

---

# Variations2: Moving Beyond Access to Pedagogy

---

Mark Notess

24 September 2004

IU Digital Library Brownbag Series





# Outline

- project overview
- current status
- beyond access to use
- Variations2 demo
- possible future directions
- broader applicability?



# Variations2 Overview

- \$3M grant funded by NSF/NEH
- Establish a digital music library testbed system supporting multiple formats: audio, video, score images, score notation
- Develop multiple interfaces for specific user applications in the music library and the classroom
- Conduct research in metadata, usability, copyright, and networking
- Planning to replace VARIATIONS with Variations2 by Summer 2005



# Variations2 Staffing

## Principal Investigator:

- Michael A. McRobbie

## Project Investigators (Abridged):

- Kristine R. Brancolini, Director, Digital Library Program
- Kenneth D. Crews, Professor of Law, Associate Professor of Library and Information Science, and Director, Copyright Management Center
- Philip Ponella, Director, William and Gayle Cook Music Library
- Mary Wallace Davidson, Former Head, William and Gayle Cook Music Library
- Jon W. Dunn, Associate Director for Technology, Digital Library Program, and Senior Technology Advisor, University Libraries
- James Lloyd Fern, Assistant Professor of Music and Manager of Online Learning, University Information Technology Services
- Harriette Hemmasi, Associate Dean and Director of Technical Services, University Libraries
- Eric J. Isaacson, Associate Professor of Music
- Roberta L. Lindsey, Visiting Assistant Professor of Music, IUPUI
- Jenn Riley, Metadata Librarian, Digital Library Program



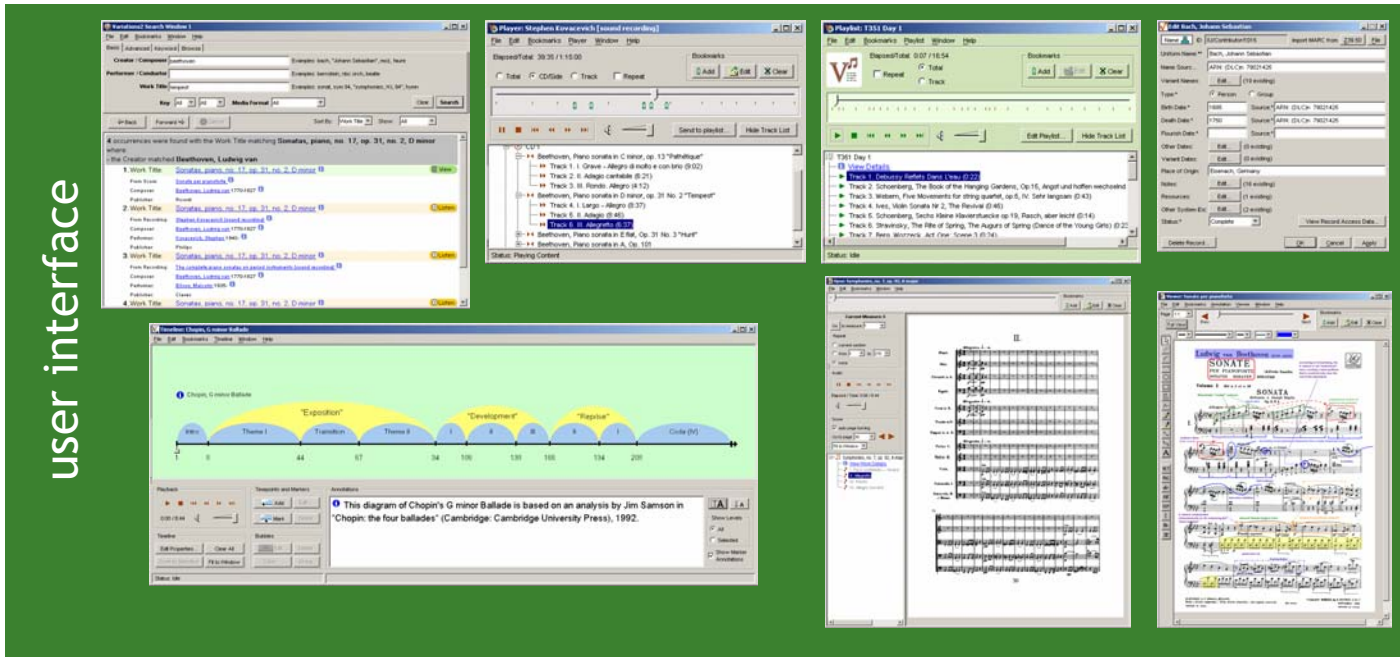
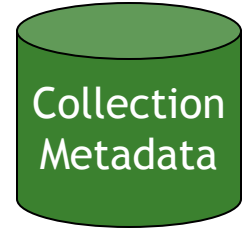
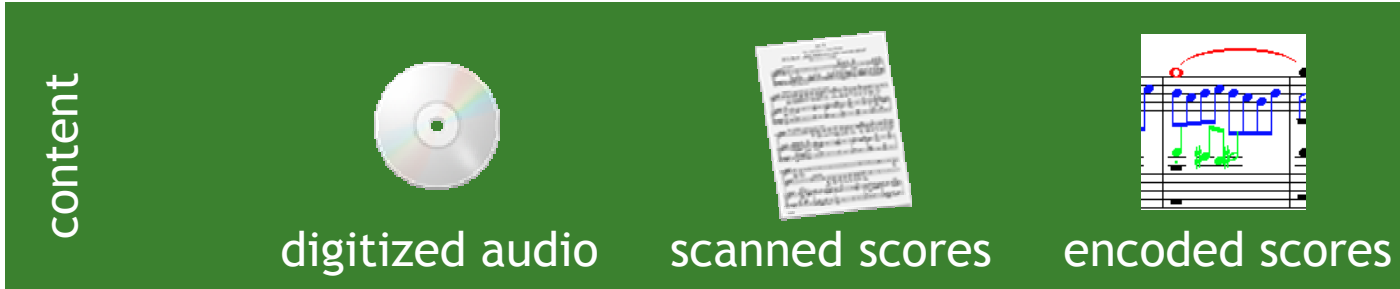
# Variations2 Staffing

