UH
Structural Aspects of Jazz Improvisation. A New Approach Based on Mid-Level-Analysis

Martin Schütz

Structural Aspects of Jazz Improvisation

A New Approach Based on Mid-Level-Analysis

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The "stream-of-ideas"-analysis: the methodological approach

Background and motivation

Leading questions:

The architecture of jazz improvisation:

Of which structural elements does an improvisation consist of?

Could patterns or similarities also be found at a structural level and in which way the structural composition is affected by the underlying reference?

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Background and motivation

perspective

improvisation as a product ⟷ improvisation as a process

single event ⟷ improvisation as a whole

scope

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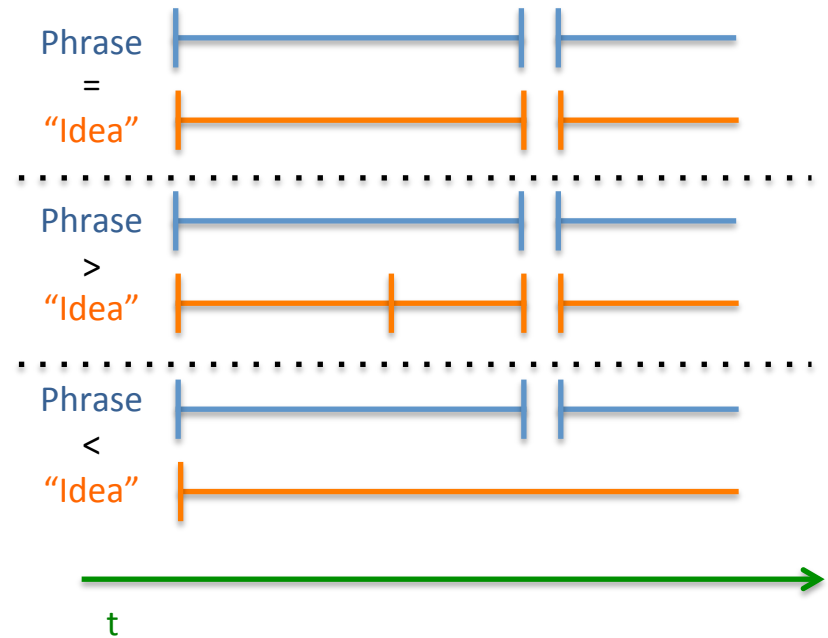
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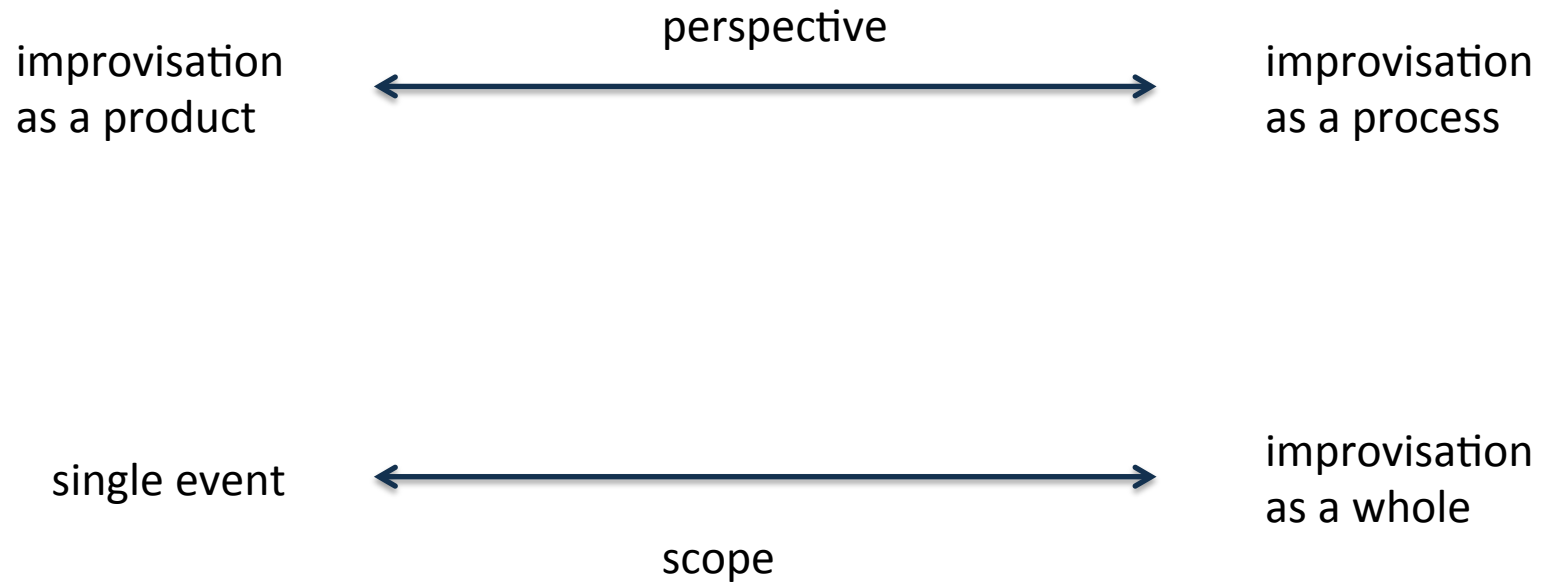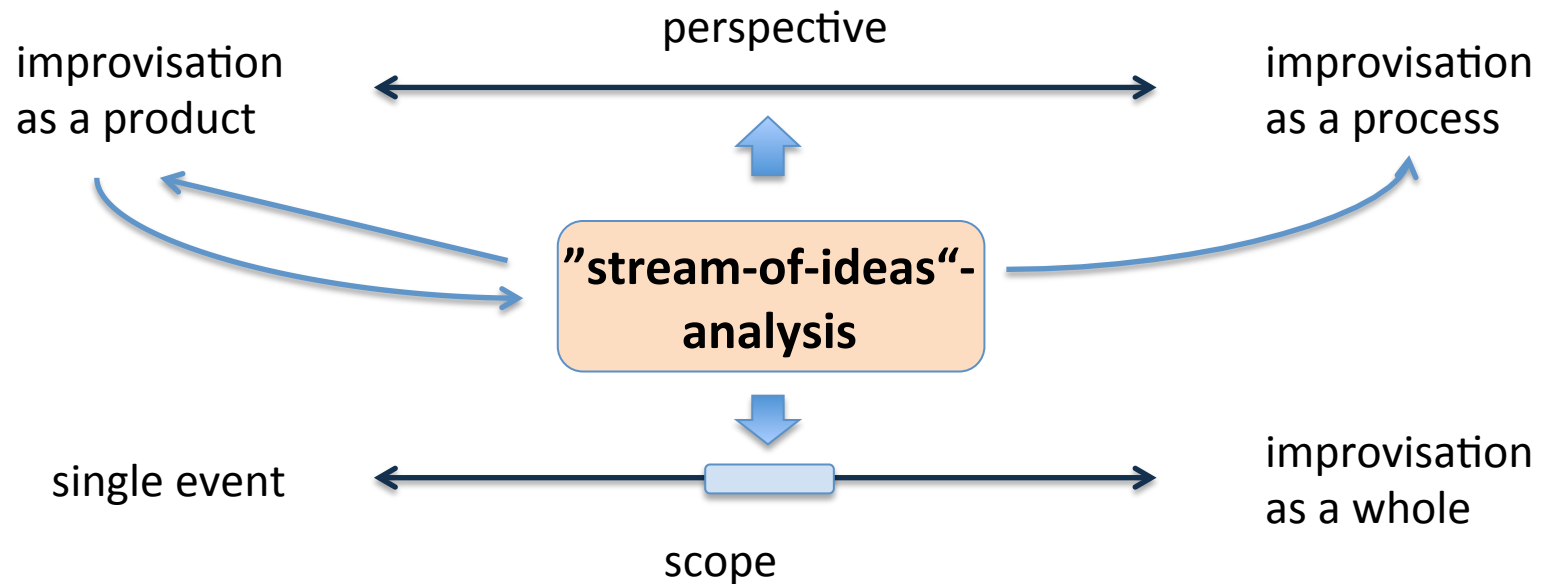
The "stream-of-ideas"-analysis: the methodological approach

