

Modeling Music for Musicologists:

A Linked Open Data Approach

Mark Saccomano, Elisabete Shibata, David Lewis, Andrew Hankinson, Kevin Page

27 July 2022
DH2022 Tokyo

“... in private, in the home, informally for its own sake,
(perhaps with one or two people casually listening in).”

Bashford, Christina. 2010. “Historiography and Invisible Musics: Domestic Chamber Music in Nineteenth-Century Britain.” *Journal of the American Musicological Society* 63, no. 2: 291–360.



Silvestro Lega, *Il canto di uno stornello*, 1868.
<https://commons.wikimedia.org/w/index.php?curid=1549934>



George Kershaw, *Savile Green Septette Party*, 1836.
Bashford, 2010.

Beethoven, 7th Symphony
second movement

Annotations:

describing,
commenting,
linking

Musicological
Objects

Musical
Objects

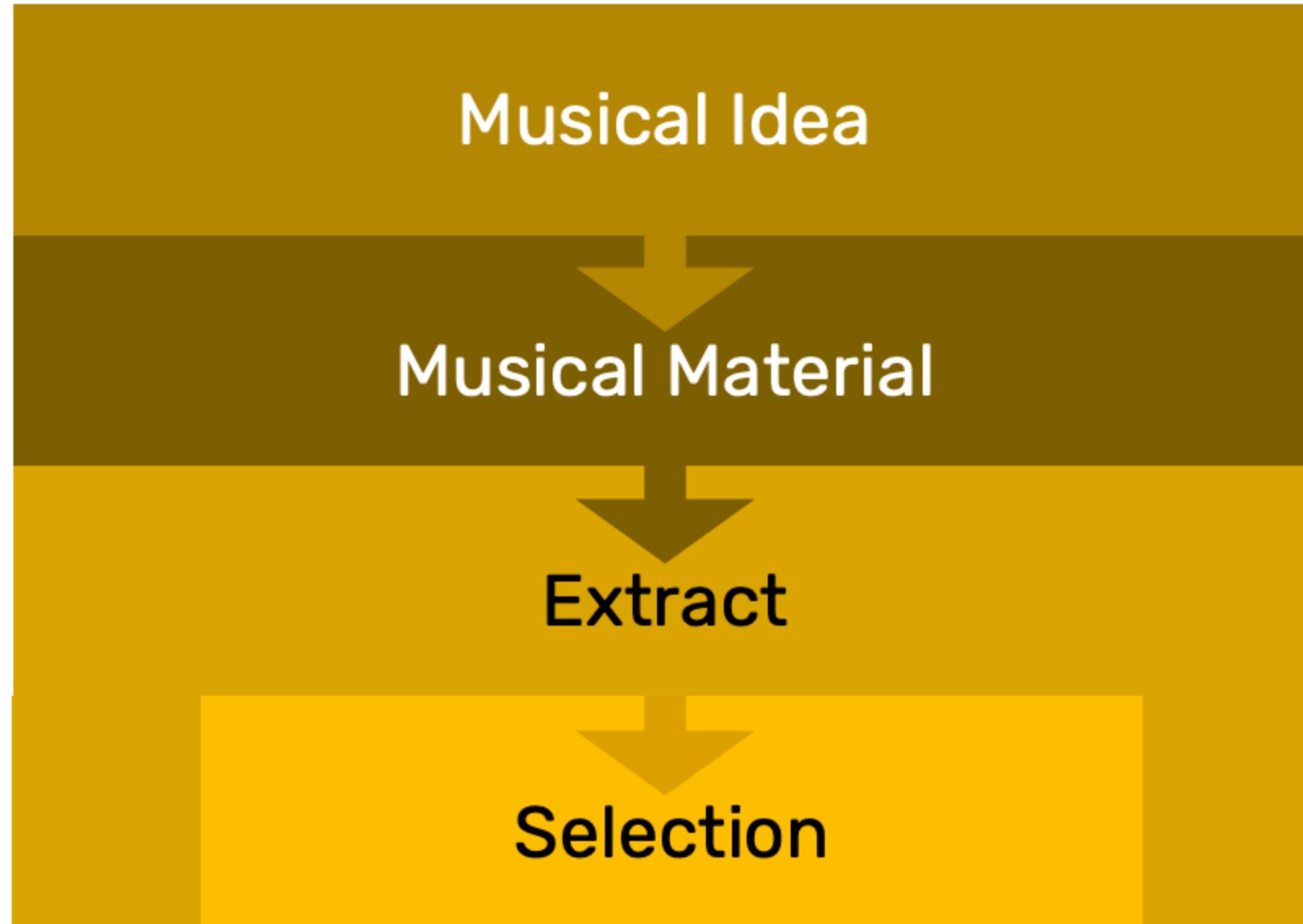
Evidence
Objects

Resources:

