being" demands the students to develop specific *musical skills* (singing, performing, composing, improvising) and the sense of *musical identity* connecting themselves with their own:

a) *internal and external body sounds* (the inner sound and music)
b) *cultural and family music background,*
c) *musical life-history*, and
d) *musical skills, ability, and flexibility*

Recent publications illustrate the impact of music on the construction of identity and the way it can influence many non-musical aspects of it [3]. A comprehensive approach to *musical identity* as a result of biological influences, education, and social interaction, not only includes the culturally defined features of music; it comprises also of the biological impact of sound and musical stimulus on the human body and behaviour. Social and cultural roles within music, influences of music on personality, and the individual way people use music as a resource for personal growth, or to develop other aspects of their identities (gender identity, youth identity, or national identity), promote -from the phase of pregnancy to death-, the organisation of particular musical characteristics called "*Sound-Musical Identity*" (Table 1).

SOUND-MUSICAL IDENTITY
Internal Body Sounds: heart beat, joint sounds, stomach sounds... External Body Sounds: walking, breathing, involuntary sounds... Speech Musicality: rhythm and pitch changes, tempo, intensity, timbre... Cultural Music Background: folklore, country music history... Family Music Background: musical training of parents; environmental sounds… Personal Music Preferences: likes and dislikes in sound and music, personal uses of music... Personal Musical Skills and Abilities

Table 1. Components of sound-musical identity

In Music Education and Music Therapy, the history and identity of the community and the individual becomes integrally linked to the music activities and the therapeutic musical experiences that are practiced. Within the school environment or the therapeutic setting, musical activities influence students' or clients' development of musical identity. Implementing specific musical activities with teaching strategies focused on sound-musical identity, it is possible to get practical suggestions for encouraging students in Music Education and Music Therapy within their own Sound-Musical Identity to increase their creative thinking in teaching and therapeutic settings. This type of musical activities in a group-play situation can provide a possibility for:

a) *self-expression* in sound, music, and movement
b) the development of social and interactive competences
c) to increase the sense of "*own music*"
d) sharing the "*own music*" with others
e) to build the "*group music collective identity*"
f) to express feelings through music experiences in a group situation

Making this conceptual distinction about the musical identity, allows to focus on the contributions from Music Therapy and Music Education to the concept of musical identity.

2. RESEARCH DESIGN

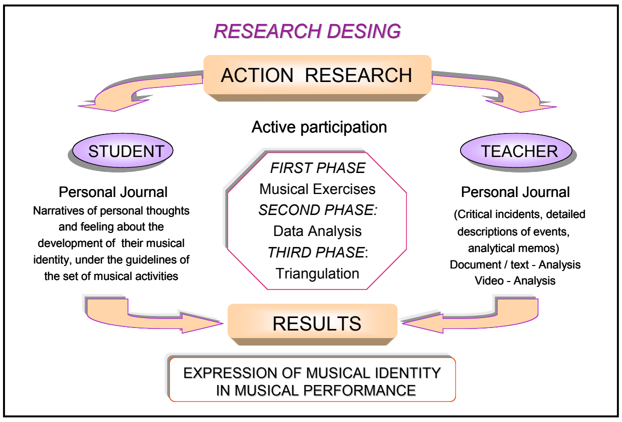


Figure 1. Research Design

This research focuses on the relationships between *Music Education - Music Therapy* and *Music Identity*. Based on an action-research design [4], the aim was to study the musical identity of Spanish Music Education and Music Therapy students, analysing the influences of teaching strategies and their implications in the process of making music. Participants were students of Music Education Degree[1] (1997-2003) and Music Therapy Master Programme[2] (2000-2004) at the University of Cádiz. In order to obtain a holistic picture of the topic of research, the author designed a matrix for data collection covering verbal and non-verbal data (Figure 1) and a set of specific musical activities with teaching strategies focused on sound-musical identity (Table 2), involving the students and the teacher in an active process.

In the musical activities focused on sound-musical identity, students improvise or create music using voice, Orff percussion instruments, and movement, alone or in groups of four/five members. The ideas for music improvisation and musical material used are connected with student's musical identity (sound material collected from the Home, Faculty, University Campus Soundscape description, personal names, group name, etc.).

Using a narrative style, the students collected information in a Personal Journal in which they write a chronological log of personal thoughts and feelings about the development of their musical identity, under the guidelines of the set of musical activities.

Musical activities were video-taped for data analysis. The made data comparison was interindividual (between participants), intermusical (between two or more piece of music), and interverbal (between two or more narratives). Strategies used in validation of data analysis were triangulation and comparative analysis of information.

DATA COLLECTION	
VERBAL DATA	NON-VERBAL (MUSICAL DATA)
Musical Autobiography: Student's musical life-histories, including the meaning of music on student life	Musical Autobiography: Tape recording: "The music of my life"
Essay about meaningful musical moments in student's life	Musical material of meaningful musical moments in personal life
Personal reports about musical exercises focus on Musical Identity	Musical material of exercises focus on Musical Identity
Family Interviews geared towards Music Preferences and Memories	Description of the Home Soundscape
Personal reports of Musical Exercises (self-observation and videotape analysis)	Description of the Faculty / University Campus Soundscape

Table 2. Set of musical activities focused on sound-musical identity

[1] The curriculum of Music Education Training Programme at the University of Cadiz offers an optional subject called *Music Therapy in Music Education*. The aim of the subject is to introduce the students to the field of Educational Music Therapy and Music Therapy in Special Education.

[2] Since the music therapist's personality plays a key role within the music therapeutic relationship, therapeutic skills are taught based on self-awareness and self-experience and musical identity is a main topic in this process.