## **Project Staff and Graduate Students:**

- Andy Barrett, Graduate Assistant, Music Instruction / Oncourse
- Don Byrd, Research Programmer
- Jim Halliday, Software Analyst/Programmer, System Design/Development
- Caitlin Hunter, Graduate Assistant, Metadata
- Jennifer Jobst, Graduate Assistant, Usability
- Inna Kouper, Graduate Assistant, Usability
- Manoj Kulchania, Software Analyst/Programmer, System Design/Development
- Richard Li, Graduate Assistant, System Design/Development
- Mark Notess, Development Manager
- Ryan Scherle, Software Analyst/Programmer, System Design/Development
- Mona Seghatoleslami, Student Hourly Staff, Metadata
- Ann Shaffer, Graduate Assistant, Metadata
- Dallas Smith, Graduate Assistant, Instructional Design
- Brent Yorgason, Graduate Assistant, Music Theory



# Variations2 Overview



# V<sup>2</sup> Current Status (September 2004)

- 427 recordings & scores
- 660 “creator” records (composers, lyricists...)
- 922 “performers” (individuals, ensembles...)
- 2068 distinct musical works
- Version 3 deployed at IUB and IUPUI
- In third year of pilot projects—6 classes using it this fall
- Pilots include installation of Variations2 client software on students’ own computers; access control limits media use outside library to course reserve material



# Beyond Access to Use

HEY KITTY, ANOTHER  
EXCITING DAY OF  
ACCESSING CONTENT!



What do users  
want to do **AFTER**  
finding what they  
want?



