Wiki::Score
A Collaborative Environment For Music Transcription And Publishing

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Abstract

What?

- collaborative environment for music transcription and editing

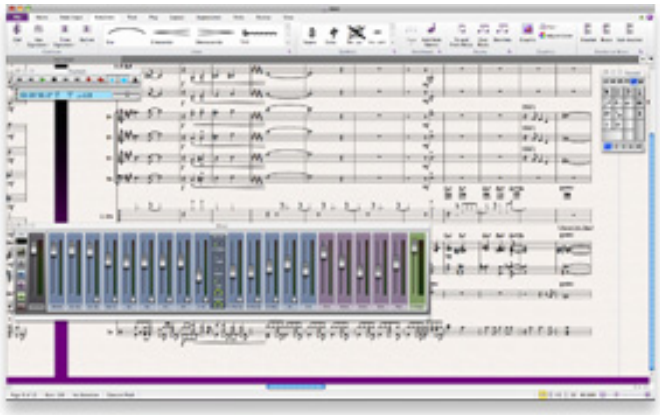
Why?

- transcription takes huge amount of time and is hard
- divide and conquer

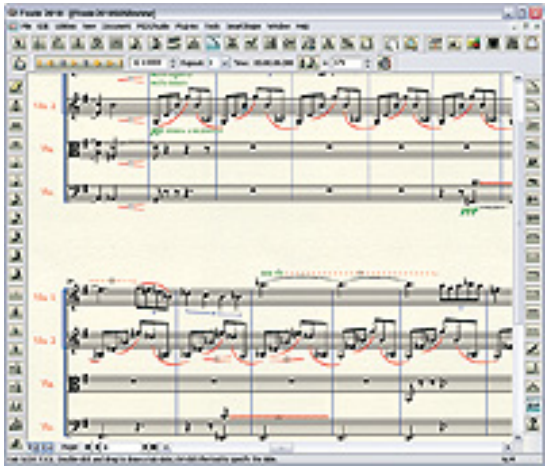
How?

$$split \longrightarrow transcribe \longrightarrow build \longrightarrow export$$

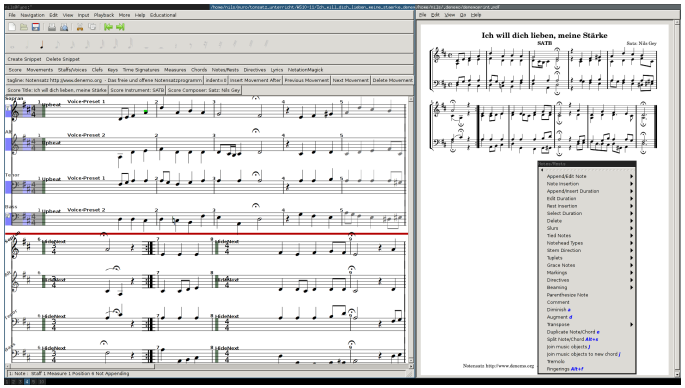
Music Writing Applications



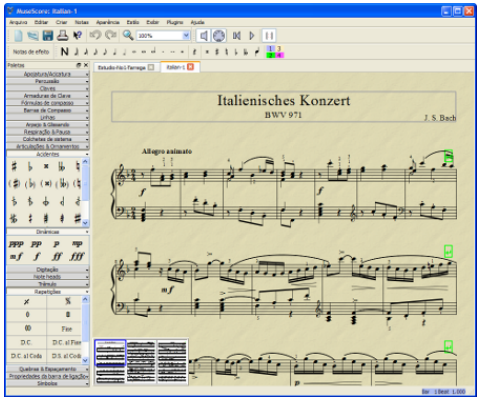
(a) Sibelius



(b) Finale



(c) Denemo



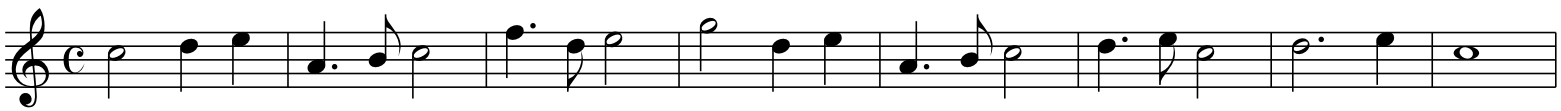
(d) MuseScore

- powerful enough to describe most music scores available
- actively maintained and developed
- source files are written in plain text files
- there are already many tools for transforming and publishing
- can be easily converted to other known formats
- compact and clear notation
- open source

ABC Notation Example

```
1 X:1
2 M:C
3 L:1/4
4 K:C
5
6 C2DE | A>Bc2 | F>DE2 | G2DE | A>Bc2 | D>EC2 | D3E | C4 |
```

(a) ABC code sample.

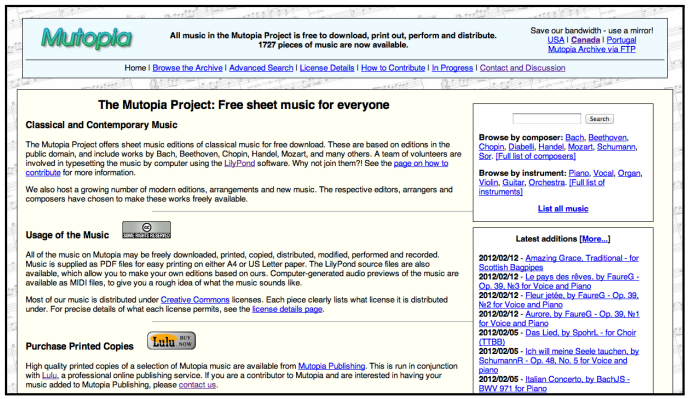


(b) Generated PS image.