3. RESULTS: FINDINGS ABOUT MUSICAL IDENTITY

During these years, a lot of material was collected and more than 350 essays had been analysed. Data analysis showed the *implication of musical identity in the process of improvisation*, *performance, and music composition*. The set of musical activities with teaching strategies, focused on sound-musical identity, were useful for the aims of the research because this type of exercises:

a) increased student's self-expression and flexibility using music, developing the creative thinking in sound-music and movement
b) stimulated the students to think about their personal life-history and induced personal growth,
c) showed the implication of musical identity in the process of making music of participants.

Results reveal interesting ideas about *musical identity* and, according to Ruud [5], some core categories can be established:

a) Music and Social Space: Musical Identity gives the possibility of getting to know oneself and others in a better way.
b) Music and Personal Growth: Musical Identity provides personal development.
c) Music and Creativity: Musical Identity gives the possibility to improve musical thinking and creativity.

3.1. Music and Social Space: Musical Identity gives the possibility of getting to know oneself and others in a better way

Musical identity is connected with cultural and geographical background, music experiences create memories that emphasize significant life events and provide opportunities to feel appreciated by family members, friends, and persons within the community. Musical experiences are connected to important life events and can help to the recognition of the interpersonal aspects of identity. Knowledge about the family Music Preferences and Memories, and explorations of the own meaning of music in personal life allow the students to go in deeper to and know better the reasons why he/she decided to study music and choose to play an instrument:

> *I didn't know that my father liked opera, now I understand better why I like it too* (R. 22 years old)

> *I had never listened to my voice recorded. I like it* (M. 21, years old)

3.2 Music as a Private Space: Musical Identity leads to an awareness of a space within oneself not accessible to other people

In written essays, students often talk of music as a personal space that is part of their lives. At the same time, music could be shared with others through improvisation or music composition using significant sounds of their own lives. Music helps to create boundaries between oneself and others, but at the same time creates a form of communication.

> *Music is everything in my life, there doesn't pass a day without me making music (*G. 20 years)

3.3 Music and Personal Growth: Musical Identity provides personal development

The students could, with their own words, express what and how they felt making music and connecting it with their own music life. Mostly, they gained new insights and experiences while improvising or composing and they become connected with their musical identity, and daily life:

> *The fact of choosing a percussion instrument, or deciding to work with the voice or within an instrument, made me aware that these choosing situations are events of every day life and that we are constantly making choices* (G. 20 years old).

3.4 Music and Creativity: Musical Identity gives the possibility to improve musical thinking and creativity

Students felt more creative, free, and expressive when they made music using musical material from life story, comparing when they used conventional musical material. They enjoyed the experience of making music using sound material from their own environment connected with their musical identity and found that new musical ideas and motifs are organically formed:

> *I have had an electric toast for three years and I had never listened to how it sounds. I`m surprised that I can make music with this sound (I. 19 years)*

Creative improvisation and the formulation of a musical environment for expressive communication through musical improvisation is sooner achieved by using musical material or alternative musical instruments familiar to the person. Personal development, the recognition through exercises of the musical identity, and the possibility of sharing the music experience with others, allow students to increase specific competences and musical skills, expressing themselves with music. In this way, communication and expression of feelings is easier, and this leads directly to the development of the sense of being part of the group.

4. CONCLUSIONS

There are different ways to understand what we do in teaching practice, *Action Research* is one of them. The possibility to describe the findings on musical identity and creativity with a descriptive and holistic perspective, and the opportunities for dialogue with students about their essays, helped me to clarify ideas about the usefulness of musical identity as an important topic when teaching Music Teachers and Music Therapists students. Understanding how music helps to construct a sense of identity, allows Music Therapists to understand clinical events [5] and simultaneously it helps Music Teachers to develop activities based upon an original approach to music teaching.

The study of musical identity carries many important ramifications both for Music Education and Music Therapy. Analysing the way students use music and the role it has in their lives and in their own musical identities could be an open door to discover new approaches within Music Education and Music Therapy.

5. REFERENCES

[1] Benenzon, R. *Manual de Musicoterapia*. Paidos, Buenos Aires, 1989.

[2] Facchini, D. Esperienze Creative per una Didattica Musicale orientata alla Musicoterapia. In G. Di Franco & R. De Michele (eds.) *Musicoterapia in Italia*. Idelson, Napoly, 1995.

[3] MacDonald, R., Hargreaves, D. & Miell, D. *Musical Identities.* Oxford University Press, 2002.

[4] McKernan, J. *Investigación Acción y Curriculum.* Morata, Madrid, 1999.

[5] Ruud, E. *Music Therapy: Improvisation, Communication and Culture*. Jessika Kingsley Publisher, London, 1998.

[6] Sabbatella, P. Music Therapy in the Training of Music Teachers. Paper presented at the *III European Music Therapy Conference*. Aalborg, Denmark, 1995.

[7] Sabbatella, P. La música somos nosotros: El Desarrollo de las Capacidades Musicales en el Maestro de Educación Musical. *Quaderni della Societá Italiana per l'Educazione Musicale.* Anno 10. 16 (2), 270- 277, 2000.

[8] Sabbatella, P. Finding the Music Identity of Music Teachers through Music Therapy. *Conference on Musical Creativity,* Liege, Belgium, 2002.

[9] Schafer, R. M. *The New Soundscape: A Handbook for the Modern Music Teacher.* Bernandol Music Limited, Canada, 1969.

[10]Wigram, T. De Backer, J. & Van Camp, J. Music Therapy Training: A Process to Develop the Musical and Therapeutic Identity of Music Therapists. In T. Wigram & J. De Backer (eds.), *Clinical Applications of Music Therapy in Developmental Disability, Paediatrics and Neurology*. Jessika Kingsley Publisher, London, 1999.