# V<sup>♯</sup> Beyond Access to Use - Teaching



## Teaching

- create course reserves list
- present, analyze, compare excerpts in class
- create/grade assignments
- give quizzes & exams

# V<sup>3</sup> Beyond Access to Use - Learning



## Learning

- prepare for class (well, sometimes)
- complete & submit assignments
- prepare class presentations
- study for quizzes & exams



# Variations2 Demo

**Variations2 Search Window 1**

File Edit Bookmarks Window Help

Basic | Advanced | Keyword | Browse

**Creator / Composer**  Examples: bach, "Johann Sebastian", moz, faure

**Performer / Conductor**  Examples: bernstein, nbc orch, beatle

**Work Title**  Examples: sonat, sym 94, "symphonies, H.I, 94", hymn

Key   Media Format

Sort By:  Show:

4 occurrences were found with the Work Title matching **Sonatas, piano, no. 17, op. 31, no. 2, D minor** where:  
- the Creator matched **Beethoven, Ludwig van**

1. Work Title: [Sonatas, piano, no. 17, op. 31, no. 2, D minor](#)   
From Score: [Sonate per pianoforte](#)   
Composer: [Beethoven, Ludwig van](#) 1770-1827   
Publisher: Ricordi
2. Work Title: [Sonatas, piano, no. 17, op. 31, no. 2, D minor](#)   
From Recording: [Stephen Kovacevich \[sound recording\]](#)   
Composer: [Beethoven, Ludwig van](#) 1770-1827   
Performer: [Kovacevich, Stephen](#) 1940-   
Publisher: Philips
3. Work Title: [Sonatas, piano, no. 17, op. 31, no. 2, D minor](#)   
From Recording: [The complete piano sonatas on period instruments \[sound recording\]](#)   
Composer: [Beethoven, Ludwig van](#) 1770-1827   
Performer: [Bilson, Malcolm](#) 1935-   
Publisher: Claves
4. Work Title: [Sonatas, piano, no. 17, op. 31, no. 2, D minor](#)





# Variations2 Demo

**Player: Stephen Kovacevich [sound recording]**

File Edit Bookmarks Player Window Help

Elapsed/Total: 39:35 / 1:15:00

Total  CD/Side  Track  Repeat

Bookmarks:

Send to playlist... Hide Track List

- CD 1
  - ▶▶ Beethoven, Piano sonata in C minor, op. 13 "Pathétique"
    - ▶▶ Track 1. I. Grave - Allegro di molto e con brio (9:02)
    - ▶▶ Track 2. II. Adagio cantabile (6:21)
    - ▶▶ Track 3. III. Rondo. Allegro (4:12)
  - ▶▶ Beethoven, Piano sonata in D minor, op. 31 No. 2 "Tempest"
    - ▶▶ Track 4. I. Largo - Allegro (8:37)
    - ▶▶ Track 5. II. Adagio (8:46)
    - ▶▶ **Track 6. III. Allegretto (6:37)**
  - ▶▶ Beethoven, Piano sonata in E flat, Op. 31 No. 3 "Hunt"
  - ▶▶ Beethoven, Piano sonata in A, Op. 101

Status: Playing Content



# Variations2 Demo

The screenshot displays a music notation software window titled "Opus: Symphonies, no. 7, op. 92, A major". The interface includes a menu bar (File, Edit, Bookmarks, Window, Help), a toolbar with "Add", "Edit", and "Clear" buttons, and a "Current Measure: 5" display. The main score area shows the second movement, "II. Allegretto, J. = 78", with staves for Flauti, Oboi, Clarineti in A, Fagotti, Cori in E, Trombe in D, Timpani in A. E., Violino I., Violino II., Viola, Violoncello I., and Violoncello II. e Basso. The score is on page 30, with a page number "15" visible at the bottom left of the score area. The left sidebar contains a "Score" section with "auto page turning" checked, a "Go to page" field set to 30, and a "Fit to Window" button. Below this is a "View Work Details" link and a list of movements: I. Poco sostenuto - Vivace, II. Allegretto (selected), III. Presto, and IV. Allegro con brio.