URIs



Musical Objects



Work

Expression

Manifestation

Item

FRBR:

Functional
Requirements for
Bibliographic
Records

Work

Expression

Manifestation

Musical Idea

Musical Material

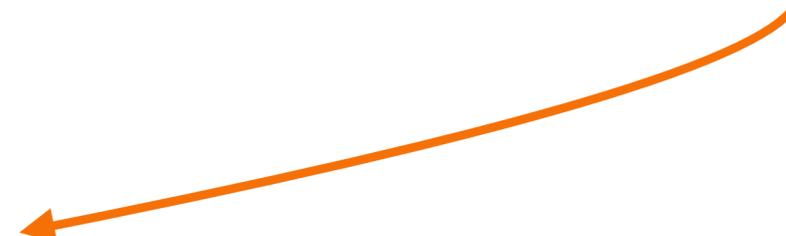
Extract

Selection

Reference

Resource

is realized by



is embodied by



has members



has parts

Musical Idea

**Musical
Material**

Extract

Selection

Reference

Resource

D-BNbaC92_48.mei

A-Wn_Schalk_444.mei

D-BNbaC92_48.mei

Resource

A-Wn_Schalk_444.mei

L. van Beethoven
7th Symphony

D-BNbaC_SILCH_5.mei

Friedrich Silcher,
“Gesang der Peri’s”

D-BNbaC92_48.mei

Josiah Pittman,
“The Epiphany:
Star Shining Brightly”

Selection

Beethoven
measures 3 - 10

Silcher
measures 1 - 8

Pittman
measures 3 - 10

Resource

A-Wn_Schalk_444.mei
L. van Beethoven
7th Symphony

D-BNbaC_SILCH_5.mei
Friedrich Silcher,
“Gesang der Peri’s”

D-BNbaC92_48.mei
Josiah Pittman,
“The Epiphany:
Star Shining Brightly”

Selection

Beethoven
measures 3 - 10

Silcher
measures 1 - 8

Pittman
measures 3 - 10

Reference

A-Wn_Schalk_444.mei#m3b7
A-Wn_Schalk_444.mei#m21d
...

D-BNbaC_SILCH_5.mei#nbe9
D-BNbaC_SILCH_5.mei#n626
...

D-BNbaC92_48.mei#nbe9
D-BNbaC92_48.mei#n626
...

Resource

A-Wn_Schalk_444.mei
L. van Beethoven
7th Symphony

D-BNbaC_SILCH_5.mei
Friedrich Silcher,
“Gesang der Peri’s”

D-BNbaC92_48.mei
Josiah Pittman,
“The Epiphany:
Star Shining Brightly”

Extract

**Beethoven 7th
2nd movement
theme**

**German vocal version
F. Silcher
1st verse**

**English vocal version
J. Pittman
1st verse**

Selection

**Beethoven
measures 3 - 10**

**Silcher
measures 1 - 8**

**Pittman
measures 3 - 10**

Reference

A-Wn_Schalk_444.mei#m3b7
A-Wn_Schalk_444.mei#m21d
...

D-BNbaC_SILCH_5.mei#nbe9
D-BNbaC_SILCH_5.mei#n626
...

D-BNbaC92_48.mei#nbe9
D-BNbaC92_48.mei#n626
...

Resource

A-Wn_Schalk_444.mei
L. van Beethoven
7th Symphony

D-BNbaC_SILCH_5.mei
Friedrich Silcher,
“Gesang der Peri’s”

D-BNbaC92_48.mei
Josiah Pittman,
“The Epiphany:
Star Shining Brightly”

Extract

Beethoven 7th
2nd movement
theme

German vocal version
F. Silcher
1st verse

English vocal version
J. Pittman
1st verse

Selection

Beethoven
measures 3 - 10

Silcher
measures 1 - 8

Pittman
measures 3 - 10

Reference

A-Wn_Schalk_444.mei#m3b7
A-Wn_Schalk_444.mei#m21d
. . .