THE NATURE OF ONLINE MUSIC COMMUNITIES AND THEIR RELATION TO MUSIC EDUCATION

Miikka Salavuo

University of Jyväskylä
Department of Music
Finland

ABSTRACT

This paper will illustrate the phenomena of open online music communities, and discuss their implications for music education. During recent years, open online music communities have grown into considerable environments of musical practices and learning. In these communities, the members contribute their music for others to listen to and review. Active discussions on music related subjects, such as making music, about bands, and also about the use of technology, take place in the communities. This paper presentation will combine two research cases conducted on a particular Finnish online music community. The first case shows that learning processes, such as collaborative knowledge construction and distributed expertise, do take place in the discussion forum of the online community. The community could be described as an on-demand based learning environment. In the second case, an online survey was conducted to study the musical background of the community members and especially their motives for taking part in an online music community. The results indicate that musical reasons prevailed over social reasons for taking part in the community. The participants were on the whole fairly active musicians, but surprisingly few of them had formal musical training.

1. INTRODUCTION

Institutional music education covers only a small section of today's young people's musical activities. An hour or two in a week cannot fully satisfy enthusiastic musicians' need to learn and participate in musical activities. For many eager young musicians, the musical activities take place in extracurricular activities, garage bands, or community centres. Quite recently, some of these activities have moved or extended to the Internet.

With the popularisation and rapid growth of the Internet, more and more people are taking part in online communities in different fields of interest. Online communities can be defined as groups of individuals with common interest, who come together either permanently or occasionally using electronic communication [1]. At the same time, the Internet has become a place for musical practices: people distribute music in controversial peer-to-peer networks, they discuss music related topics in various kinds of discussion forums, and also distribute their own music in online communities.

The purpose of this paper is to illustrate the importance of online music communities, and to describe the practices that take place within them. In addition, this paper aims to call for experts in developmental psychology of music to study the online music communities, and their active participants.

2. ONLINE COMMUNITIES

Research shows that people take part in online communities to find or exchange information in different media formats, and to seek new friends [2, 3]. It is not uncommon for members of online communities to meet in face-to-face situations. In many cases, online communities are considered to exist in order to replace social interaction that otherwise might be absent [4]. Over time, social networks are built between people, trust is gained, and expertise expanded through collaboration among people with similar interests and shared purposes [3]. An online community usually has a body of regular users who contribute to the community by taking part in discussions, or by providing useful materials. If the community is not large or active enough, it ceases to exist. The expertise of a community and its individual members is quickly revealed to frequent visitors. Online communities can act as an external memory [5] for their active members.

People tend to contribute to online communities many times for both egoistic and altruistic reasons [6]. Some people just like to help others, while some may feel satisfaction from their augmented status within the community. A community member with a puzzling question or a need for external opinions usually gets responses within minutes or hours. When some of the responses may not be correct, or could be hostile or humorous, functional online communities should have sufficient population with diverse expertise to correct possible misinformation. Thus, active and functional online communities can be called *communities of practice,* with possibilities for situative learning to take place [7].

Participation in an open online community is usually voluntary. Frequent visits to a domain-specific community may create a sense of belonging to a group of like-minded people. Identity can take a different form than in `real life´, and a person's reputation is based on their activity in and content of contributions to, the community [3]. Anonymity grants possibilities to ask questions which might be too embarrassing to ask in face-to-face situations. On the other hand, anonymity can induce the lack of responsibility of one's actions.

However, online communities are largely self-regulating; thus members with valuable contributions will get rewarded as their visible status is gradually augmented. Of course, the constant risk of anti-social behavior, and, on the other hand, division to those who have access to technology, and to those who don't, is evident.

3. ONLINE MUSIC COMMUNNITIES

The rapid growth of online communities has left the field of music education perhaps unaware of the changes that take place in the extracurricular musical activities. The informal musical practices that account for large proportion of young people's musical practices are extending to the Internet.

Face-to-face contacts are no longer obligatory in musical activities. This might create concern that future generations of musicians work in solitude, with no physical contact to other musicians. After all, most people agree that making music is a social event, which profits from constant interaction in a physical space.

Online music communities share many of the characteristics of other types of web-based communities, but they differ in the fact that music plays a big role in these communities. People have contributed tens or hundreds of thousands of songs to these communities. For instance, almost 1000 new songs are added weekly to the web site studied here. However, instead of distributing copyright protected music, as is common in p2p-networks, [8] people contribute music they have composed and produced to audio file format. Online music communities include charts where the contributed music is rated both numerically and by giving verbal reviews. Music related communities have created a new kind of culture of practicing and listening to music, perhaps as a counter culture to narrow radio playlists.

Discussions about music and reviewing musical pieces are a core part of music culture. Most online music communities offer a number of sections in their discussion forums to discuss about bands, music theory, instruments, technology, and other music related topics.

4. METHODS

Two research cases were conducted to study a Finnish online music community called *mikseri.net,* and it's participants' motivations to take part in its' activities. It is accessible by a WWW-page, and is free for anyone to join in. In the first case [9], two researchers analyzed 736 discussion board messages in 30 message threads. Researcher triangulation was used to get more objective view on the messages. Different categories were created to find occurrences of processes that refer to learning and occurrences of different subject matters[1]. The messages were analyzed, and classes were created to categorize the content of the messages.

In the second case [10], an invitation to an online survey was posted to the discussion forum of mikseri.net. A total of 234 people responded to the survey in a period of one month when it was online. Their average age was 20,8 years, and 88% of them were male. 51% of the respondents were younger than 20.

The respondents were asked to rate their reasons for participating in the community on a five-point Likert scale. The results were analyzed using basic statistical analysis. The sample is not extensive enough to give a comprehensive picture of an online community, which has around 1000-2500 registered users online simultaneously. It does not statistically represent the whole community, but it can provide some indications of the general trends in open online music communities.