# Variations2 Demo

Viewer: Sonate per pianoforte

File Edit Bookmarks Annotation Viewer Window Help

Page 1:1

Full View

Prev Next

Bookmarks

Add Edit Clear

Ludwig van Beethoven (1770 - 1827)

**SONATE**  
PER PIANOFORTE  
SONATES SONATEN SONATAS

(Alfredo Casella)

Volume I Del n. 1 al n. 16

**SONATA**  
dedicata a Joseph Haydn  
Op. 2 N. 1

according to Schoenberg, the E natural is not "neutralized" here, creating a tonal problem that is resolved only near the end of the movement.

Mannheim "rocket" osture

Allegro - *Vivace*

compressed version of previous two gestures

ascending rocket gesture compressed into a single doublebeat event

transition

Half cadence

express

two-voice imitation

E natural reinterpreted enharmonically as F#, enhancing the "tonal confusion"

second theme begins here

related to transitional material!

pedal tone Eb

fractured imitation

*poco cres.*

© RICORDI & C. MILANO.  
Tutti i diritti riservati. - Tous droits réservés. - All rights reserved. RR 2412 (Copyright) WOLFF, by G. RICORDI & Co.)  
RISTAMPA 1995  
PRINTED IN ITALY



# Variations2 Demo

The screenshot displays the Variations2 software interface. The main window, titled "Playlist: T351", has a menu bar with "File", "Edit", "Bookmarks", "Playlist", "Admin", "Window", and "Help". The interface includes a logo, a progress bar showing "Elapsed/Total: 0:09 / 1:08:33", and playback controls such as "Repeat", "Pause after track", "Total", and "Track". A "Bookmarks" section contains "Add", "Edit", and "Clear" buttons. Below the progress bar are playback buttons (play, stop, previous, next) and a volume slider. A "Quiz window for: T351" is open in the foreground, showing options to "Start at random place in track" (selected) or "Start from beginning only". It also features an "Excerpt Length" dropdown set to "30 seconds" and a "Play Random Excerpt" button. The background window shows a track list with "lent (4:58)" highlighted. The status bar at the bottom indicates "Status: Idle".



# Variations2 Demo

**Timeline: Chopin, G minor Ballade**

File Edit Bookmarks Timeline Admin Window Help

**i** Chopin, G minor Ballade

Timeline diagram showing sections: Intro, Theme I, Transition, Theme II, "Exposition", "Development" (I, II, III), "Reprise" (II, I), and Coda (IV). Time markers are at 1, 8, 44, 67, 94, 106, 138, 166, 194, and 208.

**Playback**

0:00 / 8:44

**Timepoints and Markers**

Add Edit...  
Mark Delete

**Annotations**

**i** This diagram of Chopin's G minor Ballade is based on an analysis by Jim Samson in *\*Chopin: the four ballades\** (Cambridge: Cambridge University Press), 1992.

Show Levels  
 All  
 Selected  
 Show Marker Annotations

**Timeline**

Edit Properties... Clear All  
Zoom to Selection Fit to Window

**Bubbles**





Edit... Delete  
Color... Group

Status: Idle





# Possible Future Directions

- Oncourse/Sakai-integration
  - quiz/test 
  - assignment submittal
- Integration into full presentation framework
  - multimedia presentation for lecture 
  - real-time interaction/modification
- Collaboration support, e.g. for online study groups 
- Genetically improved syllabi 





# Quiz/Test Integration

The screenshot shows a web browser window with a music player overlay. The music player, titled "Player", displays "Elapsed/Total: 0:16 / 2:46" and a "Repeat" checkbox. It includes a progress bar, playback controls (play, stop, previous, next), a volume slider, and a "Close" button. The status bar at the bottom of the player reads "Status: Playing Content".