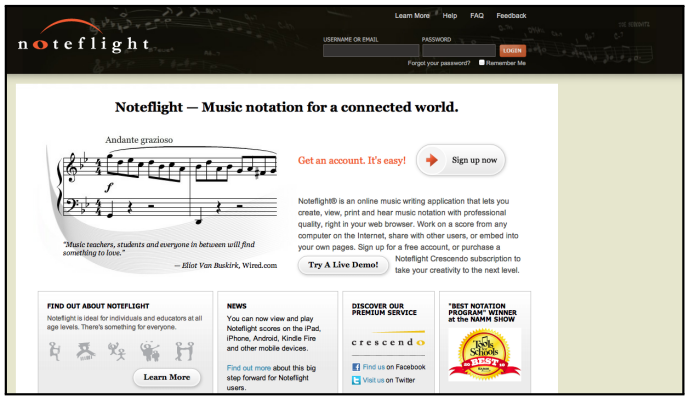
Web Applications: Wikis

- multi user collaborative environment
- content change history with version control and revert options;
- web interface
- easy to extend features and syntax via plugins
- possible to customize via template engines
- a wiki invites users to contribute to the content
- wiki pages are subject to the phenomenon of Darwikinism
- edited content is immediately available
- built-in lock system to prevent content corruption

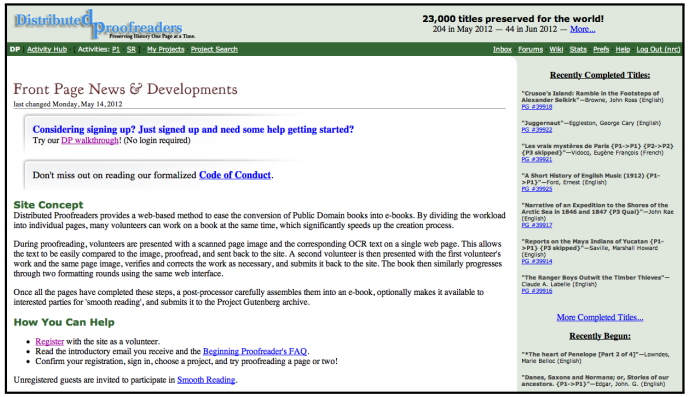
Other Projects



(a) Mutopia

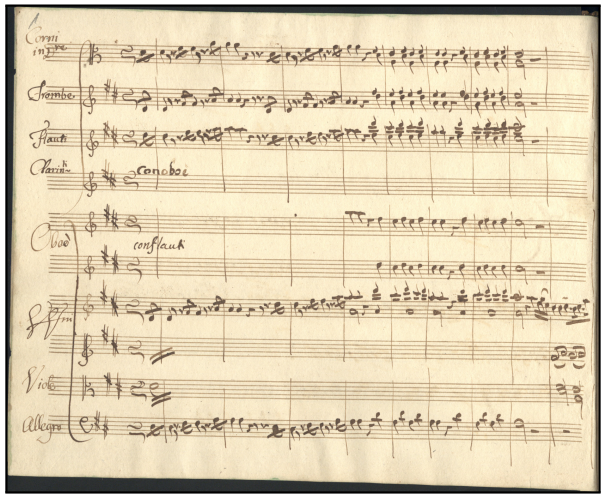


(b) Noteflight



(c) Distributed Proofreaders

Transcribe to ABC

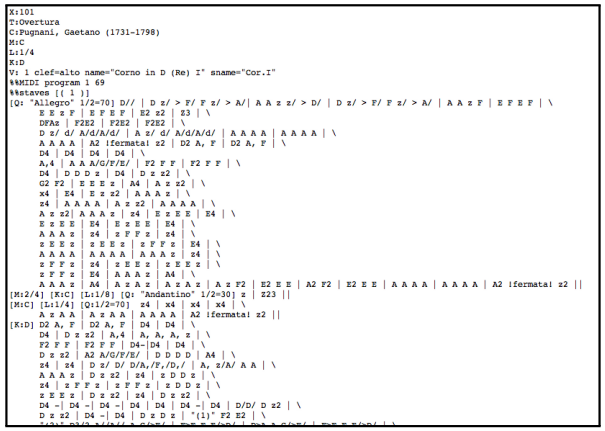


(a) manuscript

```
X:101
T:Overtura
C:Pugnani, Gaetano (1731-1798)
M:C
L:1/4
K:D
V: 1 clef=alto name="Corno in D (Re) I" sname="Cor.I"
%%MIDI program 1 69
%%staves [( 1 )]
[Q: "Allegro" 1/2=70] D// | D z/ > F/ F z/ > A/| A A z z/ > D/ | D z/ > F/ F z/ > A/ | A A z F | E F E F | \
      E E z F | E F E F | E2 z2 | z3 | \
      DFAz | F2E2 | F2E2 | F2E2 | \
      D z/ d/ A/d/A/d/ | A z/ d/ A/d/A/d/ | A A A A | A A A A | \
      A A A A | A2 !fermata! z2 | D2 A, F | D2 A, F | \
      D4 | D4 | D4 | D4 | \
      A,4 | A A A/G/F/E/ | F2 F F | F2 F F | \
      D4 | D D D z | D4 | D z z2 | \
      G2 F2 | E E E z | A4 | A z z2 | \
      x4 | z4 | E z z2 | A A A z | \
      z4 | A A A A | A z z2 | A A A A | \
      A z z2| A A A z | z4 | E z E E | E4 | \
      E z E E | E4 | E z E E | E4 | \
      A A A z | z4 | z F F z | z4 | \
      z E E z | z E E z | z F F z | E4 | \
      A A A A | A A A A | A A A z | z4 | \
      z F F z | z4 | z E E z | z E E z | \
      z F F z | E4 | A A A z | A4 | \
      A A A z | A4 | A z A z | A z A z | A z F2 | E2 E E | A2 F2 | E2 E E | A A A A | A A A A | A2 !fermata! z2 ||
[M:2/4] [K:C] [L:1/8] [Q: "Andantino" 1/2=30] z | z23 ||
[M:C] [L:1/4] [Q:1/2=70] z4 | x4 | x4 | x4 | \
      A z A A | A z A A | A A A A | A2 !fermata! z2 ||
[K:D] D2 A, F | D2 A, F | D4 | D4 | \
      D4 | D z z2 | A,4 | A, A, A, z | \
      F2 F F | F2 F F | D4-|D4 | D4 | \
      D z z2 | A2 A/G/F/E/ | D D D D | A4 | \
      z4 | z4 | D z/ D/ D/A,/F,/D,/ | A, z/A/ A A | \
      A A A z | D z z2 | z4 | z D D z | \
      z4 | z F F z | z F F z | z D D z | \
      z E E z | D z z2 | z4 | D z z2 | \
      D4 -| D4 -| D4 -| D4 | D4 | D4 -| D4 | D/D/ D z2 | \
      D z z2 | D4 -| D4 | D z D z | "(1)" F2 E2 | \
```