5. RESEARCH ON ONLINE MUSIC COMMUNITIES

5.1. Online communities as learning environments

The first study [9] was conducted to find out whether learning processes, such as collaborative knowledge construction and distributing expertise, take place in the discussion forums of mikseri.net. In the second study [10], we used an online survey to clarify respondents' musical background and relation to mikseri.net as an environment for musical practices and learning.

The discussions analyzed in the first study revealed that processes, which refer to learning, do take place in the discussions. Clear evidence was found of processes such as knowledge construction, argumentation, and requests for clarification of unclear or incomplete answers [9] taking place. For instance, evidence of knowledge construction [11] was found to emerge significantly in 40% and somewhat significantly in 40% of the discussion threads. Constructive argumentation took place significantly in 40% and somewhat significantly in one third of the discussion threads [10]. However, processes that demonstrated participatory activity and situative learning [7] were quite rare.

It was clear that the community benefited from the presence of musically educated members, or users with self-taught expertise. Some of them were experts in fields of music technology or emerging musical genres, and probably had expertise beyond most school music teachers. As in Lucy Green's study [12], the participants in the discussion forums clearly valued formal education, and respected members with formal musical knowledge [9].

The most common subjects of discussion concerned technology and musical practices. The members wanted to know how a certain type of music or sound is

[1] Process categories included collaborative knowledge construction, argumentation and participation. Subjects included discussions that relate to musical activities, formal musical knowledge, technology, and subjects unrelated to the message thread's initial subject.

produced, or what they should do to achieve the expected results. Similarly, they wanted to know which software they should use for a certain kind of music, or, for instance, how they should record their heavy metal band's drums. For most questions, answers were provided fairly quickly [9]. Sometimes it took a while for incorrect answers to be corrected, but in every case they eventually were [9]. This displays the existence of distributed expertise [13], and also motivation to perhaps altruistically help others [2,6].

Our second study revealed that most respondents had hardly any formal musical training [10]. The majority of respondents considered the chance to learn about music an important reason to visit the web site [10]. 82% of the respondents were able to find answers to their questions in the discussion forum of mikseri.net [10]. It is quite possible that, for many, the discussion forum is the only place – or at least provides the quickest way – to find answers to acute questions. The community can act as an external memory which is always at hand when one has access to the Internet.

Together, these research cases indicate that the online community truly represents an important source of information and a significant on-demand-based learning environment, for many young musicians.

5.2. Reasons for participating the community

In many cultures, the social opportunities motivate people to take part in musical activities [14]. Discussions about common musical interests are an essential part of music culture and can create a sense of belonging, and, a sense of community. We assumed that online music communities might act as replacements of social music making particularly for so-called home computer musicians. This assumption was not verified in our second research case [10].

The respondents of the survey were very frequent visitors to the site and almost half of them listened to or downloaded music at mikseri.net daily [10]. The majority of them (75%) said that they practiced music more alone than with fellow musicians. However, around half of the respondents played in a band [10]. The majority of the respondents used computers in making music, though less than one third named computers as their main instrument. We might conclude that mikseri.net is not a community of solely computer musicians. This is confirmed in a question about the musical genres that the respondents were practicing [10].

According to the survey, the musical reasons were dominant in the motives for visiting the community web site [10]. The online community in this case did not seem to act as a social replacement for face-to-face activities. In fact, around one third of the respondents had actually engaged in face-to-face musical activities with people they had met through the online community [10]. For many musicians, it seems to function as an extension of the physical environment of musical conduct.

The results of the survey indicate that people contribute music to these communities mainly because they want their music to be heard by others [10]. The importance of getting feedback seemed to be one of the key reasons for the respondents to post their music to the web site [10]. However, in the first study we concluded that the reviews of contributed songs were mostly polite and encouraging rather than constructive, and included mainly superficial evaluations [9]. Reasons related to gaining fame or wealth were the least significant motives to produce music to the web site [10].

Only around one fourth of the respondents had any institutional musical training [10]. Compared to the number of people who composed music, this was somewhat surprising. One fifth of the respondents spent more than ten hours in a week making music. However, most of the respondents did not consider themselves as music professionals [10].

The survey revealed that mikseri.net is an important source of information for the respondents [10]. Two thirds of them visited the community web site daily to read messages, while around half of them wrote messages at least three times a week [10]. Most active users have written hundreds or thousands of messages. For them, mikseri.net, seems to be an important community in their daily lives.

6. IMPLICATIONS FOR MUSIC EDUCATION

It is important for music educators to understand that younger and younger people join online communities to access information and make social contacts, which may otherwise be absent. And, in the case of online music communities, they also have a need to contribute their music, get feedback, and also give feedback – albeit often superficial – for their peers. Online music communities are thus on-demand-based environments, which offer motivating surroundings for many of today's technology oriented musicians. They seem to act as an extension of physical space for musicians rather than as a replacement of social encounters.

The conducted studies found mikseri.net to be a significant learning environment. It seems to be most beneficial for those who are not musically educated. The presence of formally musically educated members is in many cases essential. On the other hand, the diverse expertise of an active and very large community can bring out a wide variety of knowledge on an enormous range of subjects. In some cases, the discussions include subjects that are rarely taught in educational institutions. For instance, in our first case the most common topic of discussion was related to the use of certain software or other technical issues that are probably not within the expertise of most music teachers. The size and activity of the community is crucial for misinformation to be corrected, and users displaying inappropriate behaviour to be silenced.