D-BNbaC_SILCH_5.mei#nbe9
D-BNbaC_SILCH_5.mei#n626
. . .

D-BNbaC92_48.mei#nbe9
D-BNbaC92_48.mei#n626
. . .

D-BNbaC92_48.mei

Resource

A-Wn_Schalk_444.mei
L. van Beethoven
7th Symphony

D-BNbaC_SILCH_5.mei
Friedrich Silcher,
“Gesang der Peri’s”

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Extract

Beethoven 7th
2nd movement
theme

German vocal version
F. Silcher
1st verse

English vocal version
J. Pittman
1st verse

Selection

Beethoven
measures 3 - 10

Silcher
measures 1 - 8

Pittman
measures 3 - 10

Reference

A-Wn_Schalk_444.mei#m3b7
A-Wn_Schalk_444.mei#m21d
...

D-BNbaC_SILCH_5.mei#nbe9
D-BNbaC_SILCH_5.mei#n626
...

D-BNbaC92_48.mei#nbe9
D-BNbaC92_48.mei#n626
...

D-BNbaC92_48.mei

Resource

A-Wn_Schalk_444.mei
L. van Beethoven
7th Symphony

D-BNbaC_SILCH_5.mei
Friedrich Silcher,
"Gesang der Peri's"

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Extract

Beethoven 7th
2nd movement
theme

German vocal version
F. Silcher
1st verse

English vocal version
J. Pittman
1st verse

Selection

Beethoven
measures 3 - 10

Silcher
measures 1 - 8

Pittman
measures 3 - 10

Reference

A-Wn_Schalk_444.mei#m3b7
A-Wn_Schalk_444.mei#m21d
...

D-BNbaC_SILCH_5.mei#nbe9
D-BNbaC_SILCH_5.mei#n626
...

D-BNbaC92_48.mei#nbe9
D-BNbaC92_48.mei#n626
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D-BNbaC92_48.mei

D-BNbaC92_48.jpg

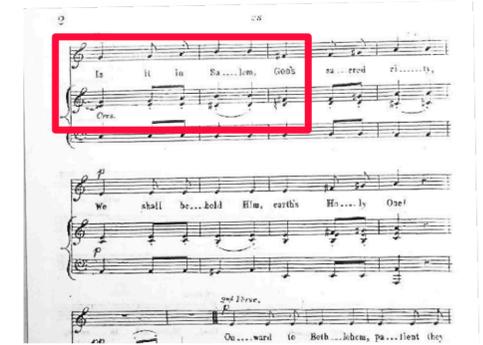
Resource

A-Wn_Schalk_444.mei
L. van Beethoven
7th Symphony

D-BNbaC_SILCH_5.mei
Friedrich Silcher,
"Gesang der Peri's"

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          stem.dir="down"/>

```



Extract

Beethoven 7th
2nd movement
theme

German vocal version
F. Silcher
1st verse

English vocal version
J. Pittman
1st verse

Selection

Beethoven
measures 3 - 10

Silcher
measures 1 - 8

Pittman
measures 3-10
MEI

Pittman
measures 3-10
facsimile

Reference

A-Wn_Schalk_444.mei#m3b7
A-Wn_Schalk_444.mei#m21d
...

D-BNbaC_SILCH_5.mei#nbe9
D-BNbaC_SILCH_5.mei#n626
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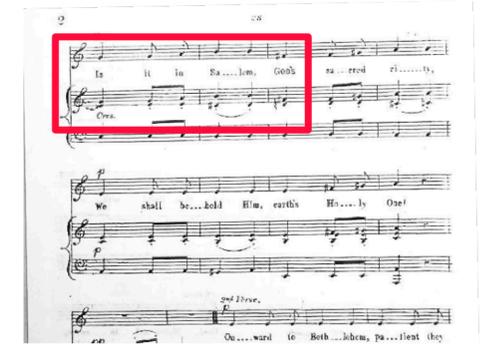
D-BNbaC92_48.jpg

Resource

A-Wn_Schalk_444.mei
L. van Beethoven
7th Symphony

D-BNbaC_SILCH_5.mei
Friedrich Silcher,
"Gesang der Peri's"

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dur="4"
oct="5"
pname="g"/>
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dur="8"
oct="5"
pname="g"
stem.dir="down"/>
```