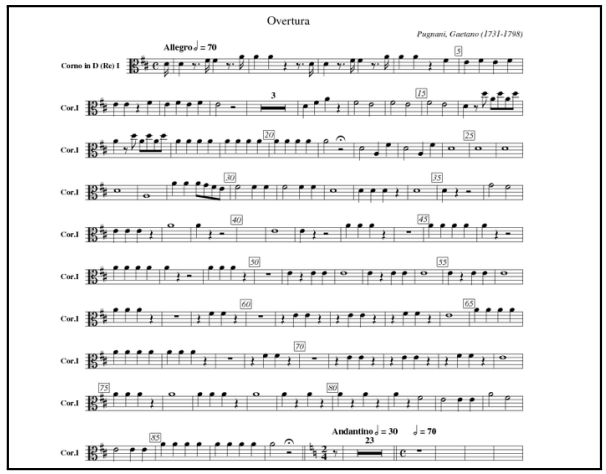
(b) ABC

transcribe : *manuscript* $\longrightarrow$ *Abc*



```
X:101
T:Overtura
C:Pugnani, Gaetano (1731-1798)
M:C
L:1/4
K:D
V: 1 clef=alto name="Corno in D (Re) I" sname="Cor.I"
%%MIDI program 1 69
%%staves [( 1 )]
[Q: "Allegro" 1/2=70] D// | D z/ > F/ F z/ > A/| A A z z/ > D/ | D z/ > F/ F z/ > A/ | A A z F | E F E F | \
      E E z F | E F E F | E2 z2 | E3 | \
      DFA2 | F2E2 | F2E2 | F2E2 | \
      D z/ d/ A/d/A/d/ | A z/ d/ A/d/A/d/ | A A A A | A A A A | \
      A A A A | A2 !fermata! z2 | D2 A, F | D2 A, F | \
      D4 | D4 | D4 | D4 | \
      A,4 | A A A/G/F/E/ | F2 F F | F2 F F | \
      D4 | D D D z | D4 | D z z2 | \
      G2 F2 | E E E z | A4 | A z z2 | \
      x4 | E4 | E z z2 | A A A z | \
      z4 | A A A A | A z z2 | A A A A | \
      A z z2| A A A z | z4 | E z E E | E4 | \
      E z E E | E4 | E z E E | E4 | \
      A A A z | z4 | z F F z | z4 | \
      z E E z | z E E z | z F F z | E4 | \
      A A A A | A A A A | A A A z | z4 | \
      z F F z | z4 | z E E z | z E E z | \
      z F F z | E4 | A A A z | A4 | \
      A A A z | A4 | A z A z | A z A z | A z F2 | E2 E E | A2 F2 | E2 E E | A A A A | A A A A | A2 !fermata! z2 ||
[M:2/4] [K:C] [L:1/8] [Q: "Andantino" 1/2=30] z | z23 ||
[M:C] [L:1/4] [Q:1/2=70] z4 | x4 | x4 | x4 | \
      A z A A | A z A A | A A A A | A2 !fermata! z2 ||
[K:D] D2 A, F | D2 A, F | D4 | D4 | \
      D4 | D z z2 | A,4 | A, A, A, z | \
      F2 F F | F2 F F | D4-|D4 | D4 | \
      D z z2 | A2 A/G/F/E/ | D D D D | A4 | \
      z4 | z4 | D z/ D/ D/A,/F,/D,/ | A, z/A/ A A | \
      A A A z | D z z2 | z4 | z D D z | \
      z4 | z F F z | z F F z | z D D z | \
      z E E z | D z z2 | z4 | D z z2 | \
      D4 ~| D4 ~| D4 ~| D4 | D4 | D4 ~| D4 | D/D/ D z2 | \
      D z z2 | D4 ~| D4 | D z D z | "(1)" F2 E2 | \
```