Compared to formal institutional learning environments, the online communities seem ill organized and pose several threats for inexperienced members. Some members may lack the skills to be critical on the information they encounter. Blind trust for anonymous experienced users may have a detrimental influence on a young musician. In addition, crushed reviews for beginners' musical pieces may be as harmful for their musicianship as a rigorous piano teacher's comments on technical errors! Another concern is the low number of female participants. This might be due to the fact that girls are not as interested in working with music technology. Teachers should encourage girls to take part in the activities in online music communities. They should also try to provide skills and tools for their students to be able to contribute to these environments.

In any case, the online music community clearly motivates many young people to make music exactly the way they feel most suited to. It provides an environment where they are able to get their music heard by other like-minded people. It is not uncommon for the online community to expand to separate hybrid communities, which also meet face-to-face.

7. REFERENCES

[1] Plant, R. Online communities. *Technology in Society 26, 51-65*, 2004.

[2] Ridings, C.M. & Gefen, D. Virtual Community Attraction: Why People Hang Out Online. *Journal of Computer-Mediated Communication 10 (1),* 2004. http://jcmc.indiana.edu/vol10/issue1/

[3] Dickinson, A.M. Knowledge Sharing in Cyberspace: Virtual Knowledge Communities. In D. Karagiannis & U. Reimer (Eds.), *Practical Aspects of Knowledge Management.* Proceedings of the 4th International Conference, PAKM 2002 Vienna, Austria, 2002.

[4] De Souza, C.S. & Preece, J. A framework for analyzing and understanding online communities. *Interacting with Computers 16, 579-610.* 2004.

[5] Wegner, M. Transactive Memory: A Contemporary Analysis of the Group Mind. In B. Mullen & G.R. Goethals (Eds.) *Theories of Group Behaviour, 185-208.* Springer-Verlag, New York, 1987.

[6] Chesney, T. "Other people benefit. I benefit from their work." Sharing Guitar Tabs Online. *Journal of Computer-Mediated communication 10 (1),* 2004. http://jcmc.indiana.edu/vol10/issue1/

[7] Wenger, E. *Communities of practice: learning meaning, and identity.* Cambridge University, 1998.

[8] Rojek, C. P2P Leisure Exchange: Net Banditry and the Policing of Intellectual Property. *Leisure Studies 24 (4) 357-369,* 2005.

[9] Salavuo, M. & Häkkinen, P. Epämuodolliset verkkoyhteisöt musiikin oppimisympäristöinä. (Informal online communities as music learning environments). *Musiikki 1-2, 112-138*, 2005.

[10] Salavuo M. (submitted). Open and informal online communities as forums of collaborative musical activities and learning.

[11] Bereiter, C. *Education and Mind in the Knowledge Age.* Erlbaum, New Jersey, 2002.

[12] Green, L. *How Popular Musicians Learn. A Way Ahead for Music Education.* Ashgate, London, 2001.

[13] Brown, A.L., Ash, D., Rutherford, M., Nakagawa, K., Gordon, A. & Campione, J.C. 1993. Distributed Expertise in the classroom. In G. Salomon (Ed.) *Distributed cognitions. Psychological and educational considerations*, 189-228. Cambridge University Press, New York, 1993.

[14] Crozier W.R. Music and social influence. In D.J. Hargreaves & A.C. North (Eds.) *The Social Psychology of Music*, 67-83. Oxford University Press. Oxford.

ATTENTION AND FLOW EXPERIENCE IN PRESCHOOL CHILDREN DURING MUSIC CIRCLE TIME AND MUSIC FREE-CHOICE TIME

Judith A. Sullivan
The University North Carolina
Charlotte USA

ABSTRACT

The purpose of this study was to investigate flow experiences and attention in children ages three and four years in two music learning conditions: group instruction time (music circle time) and music free-choice time. Both quantitative and qualitative methods were employed for data collection and analysis.

Two intact preschool classes were used: the control group participated in music circle time only; the experimental group participated in music circle time and music free-choice time. An attention task served as the testing instrument for all subject (N=30) in this pretest-posttest design. The classes were videotaped for post hoc evaluation of flow experience under the two conditions of circle time (control group) and free-choice time (experimental group). Two-sample *t*-tests were performed to determine differences between groups in attention capabilities as well as change in attention capabilities from pretest to posttest and found no significant differences. Median tests were performed to assess differences between groups in terms of flow experiences.

The groups showed no significant differences in the occurrence of Potency dimension behaviors. Significant differences were found in Transformation and Challenge behaviors, with the experimental group's exhibiting the greater occurrences. The control group exhibited significantly greater occurrences of observations with no flow behaviors. Although no significant differences were found in attention task pretest-posttest gains between groups, the study does highlight interesting issues regarding the flow experiences of the two music learning environments and the possible benefits for young children, in particular those with special needs, such as Attention Deficit and Hyperactivity Disorder.

1. INTRODUCTION

Attention has been a topic of research for generations in terms of learning and overall quality of life [1, 12, 13, 14, 17, 19]. It is also of interest to music educators [11, 15].

Flow is the concept of optimal experience that leads to learning and greater quality of life. This is an idea that has been researched by Csikszentmihalyi over several years [2, 3, 4], with Larson [5]. He found that maintaining attention and being immersed in an activity were important to the learning process.

The works of two music education researchers form the foundation for this study of attention and flow in preschool children in music learning settings. Scott [16] investigated preschool children in Suzuki, creative movement, non-arts preschool, and home activities to determine their influence on a child's ability to attend and persevere. Custodero [6, 7, 8, 9, 10], has studied children and flow experience in the music class setting. Through her studies, Custodero developed her Flow Indicators in Music Activities instrument to see if flow behaviors did exist in preschool children. She concluded that flow is observable in four- and five-year-old children, and that children are agents in their own learning [6]. In a later study, Custodero found that adult guidance is a significant factor in children's music learning, and that flow experience in children is enhanced with adult interactions that are mutual [9].