Development and application of the SIA

"Idea" = phrase-like structural element

"Phrase" = musical part emphasized/
            framed by breaks

"Idea" = structural element (segment of an improvisation) that is defined by a
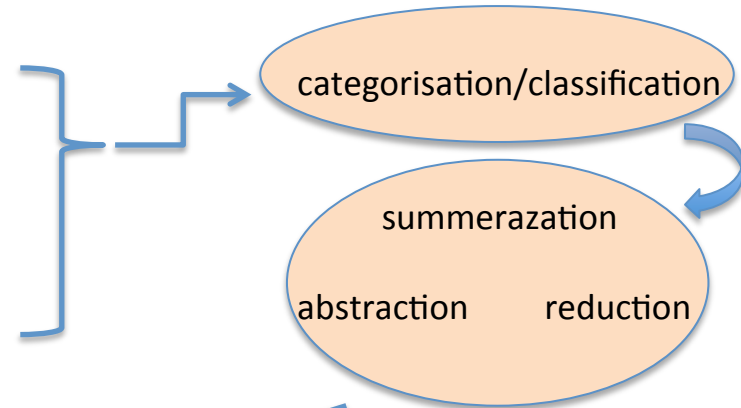   content-based perspective - determined by its intrinsic characteristics
        spanning a certain period

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The "stream-of-ideas"-analysis: the methodological approach