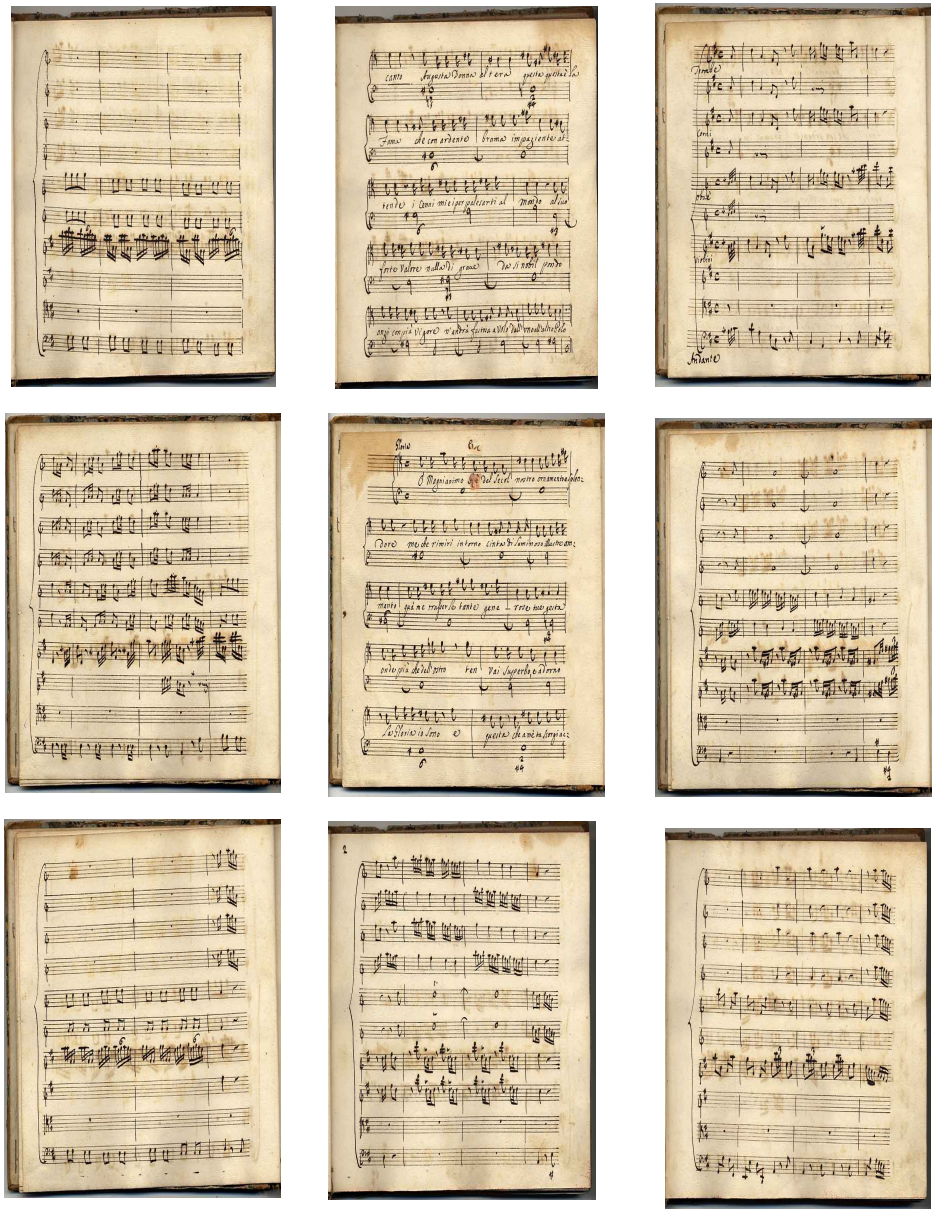
(a) Abc



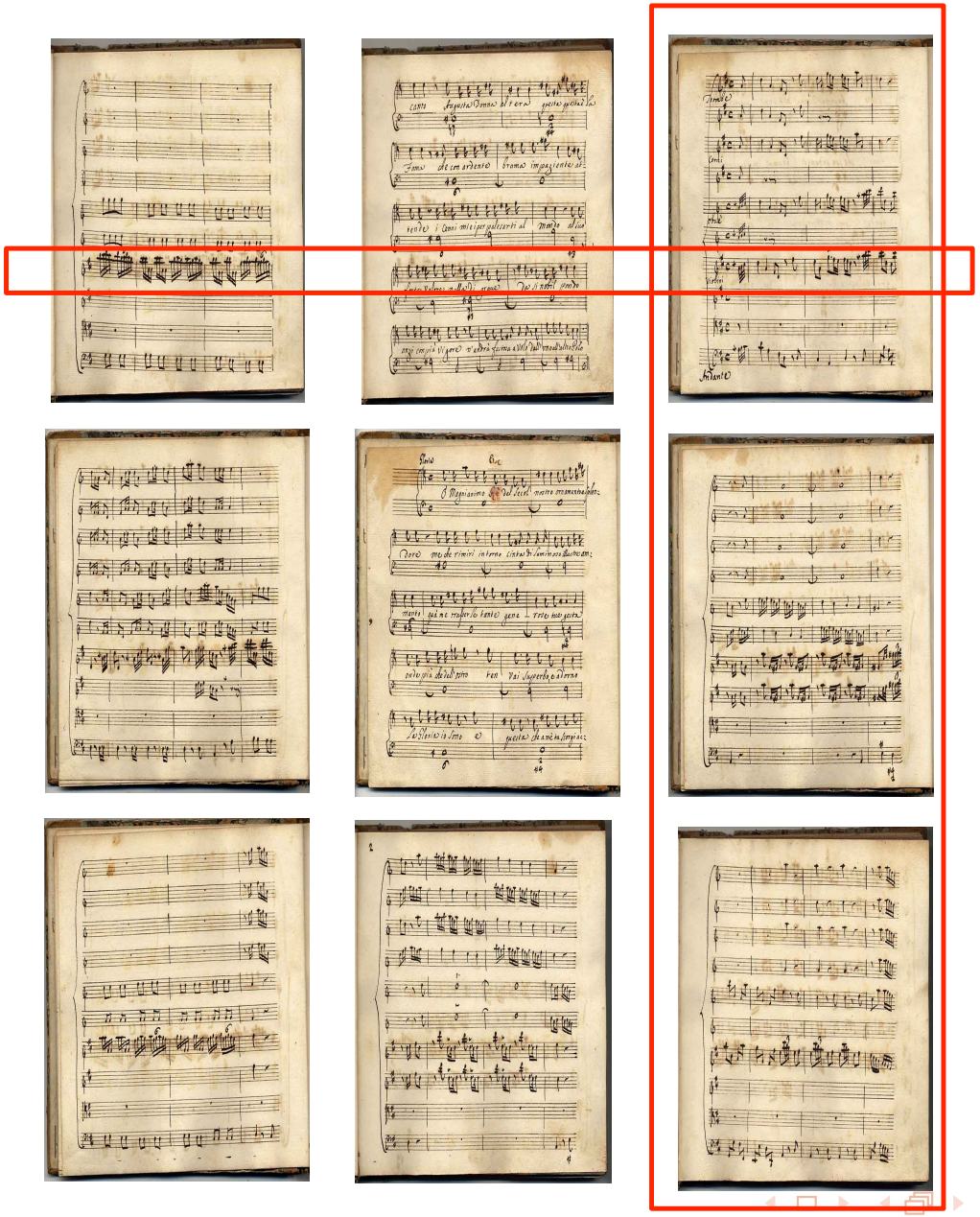
(b) PDF

$$export : Abc \longrightarrow PDF$$

Original Manuscript Scan

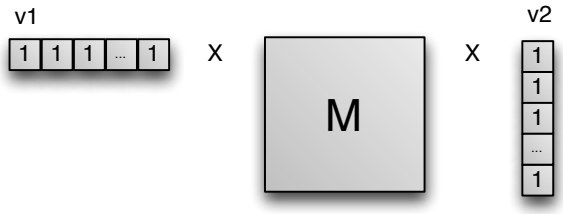


Manuscript Sections And Parts

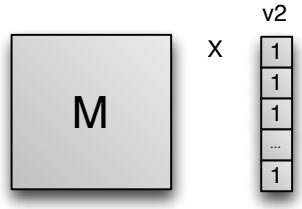


Manuscript Matrix

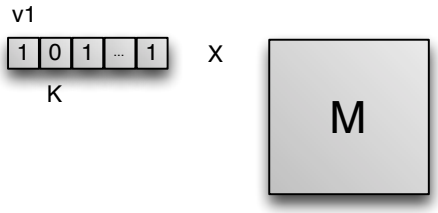
Matrix Multiplying Examples



(a) Conductor's score



(b) All individual parts



(c) All parts but k

Wiki::Score

Architecture Overview

Web Interface

- DokuWiki (implemented in PHP)
- wiki syntax

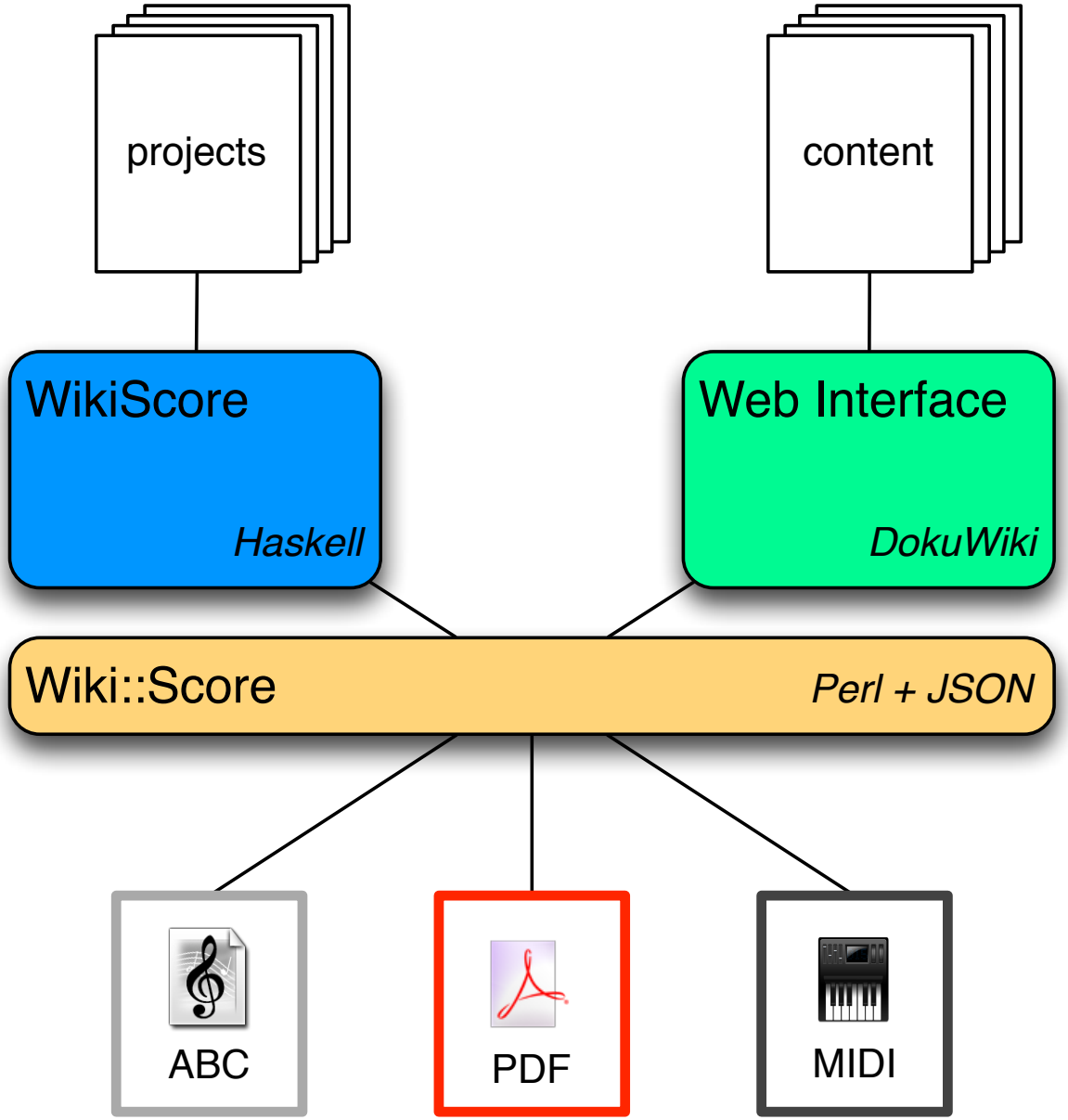
Haskell Library

- project
  - specification, creation and building
- consistency checking

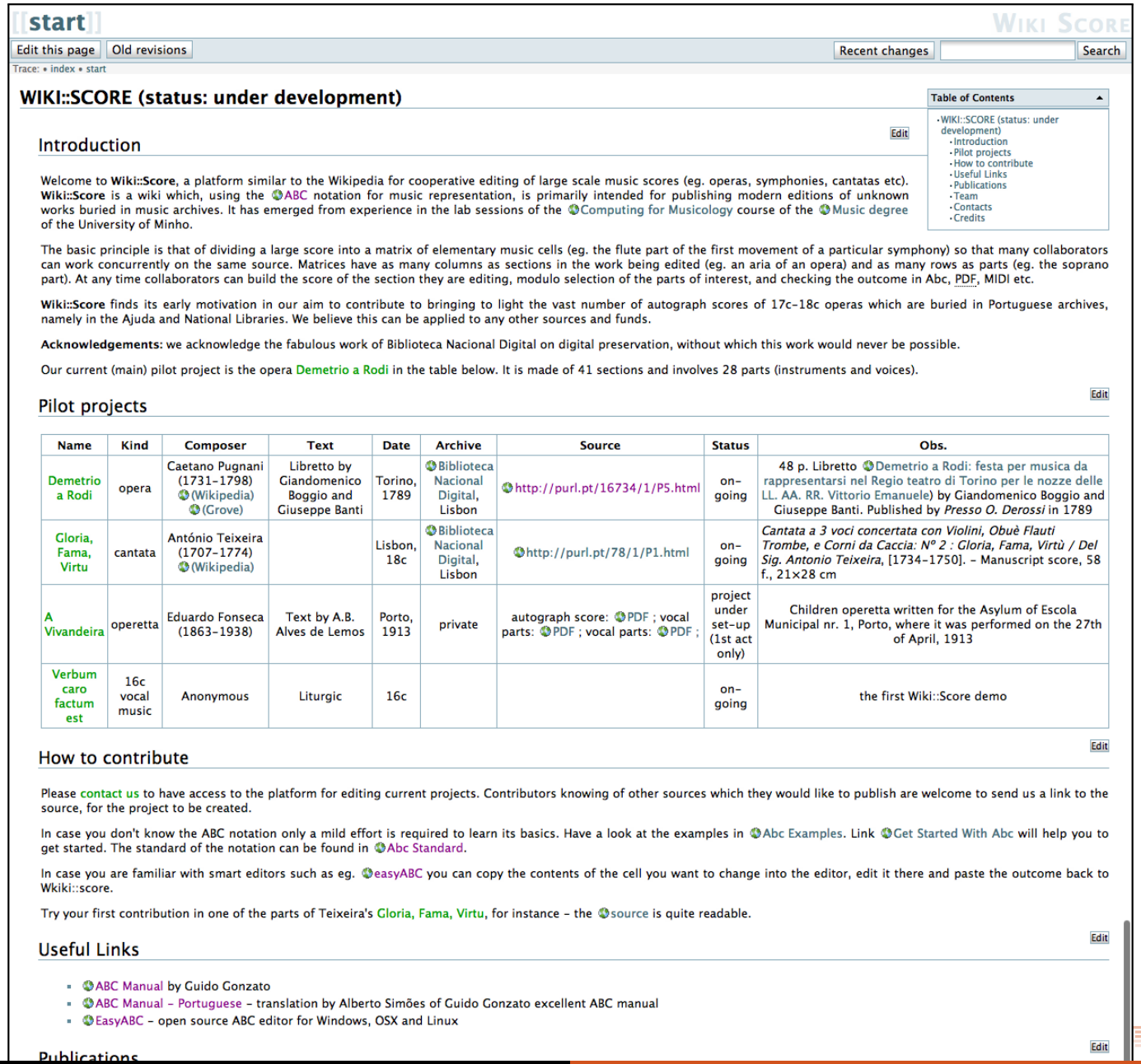
Perl Module

- glue everything together

Architecture Overview



Wiki Index Page



[[start]]

WIKI SCORE

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WIKI::SCORE (status: under development)

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  - How to contribute
  - Useful Links
  - Publications
  - Team
  - Contacts
  - Credits

Edit

Introduction

Welcome to **Wiki::Score**, a platform similar to the Wikipedia for cooperative editing of large scale music scores (eg. operas, symphonies, cantatas etc). **Wiki::Score** is a wiki which, using the ABC notation for music representation, is primarily intended for publishing modern editions of unknown works buried in music archives. It has emerged from experience in the lab sessions of the Computing for Musicology course of the Music degree of the University of Minho.

The basic principle is that of dividing a large score into a matrix of elementary music cells (eg. the flute part of the first movement of a particular symphony) so that many collaborators can work concurrently on the same source. Matrices have as many columns as sections in the work being edited (eg. an aria of an opera) and as many rows as parts (eg. the soprano part). At any time collaborators can build the score of the section they are editing, modulo selection of the parts of interest, and checking the outcome in Abc, PDF, MIDI etc.