It is the opinion of the current researcher that there is a relationship between attention and flow, and that this relationship exists with preschool-aged children.

2. PURPOSE AND RESEARCH QUESTIONS

This study was designed to address attention and flow, the relationship between them, and the best practices in the early childhood music program to enhance a child's attention and flow experience. The following questions were posed as the basis of this study:

1. Can a combination of music circle time and free-choice time result in a longer attention span on an attention task?
2. Can a combination of music circle time and free-choice time result in greater flow in young children?
3. Is there a positive correlation between flow and attention?

3. METHOD

The study was a pretest/posttest design that included quantitative and qualitative data. Information was sought regarding the effect of the music learning environment on children's attention capabilities, flow experiences in each of the music learning conditions, and the relationship between flow and attention. Differences between groups regarding these questions were significant at alpha level $p \leq 0.01$.

3.1. Subjects

Subjects were three- and four-year-old children in two intact classes within a university laboratory preschool. Each class consisted of 15 students for a total of n=30. Admissions policies for the school ensured a balance of diversity in terms of race, ethnicity, development, and ability/disability.

One class served as the control group and received music circle time once per week for 30 minutes. The class serving as the experimental group participated in their own music circle time for 30 minutes weekly and in one weekly music free-choice time for 15 minutes. Each week, the experimental group was randomly divided into two subgroups of seven or eight children to allow for maximum space in the room. All sessions were held in an all-purpose room in the preschool. All toys were removed from the room, or hidden with a floor-to-ceiling curtain to provide adequate space without distraction.

3.2. Procedure

3.2.1. Pretest: Attention Task

A researcher-developed attention task served as the pretest and posttest. The pretest offered a baseline attention capability for each child and was used to determine differences between the groups prior to running the study. The children were assessed individually and videotaped for analysis of reliability. A *t*-test was used to determine no differences between the two intact classes in terms of attention capabilities. The task consisted of the researcher's playing three classroom instruments in various combinations, with the child's imitating each combination. Attention time was recorded when the child played an error. Three trials were conducted, with the average of the trials serving as the child's attention span time.

3.2.2. Sessions

The researcher, who was their current music teacher, conducted all circle time sessions, while an assistant operated the video camera. Because the *t*-test had determined no differences between groups, data for circle time sessions was collected only from the control group class. The experimental group's free-choice time sessions were held in the same room as circle time sessions on a different day of the week and were also videotaped by an assistant. The study consisted of five weekly music sessions, both music circle time and music free-choice time.

3.2.3. Data collection

Behaviors were observed by viewing the videotapes, once through for each child. Observations were recorded on the researcher-developed Flow Observation Form (Figure 1). Observations were done in 10-second observe and 5-second record intervals. During the recording interval, the researcher circled all applicable behaviors observed during the previous 10 seconds. If no flow behaviors were observed, the researcher circled the observation item number; if the child was not visible, the researcher drew a slash through the number.

Flow behaviors consisted of three dimensions: Potency, Transformation, and Challenge. Within these dimensions were three behaviors: Potency consisted of Alert (Al), Involved (I), and Active (Ac); Transformation consisted of Anticipation (An), Expansion (Xp), and Extension (Xt); and Challenge consisted of Self Assignment (Sa), Self Correction (Sc), and Gesture (G). A profile was developed for each subject in which was recorded the frequencies of all behaviors in each session, cumulative frequencies, percentages of each dimension compared to number of observation intervals, percentage of no flow behaviors observed, as well as pretest and posttest mean times and differences between them. Qualitative data was included in the form of comments written during the observations.

FLOW OBSERVATION FORM

Subject ______________________ **Date** ________________

Group: Control Experimental Condition: Class Free-choice

Observer ________________________ (Observe 10 seconds, record 5 seconds)

Reliability observer: ________________________

Potency: Alert (Al), involved (I), active (Ac) **Transformation:** anticipation (An), expansion (Xp), extension (Xt) **Challenge:** self-assignment (Sa), self-correction (Sc), gesture (G)

Circle all indicators observed

1. Al I Ac / An Xp Xt / Sa Sc G	21. Al I Ac / An Xp Xt / Sa Sc G
2. Al I Ac / An Xp Xt / Sa Sc G	22. Al I Ac / An Xp Xt / Sa Sc G
3. Al I Ac / An Xp Xt / Sa Sc G	23. Al I Ac / An Xp Xt / Sa Sc G
4. Al I Ac / An Xp Xt / Sa Sc G	24. Al I Ac / An Xp Xt / Sa Sc G
5. Al I Ac / An Xp Xt / Sa Sc G	25. Al I Ac / An Xp Xt / Sa Sc G
6. Al I Ac / An Xp Xt / Sa Sc G	26. Al I Ac / An Xp Xt / Sa Sc G
7. Al I Ac / An Xp Xt / Sa Sc G	27. Al I Ac / An Xp Xt / Sa Sc G
8. Al I Ac / An Xp Xt / Sa Sc G	28. Al I Ac / An Xp Xt / Sa Sc G
9. Al I Ac / An Xp Xt / Sa Sc G	29. Al I Ac / An Xp Xt / Sa Sc G
10. Al I Ac / An Xp Xt / Sa Sc G	30. Al I Ac / An Xp Xt / Sa Sc G
11. Al I Ac / An Xp Xt / Sa Sc G	31. Al I Ac / An Xp Xt / Sa Sc G
12. Al I Ac / An Xp Xt / Sa Sc G	32. Al I Ac / An Xp Xt / Sa Sc G
13. Al I Ac / An Xp Xt / Sa Sc G	33. Al I Ac / An Xp Xt / Sa Sc G
14. Al I Ac / An Xp Xt / Sa Sc G	34. Al I Ac / An Xp Xt / Sa Sc G
15. Al I Ac / An Xp Xt / Sa Sc G	35. Al I Ac / An Xp Xt / Sa Sc G
16. Al I Ac / An Xp Xt / Sa Sc G	36. Al I Ac / An Xp Xt / Sa Sc G
17. Al I Ac / An Xp Xt / Sa Sc G	37. Al I Ac / An Xp Xt / Sa Sc G
18. Al I Ac / An Xp Xt / Sa Sc G	38. Al I Ac / An Xp Xt / Sa Sc G
19. Al I Ac / An Xp Xt / Sa Sc G	39. Al I Ac / An Xp Xt / Sa Sc G
20. Al I Ac / An Xp Xt / Sa Sc G	40. Al I Ac / An Xp Xt / Sa Sc G

Figure 1. One page of the flow observation form.