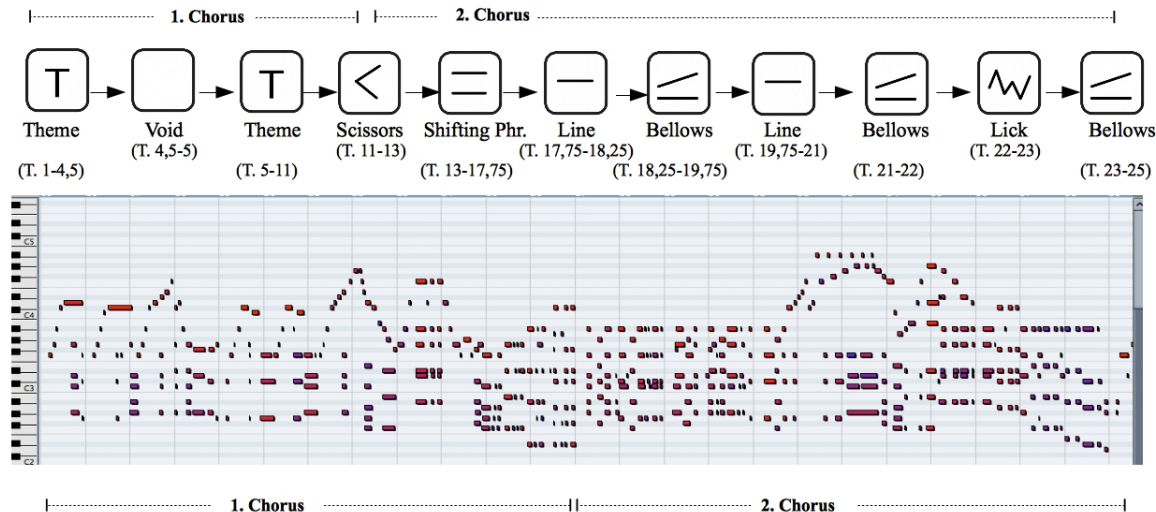## Development and application of the SIA

Segmentation (position and duration/domain of each "idea")

Categorisation (assigning each "idea" to a category
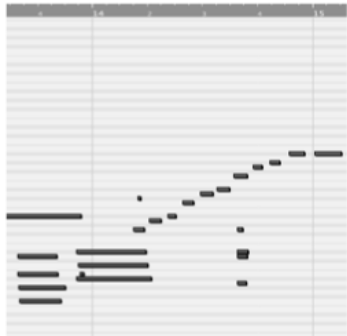(fitting the given characteristics of the "idea"))

categorisation/classification

summerazation

abstraction   reduction

SIA

Improvisation → **gapless sequence/chain of corresponding "ideas"**

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Development and application of the SIA

system of categories
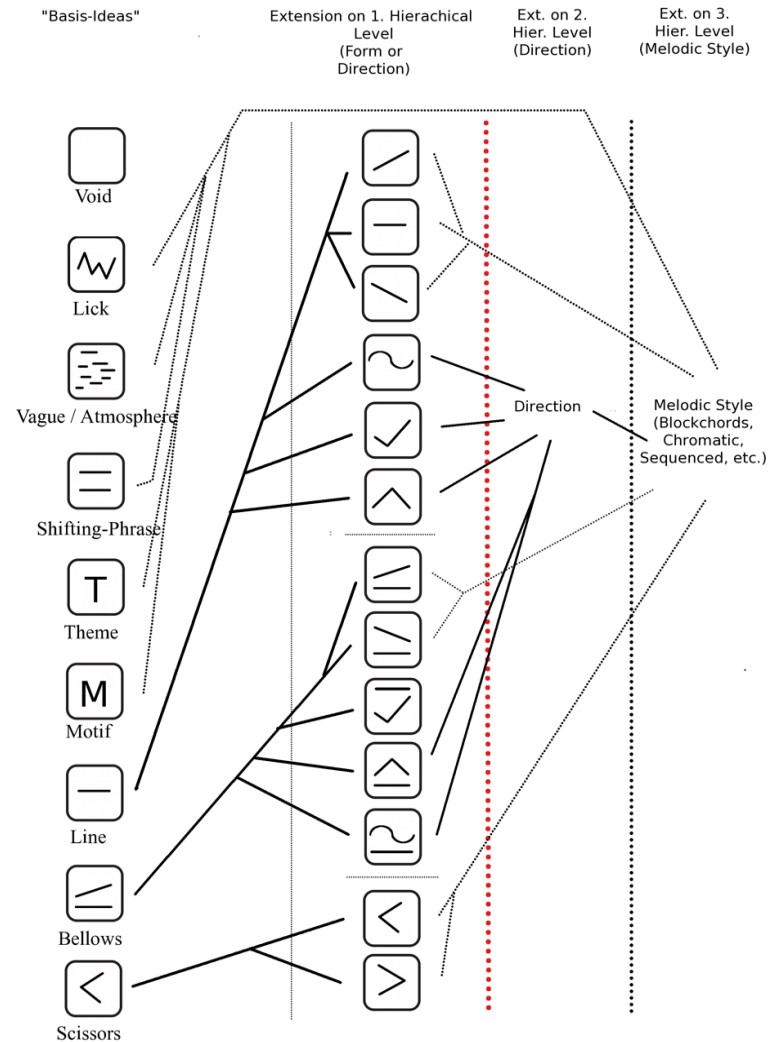
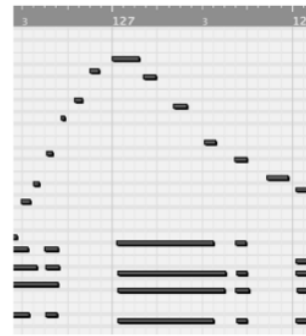Structural Aspects of Jazz Improvisation. A New Approach Based on Mid-Level-Analysis

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„Line"