Wiki::Score finds its early motivation in our aim to contribute to bringing to light the vast number of autograph scores of 17c–18c operas which are buried in Portuguese archives, namely in the Ajuda and National Libraries. We believe this can be applied to any other sources and funds.

Acknowledgements: we acknowledge the fabulous work of Biblioteca Nacional Digital on digital preservation, without which this work would never be possible.

Our current (main) pilot project is the opera Demetrio a Rodi in the table below. It is made of 41 sections and involves 28 parts (instruments and voices).

Edit

Pilot projects

Name	Kind	Composer	Text	Date	Archive	Source	Status	Obs.
Demetrio a Rodi	opera	Caetano Pugnani (1731–1798) (Wikipedia) (Grove)	Libretto by Giandomenico Boggio and Giuseppe Banti	Torino, 1789	Biblioteca Nacional Digital, Lisbon	http://purl.pt/16734/1/P5.html	on-going	48 p. Libretto Demetrio a Rodi: festa per musica da rappresentarsi nel Regio teatro di Torino per le nozze delle LL. AA. RR. Vittorio Emanuele) by Giandomenico Boggio and Giuseppe Banti. Published by *Presso O. Derossi* in 1789
Gloria, Fama, Virtu	cantata	António Teixeira (1707–1774) (Wikipedia)		Lisbon, 18c	Biblioteca Nacional Digital, Lisbon	http://purl.pt/78/1/P1.html	on-going	*Cantata a 3 voci concertata con Violini, Obuè Flauti Trombe, e Corni da Caccia: N° 2 : Gloria, Fama, Virtù / Del Sig. Antonio Teixeira*, [1734–1750]. – Manuscript score, 58 f., 21×28 cm
A Vivandeira	operetta	Eduardo Fonseca (1863–1938)	Text by A.B. Alves de Lemos	Porto, 1913	private	autograph score: PDF ; vocal parts: PDF ; vocal parts: PDF ;	project under set-up (1st act only)	Children operetta written for the Asylum of Escola Municipal nr. 1, Porto, where it was performed on the 27th of April, 1913
Verbum caro factum est	16c vocal music	Anonymous	Liturgic	16c			on-going	the first Wiki::Score demo

Edit

How to contribute

Please contact us to have access to the platform for editing current projects. Contributors knowing of other sources which they would like to publish are welcome to send us a link to the source, for the project to be created.

In case you don't know the ABC notation only a mild effort is required to learn its basics. Have a look at the examples in Abc Examples. Link Get Started With Abc will help you to get started. The standard of the notation can be found in Abc Standard.

In case you are familiar with smart editors such as eg. easyABC you can copy the contents of the cell you want to change into the editor, edit it there and paste the outcome back to Wkiki::score.

Try your first contribution in one of the parts of Teixeira's Gloria, Fama, Virtu, for instance – the source is quite readable.