3.2.4. Posttest: Attention Task

At the conclusion of the five music time sessions, the children were again assessed individually with the same attention task as the pretest. Due to the nature of the task and the length of time between pretest and posttest, it was felt that the children were not likely to have learned the task, thus influencing the comparison. The task was conducted in the same manner as previously, with an average time of three trials.

4. RESULTS

4.1. Quantitative data

Dimension	Group	Median	X^2	*df*	*p*
Potency	Control	86.4	1.20	1	0.27
	Experimental	94.9			
Transformation	Control	9.5	10.80	1	0.001
	Experimental	32.3			
Challenge	Control	0.0	30.00	1	0.001
	Experimental	90.0			
No flow behavior	Control	14.3	6.53	1	0.01
	Experimental	7.2			

Table 1. Median Test for Flow Dimensions. $p \leq 0.01$

The attention task was used to determine possible differences between groups. A two-sample *t*-test using mean times in seconds revealed $t = 1.03$, *p* value of 0.31, with $df = 28$, at an alpha level of $p \leq 0.01$. The conclusion was that there was no significant difference between groups in terms of attention span.

The posttest mean times were treated similarly, with results of $t = -0.47$, *p* value of 0.64, with $df = 26$. The mean *change* from pretest to posttest revealed $t = -1.05$, *p* value of 0.30 with $df = 26$, also with an alpha level of $p \leq 0.01$. Again, it was concluded that was no significant difference between groups in posttest mean times, and in the change from pretest to posttest.

A median test was used for the flow data, as it was felt to be more robust in data with outlying scores, and it would also allow for generalization to the population of three-and four-year-old children.

Table 1 shows the application of the Median Test for the flow data, expressed as the percentage of intervals the dimension was observed. The table also includes the percentage of intervals the children were visible when no flow behaviors were observed. The analysis shows significant difference between groups where the experimental group exhibits higher frequencies of Transformation and Challenge behavioral dimensions. The experimental group showed more Potency behaviors, but this was not significant. The occurrence of no flow behaviors recorded during an interval was significantly higher in the control group.

The relationship between attention and flow was addressed by using the Pearson-*r* correlation coefficient to determine relationship between pretests and mean flow percentage scores, and posttest and mean flow percentage scores for both groups. A composite percentage score to reflect overall flow behavior was achieved by averaging the sum of Potency, Transformation, and Challenge percentages. Table 2 shows Pearson-*r* correlation coefficients for both attention tests in both groups.

Variables	N	*r*	*p*
Pretest and Mean % Flow—C	15	0.527	0.043
Posttest and Mean % Flow—C	15	0.495	0.061
Pretest and Mean % Flow—E	15	0.265	0.340
Posttest and Mean % Flow—E	15	-0.772	0.002

Table 2. Pearson-*r* Correlation Coefficients for Attention and Flow

4.2. Qualitative data

Qualitative data, collected from comments made during observations, reflected the ways in which the children exhibited the flow behaviors. Although the behaviors were defined prior to observation, the data collected showed various ways in which these definitions could be interpreted. Children in a natural setting were free to exhibit behaviors as they chose, rather than having their responses taught by the researcher.

4.3. Reliability and validity

Post hoc analysis of the videotaped tasks and implementation of Pearson-*r* Correlation Coefficients were used to assess reliability. Pearson-*r* Correlation Coefficients revealed the control group with 0.996 on the pretest and 0.997 on the posttest; the experimental group revealed 0.996 on the pretest and 0.999 on the posttest.

Reliability of the Flow Observation Form was determined by intra-observer reliability, in which the researcher reviewed 20% of tapes approximately six months later without reviewing the original data. The result was 85% agreement between the original and the reliability behavioral data. Validity of the Flow Observation Form was determined by the fact that it was based on Custodero's Flow Indicators in Musical Activities form [10], an assessment previously determined to be valid.

5. CONCLUSIONS

This study investigated and attempted to further support the concept of structured and unstructured guidance by focusing on attention and flow experience in young children. By looking at specific types of behaviors that were thought to exert positive influences over children's learning, it was hoped that the findings would provide clearer, more practical understanding of the benefits and implementation of developmentally appropriate practice, particularly in the music learning setting.

6. DISCUSSION

The quantitative data and analyses did not show a significant difference between groups in the change of attention task times over the period of the study. Therefore these results do not support the idea that a combination of circle time and free-choice time enhances the development of attention span.

Quantitative data and analyses using a median test did show significant differences between groups in Transformation and Challenge behavior dimensions, with the experimental group's exhibiting greater frequencies of these behaviors. There were significantly more observations of no flow behaviors in the control group. There was no significant difference between groups in the Potency dimension. This addressed the second research question by showing that the different learning environments resulted in different flow experiences. The qualitative data added information about specific behaviors and their indication of flow experience.