„line" ascending

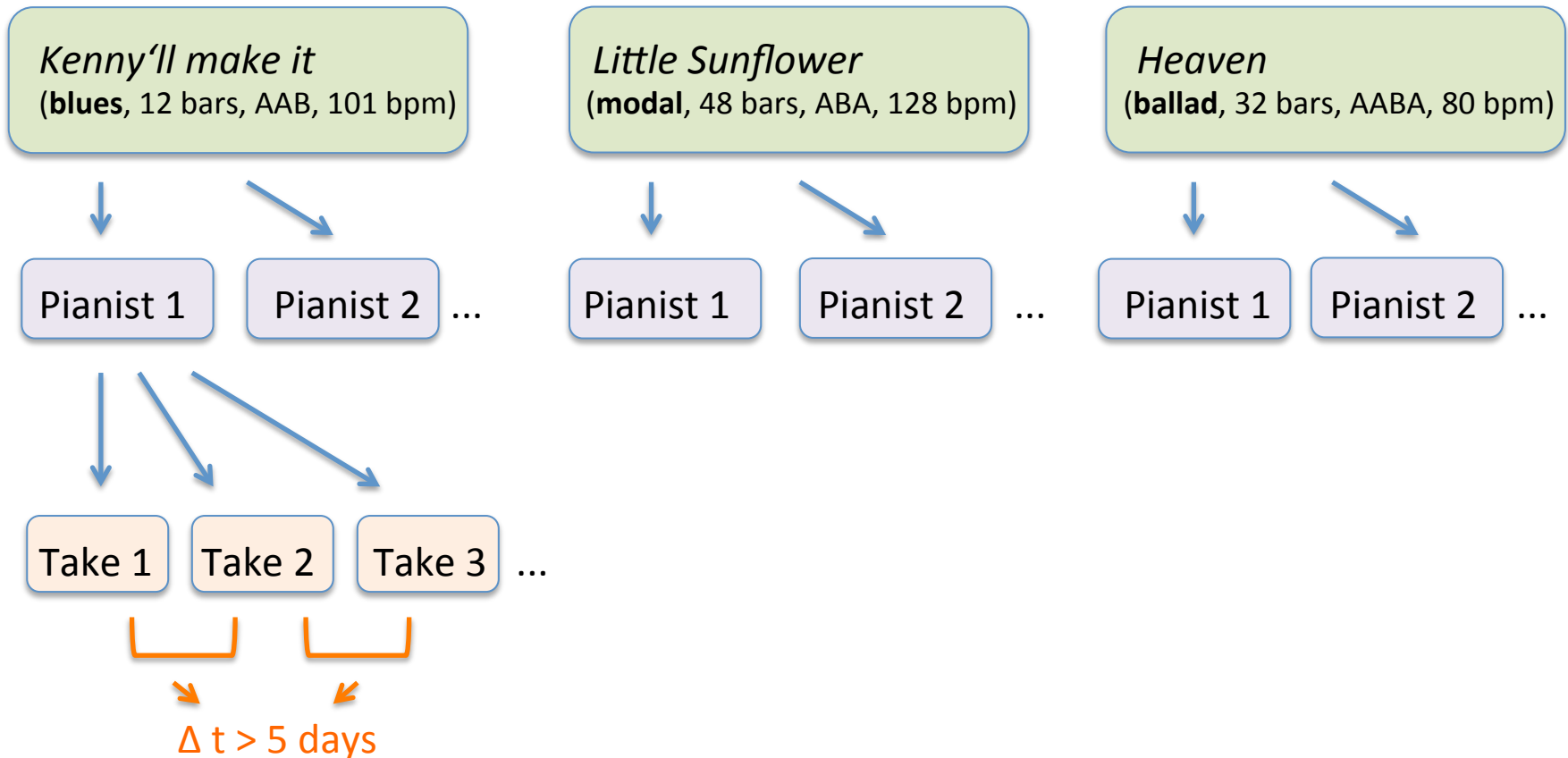„line" convex
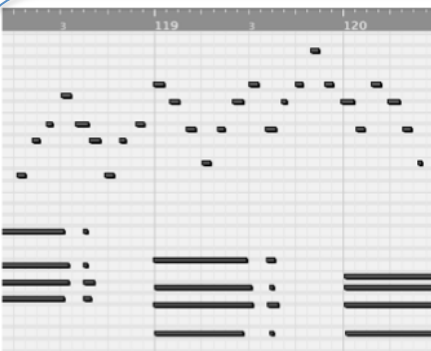
„line" wave
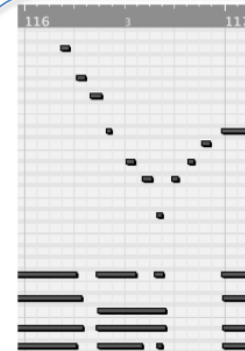
„line" tick (descending long, ascending short)

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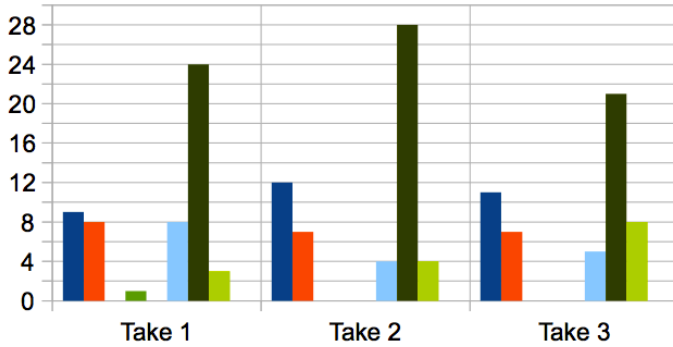## The "stream-of-ideas"-analysis: the methodological approach