Extract

Beethoven 7th
2nd movement
theme

German vocal version
F. Silcher
1st verse

English vocal version
J. Pittman
1st verse

Selection

Beethoven
measures 3 - 10

Silcher
measures 1 - 8

Pittman
measures 3-10
MEI

Pittman
measures 3-10
facsimile

Reference

A-Wn_Schalk_444.mei#m3b7
A-Wn_Schalk_444.mei#m21d
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D-BNbaC_SILCH_5.mei#nbe9
D-BNbaC_SILCH_5.mei#n626
...

D-BNbaC92_48.mei#nbe9
D-BNbaC92_48.mei#n626
...

D-BNbaC_SILCH_5.jpg
#xywh=10,50,500,200

D-BNbaC92_48.mei

D-BNbaC92_48.jpg

Resource

A-Wn_Schalk_444.mei
L. van Beethoven
7th Symphony

D-BNbaC_SILCH_5.mei
Friedrich Silcher,
"Gesang der Peri's"

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          pname="c"/>
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          oct="5"
          pname="g"
          stem.dir="down"/>

```



Extract

**Beethoven 7th
2nd movement
theme**

**German vocal version
F. Silcher
1st verse**

**English vocal version
J. Pittman
1st verse**

Selection

**Beethoven
measures 3 - 10**

**Silcher
measures 1 - 8**

**Pittman
measures 3 - 10**

Reference

A-Wn_Schalk_444.mei#m3b7
A-Wn_Schalk_444.mei#m21d
...

D-BNbaC_SILCH_5.mei#nbe9
D-BNbaC_SILCH_5.mei#n626
...

D-BNbaC92_48.mei#nbe9
D-BNbaC92_48.mei#n626
...

Resource

A-Wn_Schalk_444.mei
L. van Beethoven
7th Symphony

D-BNbaC_SILCH_5.mei
Friedrich Silcher,
“Gesang der Peri’s”

D-BNbaC92_48.mei
Josiah Pittman,
“The Epiphany:
Star Shining Brightly”

Musical Material

Beethoven 7th, 2nd mvt theme

Extract

**Beethoven 7th
2nd movement
theme**

**German vocal version
F. Silcher
1st verse**

**English vocal version
J. Pittman
1st verse**

Selection

**Beethoven
measures 3 - 10**

**Silcher
measures 1 - 8**

**Pittman
measures 3 - 10**

Reference

A-Wn_Schalk_444.mei#m3b7
A-Wn_Schalk_444.mei#m21d
...

D-BNbaC_SILCH_5.mei#nbe9
D-BNbaC_SILCH_5.mei#n626
...

D-BNbaC92_48.mei#nbe9
D-BNbaC92_48.mei#n626
...

Resource

A-Wn_Schalk_444.mei
L. van Beethoven
7th Symphony

D-BNbaC_SILCH_5.mei
Friedrich Silcher,
“Gesang der Peri’s”

D-BNbaC92_48.mei
Josiah Pittman,
“The Epiphany:
Star Shining Brightly”

Musical Material

Beethoven 7th, 2nd mvt theme — first time

Extract

**Beethoven 7th
2nd movement
theme**

**German vocal version
F. Silcher
1st verse**

**English vocal version
J. Pittman