The third question regarding a relationship between attention and flow is supported by the analyses of the data. However, in this study there were outlying scores that may have influenced the results. The positive correlations in the control group appear stronger than the correlations of the experimental group. This supports Scott's [16] idea that greater attention task times and accuracy may be due to teacher directed and practiced attention activities. Thus, to influence attention through free-choice activities, one may need to restructure the attention measurement or the teacher's role in the free-choice environment.

There were several interesting issues brought to light. Observations of children whose records indicated diagnosed ADHD revealed a high frequency of behaviors indicative of creativity, often involving different ways to play instruments, and improvised songs. Other observations revealed different responses to adult awareness/interaction. These observations reflect the importance of self-direction as well as reciprocity in whether flow is enhanced or inhibited by the presence of an adult.

Conclusions drawn from this study point toward the use of both structured and unstructured informal guidance in order to provide children with optimal experience in music. Both music-learning environments facilitated flow experience, with the experiences' differing and complementing each other. Since flow experiences result in learning and growth [2, 3, 4], this approach to music education may offer greater benefits than using only one type of learning environment.

It seems reasonable to expect the development of increased attention span in children who are allowed to choose activities that interest them. An attention task that allows children to work independently may be more appropriate in a study of this nature, such as a measure that involves the child's choosing one activity from among two or three, and performing it independently. Sims [18] found that children varied in attention span, but were internally consistent in their patterns. It also may be worthwhile investigating the influence of music learning environments on musical learning rather than on general attention capabilities.

6.1. Recommendations

It is recommended that a study of this nature be conducted over a longer period of time such as 10-15 weeks, or perhaps a longitudinal study of at least one year. Also, a larger sample drawn from a variety of educational settings would most likely increase the ability to generalize the findings.

An additional topic that surfaced during this study was that of creativity in young children, particularly those with attention deficit disorders. The children who were diagnosed with ADHD were in the experimental group and were observed only in the free-choice times. It would be interesting to document behaviors in the circle time as well to see how they used expansion, transformation and extension in the group setting. It would also be interesting to investigate a relationship between creativity and ADHD or ADD in the music setting in order to develop more appropriate practices in the music learning environment.

The overarching focus of this study was to inform developmentally appropriate practice in early childhood music education and general education. The quantitative data and analyses may not have shown significant differences in attention, but did show differences in flow behaviors exhibited in each learning environment. The qualitative data produced interesting observations that can inform the music educator's approach to early childhood music. The qualitative and quantitative data and analyses also provide information and questions for future investigation into the education of young children.

7. REFERENCES

[1] Busch, C., Taylor, H., Kanarek, R., & Holcomb, P. The effects of a confectionery snack on attention in young boys. *Physiology & Behavior,* 77(2-3), 333-340, 2002.

[2] Csikszentmihalyi, M. *Optimal experience: Psychological studies of flow in consciousness.* Cambridge University Press, New York, 1988.

[3] Csikszentmihalyi, M. *Flow: The psychology of optimal experience.* Harper Collins, New York, 1990.

[4] Csikszentmihalyi, M. (2003). *Good business: Leadership, flow, and the making of meaning.* Viking Penguin, Penguin Putnam, Inc, New York, 2003.

[5] Csikszentmihalyi, M., & Larson, R. *Being adolescent: Conflict and growth in the teenage years.* Basic Books, New York, 1984.

[6] Custodero, L. Observing flow in young children's music learning. *General Music Today,* 12(1), 21-27, 1998.

[7] Custodero, L. Engagement and experience: A model for the study of children's music cognition. In G. L. C. Woods, R. Brochard, F. Seddon, & J. A. Sloboda (Eds.), *Proceedings of the Sixth International Conference of Music Perception and Cognition.* Keele University Department of Psychology, Keele, 2002a.

[8] Custodero, L. Seeking challenge, finding skill: Flow experience and music education. *Arts Education Policy Review,* 103(3), 3-9. Retrieved November 17, 2003, from EBSCO Host Research Databases, 2002b.

[9] Custodero, L. Connecting with the musical moment: Observations of flow experience in preschool-aged children. *International Society for Music Education Early Childhood Conference: Children's Music Connections,* Copenhagen, Denmark, 2002c.

[10] Custodero, L. Flow experience and the Schulwerk, part 1: the rewards of musical engagement. *American Orff-Schulwerk Association National Conference,* Las Vegas, NV, 2002d.

[11] Forsythe, J. Elementary student attending behavior and function of classroom activities. *Journal of Research in Music Education,* 25, 228-239, 1977.

[12] Herring, A., and Koch, H. A study of some factors influencing the interest span of preschool children. *Journal of Genetic Psychology*, 38, 249-277, 1930.

[13] Higgins, A., & Turnure, J. Distractibility and concentration of attention in children's development. *Child Development,* 55(5), 1799-1810, 1984.

[14] Huang-Pollock, C., Carr, T., & Nigg, J. Development of selective attention: Perceptual load influences early versus late attentional selection in children and adults. *Developmental Psychology*, 38(3), 363-375, 2000.

[15] Madsen, C., & Geringer, J. Attending behavior as a function of in-class activity in university music classes. *Journal of Music Therapy*, 20(1), 30-38, 1983.

[16] Scott, L. *An investigation of attention and perseverance behaviors of preschool children enrolled in Suzuki violin lessons and other preschool activities.* Unpublished dissertation. The University of Texas, Austin, 1987.

[17] Shacter, H. A method for measuring the sustained attention of preschool children. *Journal of Genetic Psychology,* 42, 339-371, 1933.

[18] Sims, W. Characteristics of preschool children's individual music listening during free choice time. *Bulletin of the Council for Research in Music Education,* 149, 53-63, 2001.

[19] Turnure, J. Children's reaction to distractors in a learning situation. *Developmental Psychology,* 2(1), 115-12, 1970.