Development and application of the SIA

Data = 45 jazz improvisations (piano, chorus-based, 5 jazz pianists, 3 tunes, 3 takes for each tune by every pianist)
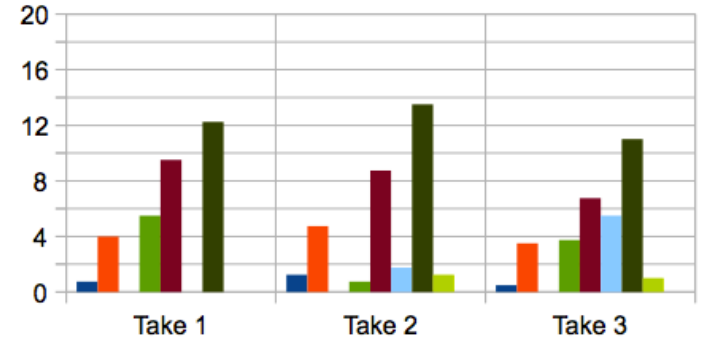
| *Kenny'll make it* (**blues**, 12 bars, AAB, 101 bpm) | *Little Sunflower* (**modal**, 48 bars, ABA, 128 bpm) | *Heaven* (**ballad**, 32 bars, AABA, 80 bpm) |

Pianist 1   Pianist 2   ...   Pianist 1   Pianist 2   ...   Pianist 1   Pianist 2   ...

Take 1   Take 2   Take 3   ...

Δ t > 5 days

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Results

Pianist 5, modal tune

Pianist 3, ballad

Frequency distributions of "ideas"

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The "stream-of-ideas"-analysis: the methodological approach
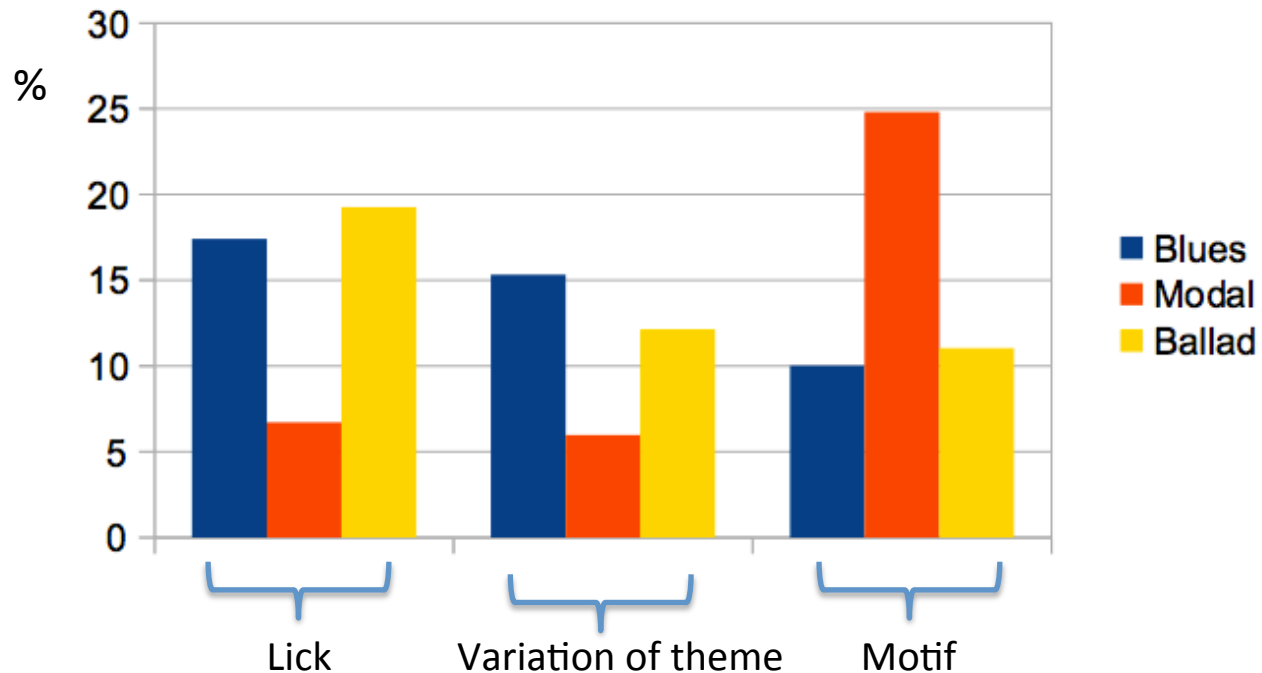
Results

Relative portions (%) of specific "ideas" in connection to the different tunes

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Results

Durations of the "ideas"