The browser window shows the URL "oncourse.iu.edu" and a navigation menu with tabs: "Welcome", "Syllabus", "Schedule", "Class", "In Touch", and "Tools". The main content area displays a quiz question:

**Name that Composer**

1. Who is the composer of this piece?

- A. Brahms
- B. Schubert
- C. Mozart
- D. Bach

Below the options is a "Send" button.





# Online Study Groups

Timeline: CPE Bach, Trio Sonata in C major, Allegro (H 571)

File Edit Bookmarks Timeline Window Help

Rounded binary / early sonata form

[A] [B] [Repeat]

A A3 A4 A5 A1 A2 A3 A4 A5 (A1) (A1 inv) A1' A4' A5' (A1) (A1) (A1 inv) A1' A4' A5'

Playback: 0:01 / 5:57

Timepoints and Markers: Add Edit... Mark Delete

Annotations:

**Rounded binary / early sonata form:** This trio sonata movement was written at a point of transition between the Baroque and Classical eras. Thus, it contains elements of both rounded binary and sonata form, and could be interpreted as either form. The symbols chosen for this diagram suggest rounded binary form, but the annotations contain comments about a sonata form interpretation.

**[A]:** The A section (or Exposition) is repeated.

**A:** The A section has five distinct ideas (A1...A5)

**A1:** primary theme in tonic - used for later development in B section

Timeline: Edit Properties... Clear All Zoom to Selection Fit to Window

Bubbles: Edit... Delete Color... Group

Show Levels: All Selected Show Marker Annotations

Noriko: It's looking good.

James: I'm still not sure about the A4' – can we listen again?

Karita: Sure. Why don't you drive?

Control

- Noriko
- Karita
- James





# Multimedia Presentation

## hyperserialism

Très Modéré (♩ = 120)

PIANO I

ligato sempre

Très Modéré (♩ = 120)

PIANO II

pianissimo

5

5

- Pierre Boulez
  - *Structures 1a*
  - tone rows *and*
  - rhythm rows

1952





# Today's Syllabi

**Indiana University Bloomington Libraries**  
**William and Gayle Cook Music Library**

**M532 - ARVIN - SUMMER 2002**  
**Reserve Recordings**

**20th century voices in America** <sound recording> -- Englewood Cliffs, NJ : VoxBox, p1995.  
\*\*\*ON-LINE LISTENING ONLY\*\*\*  
AKD4878  
[Listen to online copy in VARIATIONS](#)

**A Rossini-Donizetti collection** <sound recording> -- <S.L.> : Centaur Records, p1980.  
\*\*\*ON-LINE LISTENING ONLY\*\*\*  
\*\*\*Frontlog LP\*\*\*  
AK Y3258  
[Listen to online copy in VARIATIONS](#)

**A salute to American music** <sound recording> -- New York : RCA Victor Red Seal ; BMG Music, p1992.  
\*\*\*ON-LINE LISTENING ONLY\*\*\*  
AJJ1494  
[Listen to online copy in VARIATIONS](#)

**Aaron Copland & Leonard Bernstein** <sound recording> -- Sussex, England : Pearl, 1997.  
\*\*\*ON-LINE LISTENING ONLY\*\*\*  
AJJ3915  
[Listen to online copy in VARIATIONS](#)