1st verse**

Selection

**Beethoven
measures 3 - 10**

**Silcher
measures 1 - 8**

**Pittman
measures 3 - 10**

Reference

A-Wn_Schalk_444.mei#m3b7
A-Wn_Schalk_444.mei#m21d
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D-BNbaC_SILCH_5.mei#nbe9
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...

D-BNbaC92_48.mei#nbe9
D-BNbaC92_48.mei#n626
...

Resource

A-Wn_Schalk_444.mei
L. van Beethoven
7th Symphony

D-BNbaC_SILCH_5.mei
Friedrich Silcher,
“Gesang der Peri’s”

D-BNbaC92_48.mei
Josiah Pittman,
“The Epiphany:
Star Shining Brightly”

**Musical
Material**

**Beethoven 7th, 2nd mvt
theme — first time**

Extract

**Beethoven 7th
2nd movement
theme**

**German vocal version
F. Silcher
1st verse**

**English vocal version
J. Pittman
1st verse**

Selection

**Beethoven
measures 3 - 10**

**Silcher
measures 1 - 8**

**Pittman
measures 3 - 10**

Reference

A-Wn_Schalk_444.mei#m3b7
A-Wn_Schalk_444.mei#m21d
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D-BNbaC_SILCH_5.mei#nbe9
D-BNbaC_SILCH_5.mei#n626
...

D-BNbaC92_48.mei#nbe9
D-BNbaC92_48.mei#n626
...

Resource

A-Wn_Schalk_444.mei
L. van Beethoven
7th Symphony

D-BNbaC_SILCH_5.mei
Friedrich Silcher,
“Gesang der Peri’s”

D-BNbaC92_48.mei
Josiah Pittman,
“The Epiphany:
Star Shining Brightly”

Musical Idea

Musical Material

Extract

Selection

Reference

Resource

Beethoven 7th, 2nd mvt The Theme

**Beethoven 7th, 2nd mvt
theme — first time**

**Beethoven 7th
2nd movement
theme**

**German vocal version
F. Silcher
1st verse**

**English vocal version
J. Pittman
1st verse**

**Beethoven
measures 3 - 10**

**Silcher
measures 1 - 8**

**Pittman
measures 3 - 10**

A-Wn_Schalk_444.mei#m3b7
A-Wn_Schalk_444.mei#m21d
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D-BNbaC_SILCH_5.mei#nbe9
D-BNbaC_SILCH_5.mei#n626
...

D-BNbaC92_48.mei#nbe9
D-BNbaC92_48.mei#n626
...

A-Wn_Schalk_444.mei
L. van Beethoven
7th Symphony

D-BNbaC_SILCH_5.mei
Friedrich Silcher,
“Gesang der Peri’s”

D-BNbaC92_48.mei
Josiah Pittman,
“The Epiphany:
Star Shining Brightly”

**Musical
Material**

Extract

**Beethoven 7th, 2nd mvt
theme — first time**

**Beethoven 7th
2nd movement
theme**

**German vocal version
F. Silcher
1st verse**

**English vocal version
J. Pittman
1st verse**

**Musical
Material**

**Beethoven 7th, 2nd mvt
theme — first time**