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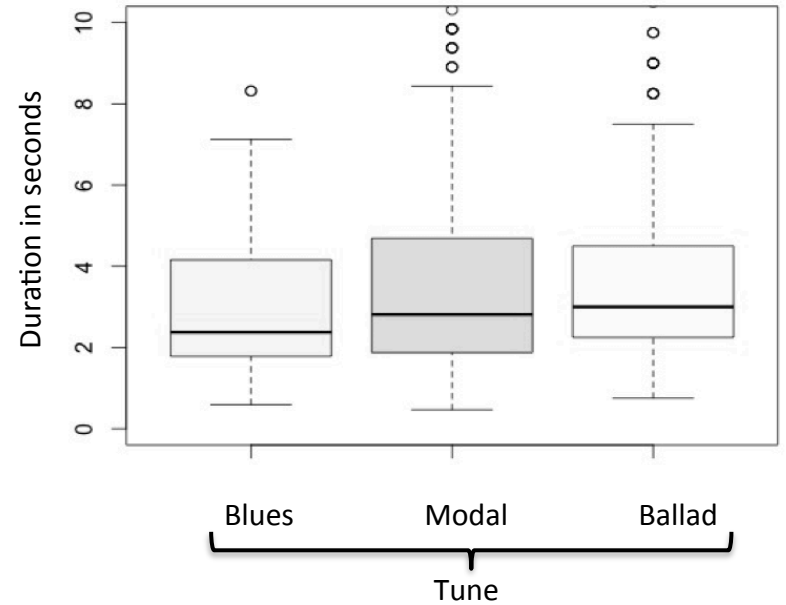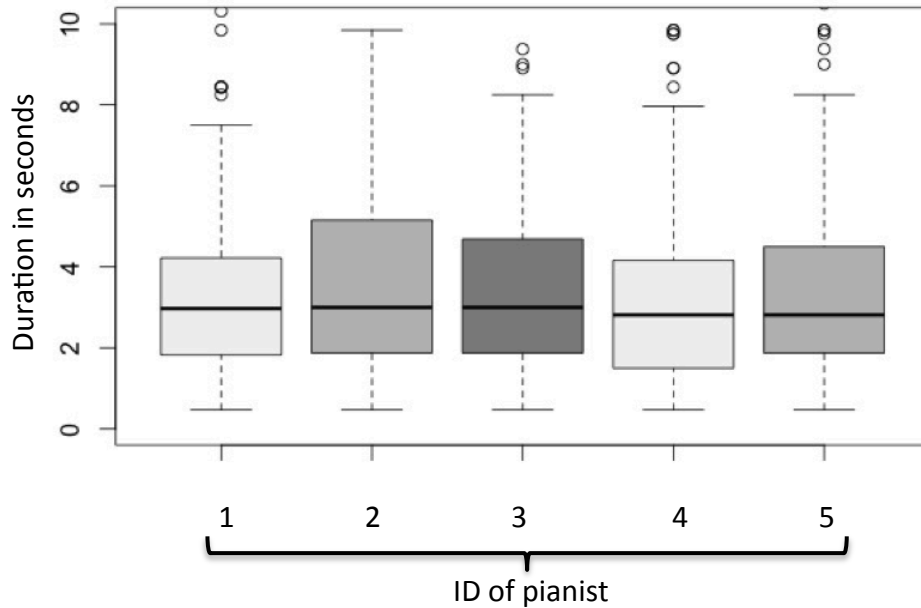
The "stream-of-ideas"-analysis: the methodological approach

Consistency and validity of the SIA

Type		Rate of matching (mean)
Intra-Coder-Consistency	Segmentation	94,7% (98,8%)
	Categorisation	95%
Inter-Coder-Consistency	Segmentation	83,1% (92,4%)
	Categorisation	35,7%