**Adams, John, 1947-**  
<Wound-dresser>

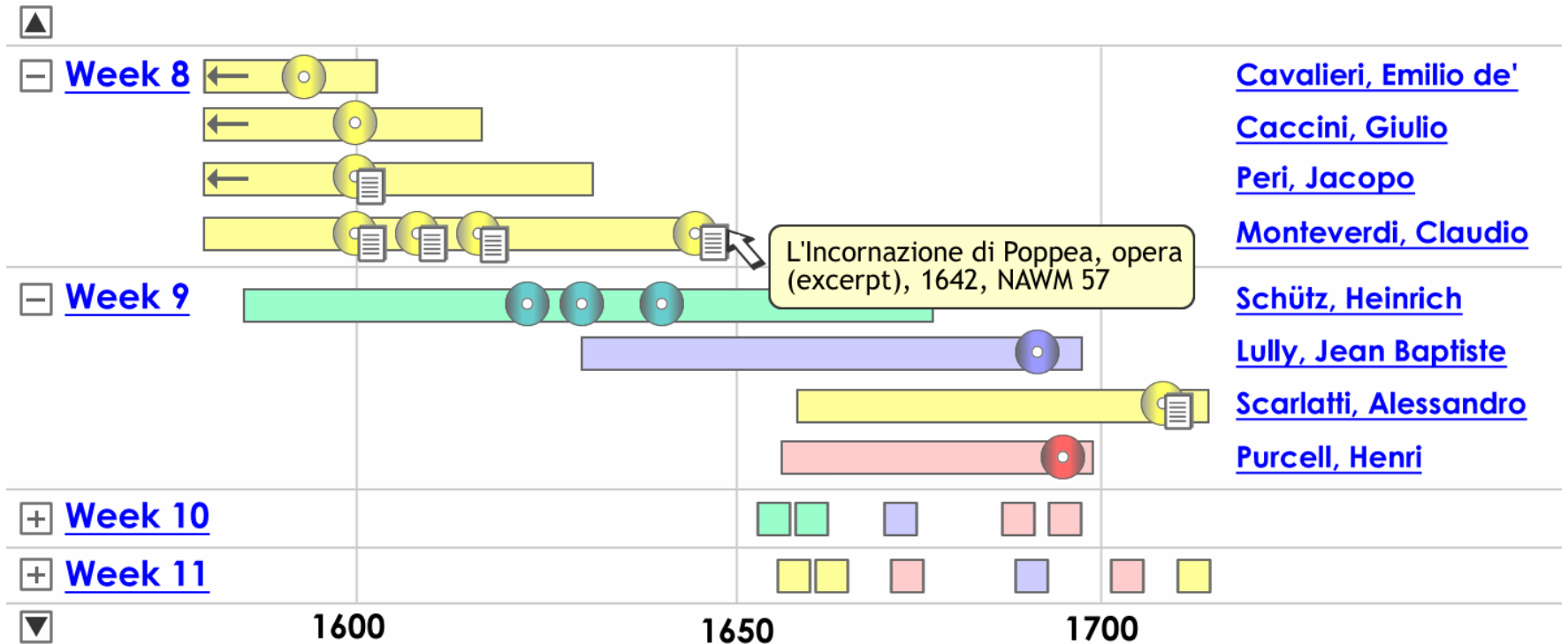
Tuesday, Nov. 5	Schubert
Thursday, Nov. 7	The Mendelssohns
Tuesday, Nov. 12	The Schumanns
Thursday, Nov. 14	Brahms
Tuesday, Nov. 19	Wolf
Thursday, Nov. 21	The Mahlers
Tuesday, Nov. 26	Strauss

(paper syllabus)

Is there a better way?



# Genetically-Improved Syllabi





# A Challenge

“The Task Force agreed unequivocally that the faculty, the library, and the IT and instructional design departments need to collaborate in developing sustainable and seamless infrastructure. ... very few institutions have systemically attained such a coherent strategic approach, principally because there is no common shared language on which to build strategic initiatives.”

- OCLC-sponsored task force



# Other Challenges

- Client-side software installation
- Intellectual property issues
- Sustainability
- Building tools that will be adopted by more than early adopters
- Getting more content in
- Getting more metadata in





# Broader Applicability?

## Questions for discussion

- What other IU digital library projects have gone beyond access to address use?
- How have non-IU projects done this?
- What tools can be used across disciplines?
- Which opportunities offer the greatest ROI?



# More Information

on Variations2

<http://variations2.indiana.edu>

contact me

[mnotess@indiana.edu](mailto:mnotess@indiana.edu)



# Disclaimer

This material is based upon work supported by the National Science Foundation under Grant No. 9909068.

Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.