```
graph TD; A[Beethoven 7th, 2nd mvt theme — first time] --> B[Beethoven 7th 2nd movement theme]; A --> C[German vocal version F. Silcher 1st verse]; A --> D[English vocal version J. Pittman 1st verse];
```

**Beethoven 7th
2nd movement
theme**

**German vocal version
F. Silcher
1st verse**

**English vocal version
J. Pittman
1st verse**

Extract

**Musical
Material**

**Beethoven 7th, 2nd mvt
theme — first time**

**Beethoven 7th
2nd movement
theme**

**German vocal version
F. Silcher
1st verse**

**English vocal version
J. Pittman
1st verse**

Extract

**Musical
Material**

**Beethoven 7th, 2nd mvt
theme — first time**

Extract

**Beethoven 7th
2nd movement
theme**

**English vocal version
J. Pittman
1st verse**

**German vocal version
F. Silcher
1st verse**

**Musical
Material**

**Beethoven 7th, 2nd mvt
theme — first time**

Extract

annotation

motivation: describing

body: “theme in vla part,
starting on E3”

**Beethoven 7th
2nd movement
theme**

**English vocal version
J. Pittman
1st verse**

**German vocal version
F. Silcher
1st verse**

Musical Material

**Beethoven 7th, 2nd mvt
theme — first time**

Extract

**Beethoven 7th
2nd movement
theme**

**English vocal version
J. Pittman
1st verse**

**German vocal version
F. Silcher
1st verse**

annotation

motivation: describing

body: “theme in vocal and
starting on E3”

annotation

motivation: describing

body: “theme in vocal and
upper voice RH piano,
starting on E4”

Musical Material

Beethoven 7th, 2nd mvt theme — first time

Extract

Beethoven 7th
2nd movement
theme

English vocal version
J. Pittman
1st verse

German vocal version
F. Silcher
1st verse

annotation

motivation: describing

body: “theme in vocal and piano starting on E3”

annotation

motivation: describing

body: “theme in vocal and upper voice starting on E3”

annotation

motivation: describing

body: “theme in vocal and upper voice RH piano, starting on E4”

Musical Material

Beethoven 7th, 2nd mvt theme — first time

annotation

motivation: describing

body: “Melody of the theme is in voice and piano in unison; in orchestral version it is in viola, and an octave lower.”

Extract

annotation

motivation: describing

body: “theme in voice starting on E3”

annotation

motivation: describing

body: “theme in upper voice starting on E4”

annotation

motivation: describing

body: “theme in vocal and upper voice RH piano, starting on E4”

Beethoven 7th 2nd movement theme

**English vocal version
J. Pittman
1st verse**

**German vocal version
F. Silcher
1st verse**

**Musical
Material**

**Beethoven 7th, 2nd mvt
theme — first time**

annotation

motivation: describing

body: “Melody of the theme is in
voice and piano in unison; in
orchestral version it is in viola, and
an octave lower.

Extract

**Beethoven 7th
2nd movement
theme**

**English vocal version
J. Pittman
1st verse**

**German vocal version
F. Silcher
1st verse**

Star Brightly Shining

VOICE. **ALLEGRETTO. p**

PIANO.

Gesang der Peri's

Singstimme **Moderato**

Pianoforte

Workbench

Title: Star Brightly Shining
Arranger: Josiah Pittman

Title: Gesang der Peri's
Arranger: Friedrich Silcher

Parallel Passage Editor

New @id: <https://domesticb.solidcommunity.net/public/bith/musicalMaterials/ab4d24ba-9eed-4101-989f-0fcaadf49c23.ttl>

Label for Parallel Passage

Theme Top Voice

Linked Passages

Passage @id
Pittman top voice

Passage @id
Silcher top voice

Add Passage

cancel save

Star Brightly Shining

VOICE. ALLEGRETTO. *p* 5 10 Cres. - 15
Star bright-ly shin-ing, where dost thou lead us? Ev-er be-fore us, still shin-ing on: Is it in Sa-lem, GOD'S sa-cred ci-ty,

PIANO. *f* *p* *ten* Cres. -

Gesang der Peri's

Singstimme Moderato 5 10
1. Wiegt ihn hin - ü - ber, hüllt ihn in Schlummer, hüllt ihn in Schlummer liebend und lind! Weht ihm aus Blüthen, webt ihm aus Duf-ten weh-end un

Pianoforte *p*

Workbench

Title: Star Brightly Shining
Arranger: Josiah Pittman

Title: Gesang der Peri's
Arranger: Friedrich Silcher

Parallel Passage Editor

New @id: <https://domesticb.solidcommunity.net/public/bith/musicalMaterials/ab4d24ba-9eed-4101-989f-0fcaadf49c23.ttl>

Label for Parallel Passage

- Linked Passages
- Passage @id
Pittman top voice
 - Passage @id
Silcher top voice

Add Passage

cancel save

Star Brightly Shining

VOICE. **ALLEGRETTO. p**

PIANO.

Gesang der Peri's

Singstimme **Moderato**

Pianoforte

Workbench

Title: Star Brightly Shining
Arranger: Josiah Pittman

Title: Gesang der Peri's
Arranger: Friedrich Silcher

Parallel Passage Editor

New @id: <https://domesticb.solidcommunity.net/public/bith/musicalMaterials/ab4d24ba-9eed-4101-989f-0fcaadf49c23.ttl>

Label for Parallel Passage

Linked Passages

Passage @id
Pittman top voice

Passage @id
Silcher top voice

Add Passage

cancel save

Work

Musical Idea

Expression

Musical Material

Manifestation

Extract

Selection

Reference

Resource

is realized by

is embodied by

has members

has parts

Beethoven in the House

Digital Studies of Domestic Music Arrangements

BTHVN

BEETHOVEN-HAUS
BONN



Prof. Dr. Christine Siegert

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