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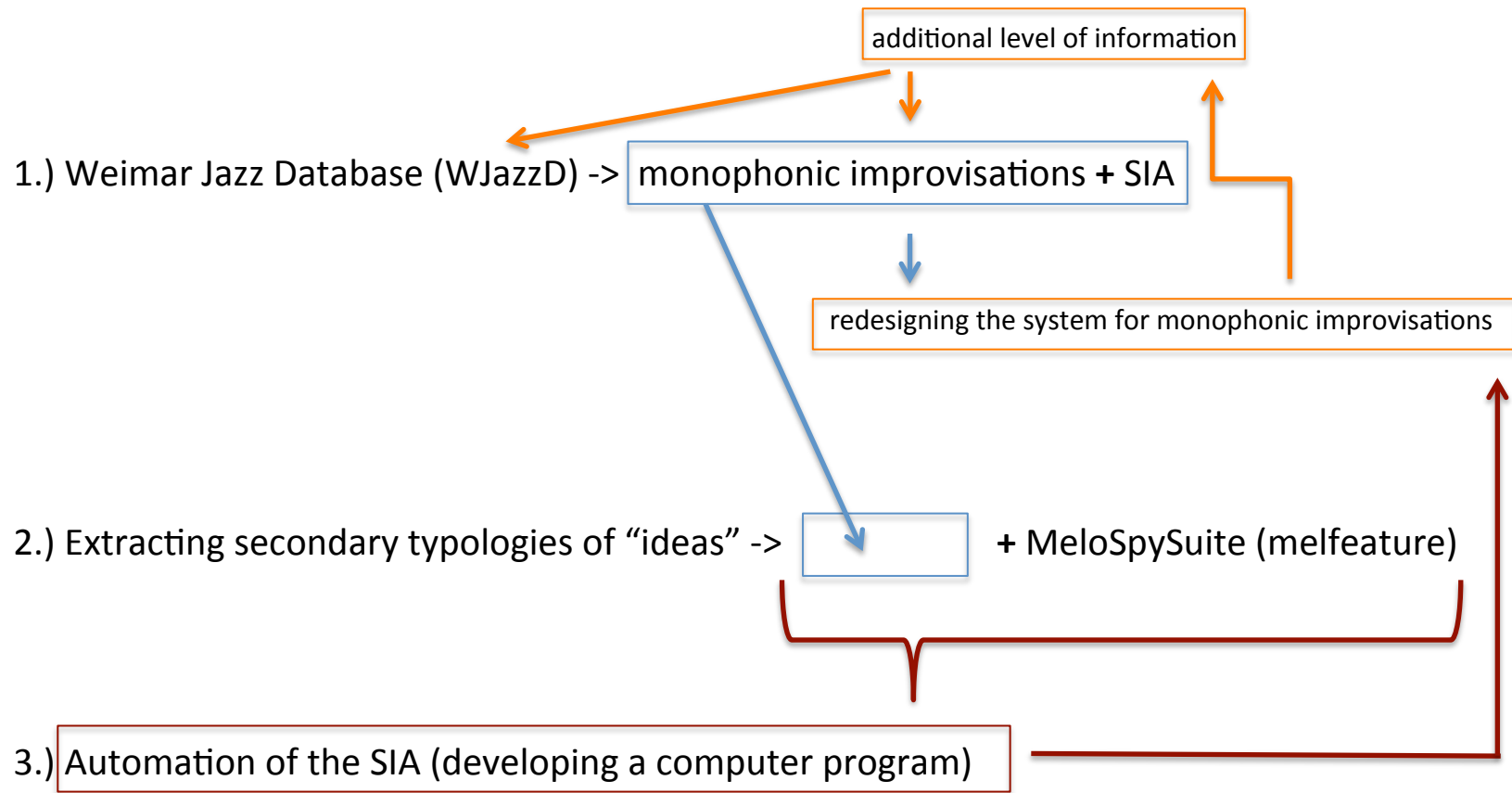# The "stream-of-ideas"-analysis: the methodological approach

Conclusion

+ close relationship to the given data

+ identifying structural elements

+ looking into the structural compositions of

  different jazz improvisations

  + offering a global (person- and reference-

    spanning) basis for comparison

  + revealing hidden structural patterns

    and influencing factors

  + facilitating additional findings

    concerning the process of

    improvisation

+ high degree of intra-coder-consistency

+ evaluated and approved by different jazz

  pianists

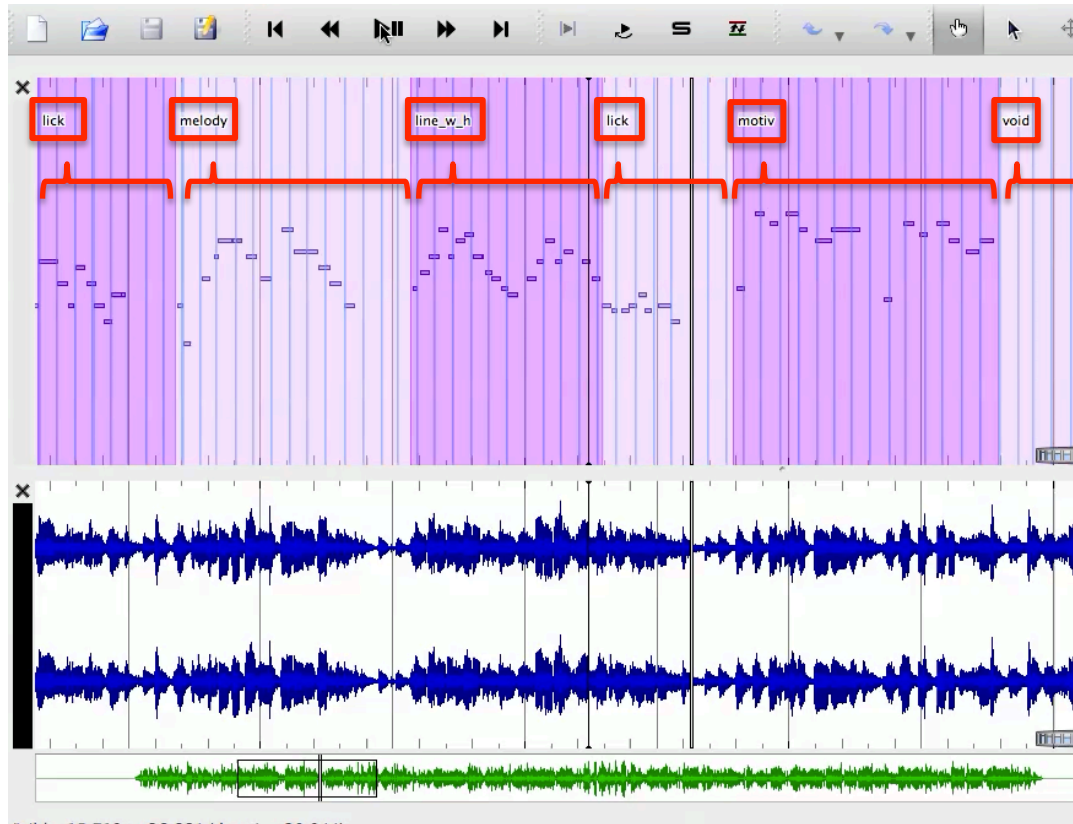currently designed for
jazz piano improvisation

- manually performed analysis

  - coder needs experience with jazz

    improvisation and the usage of SIA

  - problems with inter-coder-consistency

    - deferring individual viewpoints to the

      given definitions within the system

    - definitions may offer some room for

      interpretation

  - much time and large amount of work

    involved

    - limiting the amount of data that could be

      processed

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The "stream-of-ideas"-analysis & the "Jazzomat"-project: possibilities & links

additional level of information

1.) Weimar Jazz Database (WJazzD) -> monophonic improvisations **+ SIA**

redesigning the system for monophonic improvisations

2.) Extracting secondary typologies of "ideas" -> **+ MeloSpySuite (melfeature)**

3.) Automation of the SIA (developing a computer program)

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The "stream-of-ideas"-analysis in connection to Jazzomat-project

Sonny Rollins – Tenor Madness (176,2 bpm)

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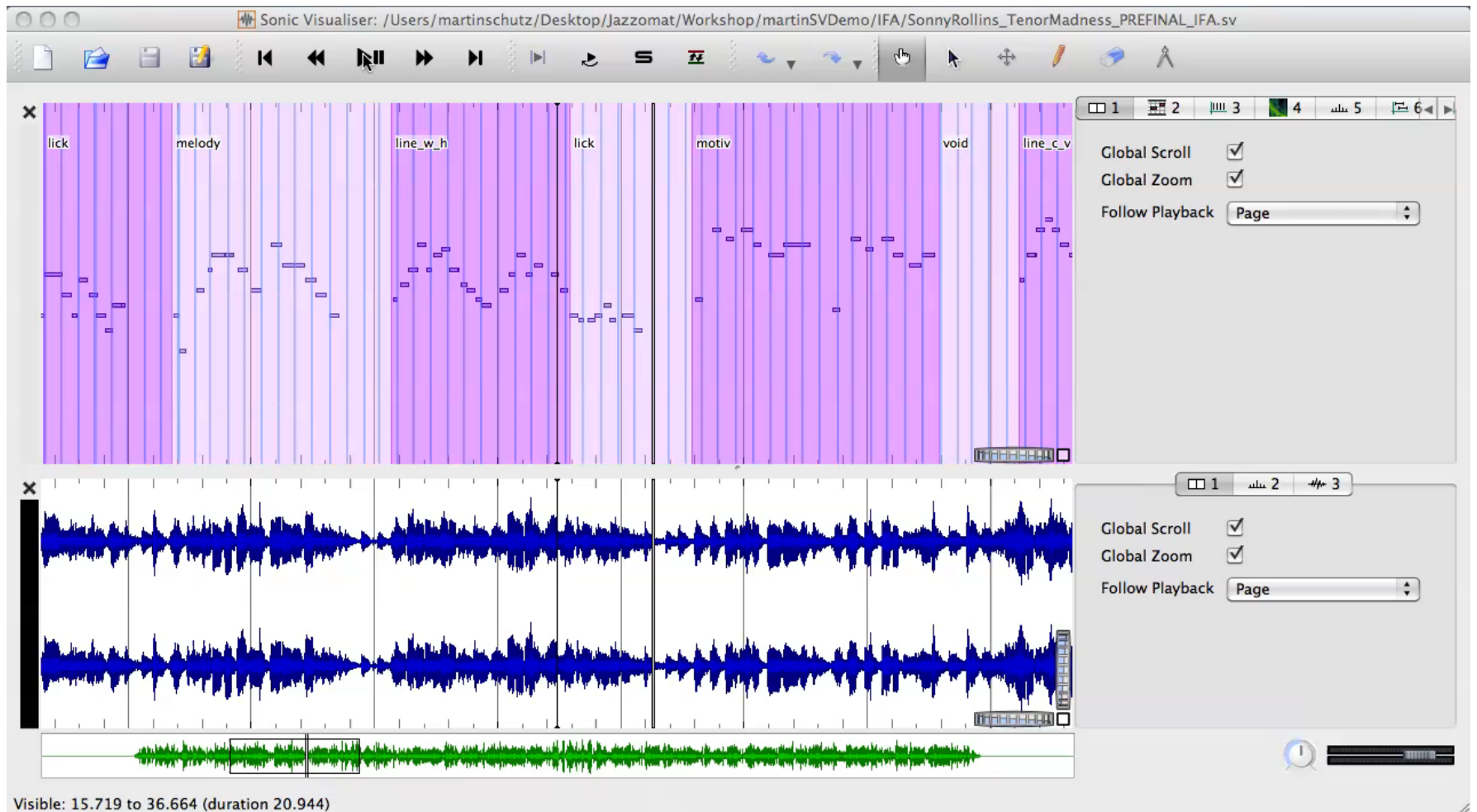
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Bob Berg – Angels (270,3 bpm)

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John Coltrane – Countdown (337,4 bpm)

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Joe Henderson – Punjab (160,3 bpm)

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