Edit

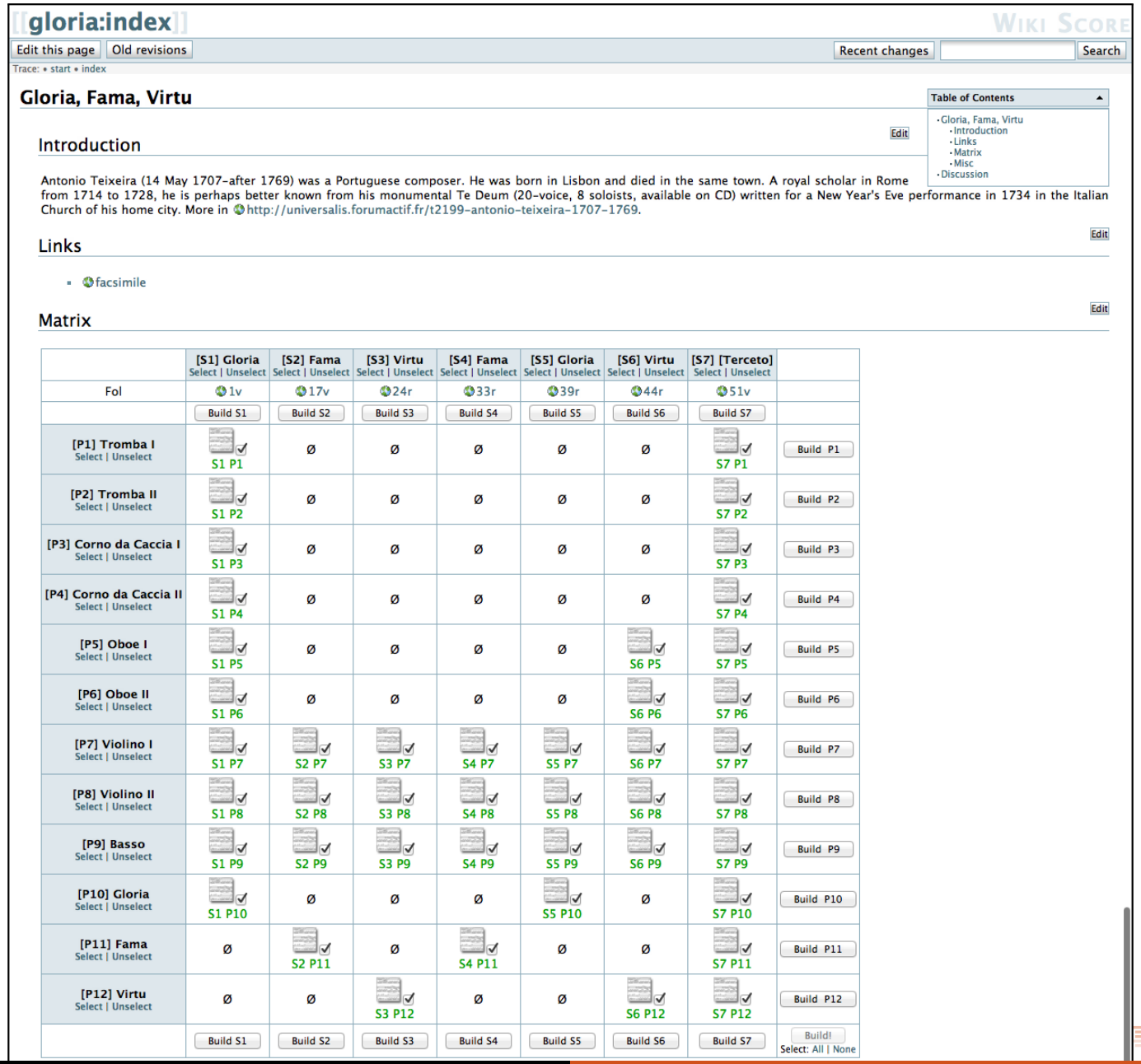
Useful Links

- ABC Manual by Guido Gonzato
- ABC Manual – Portuguese – translation by Alberto Simões of Guido Gonzato excellent ABC manual
- EasyABC – open source ABC editor for Windows, OSX and Linux

Edit

Publications

Project Index Page



[[gloria:index]]

WIKI SCORE

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Gloria, Fama, Virtu

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  - Misc
- Discussion

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Introduction

Antonio Teixeira (14 May 1707–after 1769) was a Portuguese composer. He was born in Lisbon and died in the same town. A royal scholar in Rome from 1714 to 1728, he is perhaps better known from his monumental Te Deum (20-voice, 8 soloists, available on CD) written for a New Year's Eve performance in 1734 in the Italian Church of his home city. More in http://universalis.forumactif.fr/t2199-antonio-teixeira-1707-1769.

Edit

Links

- facsimile

Edit

Matrix

	[S1] Gloria Select | Unselect	[S2] Fama Select | Unselect	[S3] Virtu Select | Unselect	[S4] Fama Select | Unselect	[S5] Gloria Select | Unselect	[S6] Virtu Select | Unselect	[S7] [Terceto] Select | Unselect	
Fol	1v	17v	24r	33r	39r	44r	51v	
	Build S1	Build S2	Build S3	Build S4	Build S5	Build S6	Build S7	
[P1] Tromba I Select | Unselect	S1 P1	Ø	Ø	Ø	Ø	Ø	S7 P1	Build P1
[P2] Tromba II Select | Unselect	S1 P2	Ø	Ø	Ø	Ø	Ø	S7 P2	Build P2
[P3] Corno da Caccia I Select | Unselect	S1 P3	Ø	Ø	Ø	Ø	Ø	S7 P3	Build P3
[P4] Corno da Caccia II Select | Unselect	S1 P4	Ø	Ø	Ø	Ø	Ø	S7 P4	Build P4
[P5] Oboe I Select | Unselect	S1 P5	Ø	Ø	Ø	Ø	S6 P5	S7 P5	Build P5
[P6] Oboe II Select | Unselect	S1 P6	Ø	Ø	Ø	Ø	S6 P6	S7 P6	Build P6
[P7] Violino I Select | Unselect	S1 P7	S2 P7	S3 P7	S4 P7	S5 P7	S6 P7	S7 P7	Build P7
[P8] Violino II Select | Unselect	S1 P8	S2 P8	S3 P8	S4 P8	S5 P8	S6 P8	S7 P8	Build P8
[P9] Basso Select | Unselect	S1 P9	S2 P9	S3 P9	S4 P9	S5 P9	S6 P9	S7 P9	Build P9
[P10] Gloria Select | Unselect	S1 P10	Ø	Ø	Ø	S5 P10	Ø	S7 P10	Build P10
[P11] Fama Select | Unselect	Ø	S2 P11	Ø	S4 P11	Ø	Ø	S7 P11	Build P11
[P12] Virtu Select | Unselect	Ø	Ø	S3 P12	Ø	Ø	S6 P12	S7 P12	Build P12
	Build S1	Build S2	Build S3	Build S4	Build S5	Build S6	Build S7	Build! Select: All | None

Cell Page

[[gloria:s2p7]] WIKI SCORE

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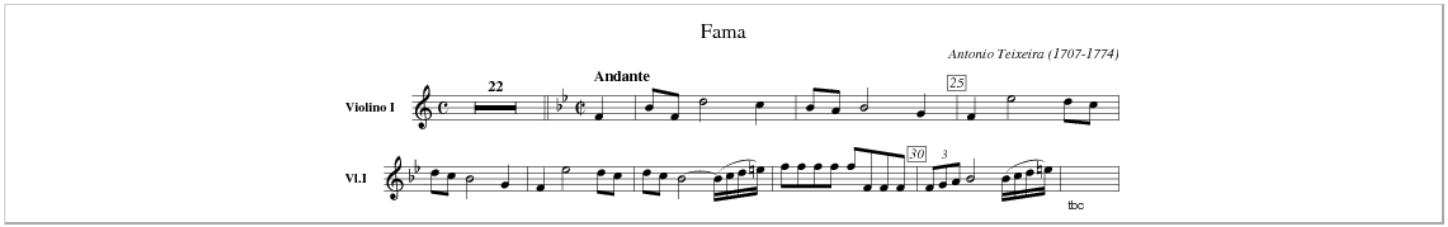
Gloria, Fama, Virtu

- Facsimile

Edit

Section 2: Fama

Part 7: Violino I



Useful links: Get Started With Abc | Abc Examples | Abc Standard

Jump to: Project Index | Project cell | Wiki Index

Edit

Discussion

Enter your comment. Wiki syntax is allowed:

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Logged in as: Nuno Carvalho (nrc) gloria/s2p7.txt · Last modified: 2012/06/04 01:27 by jo

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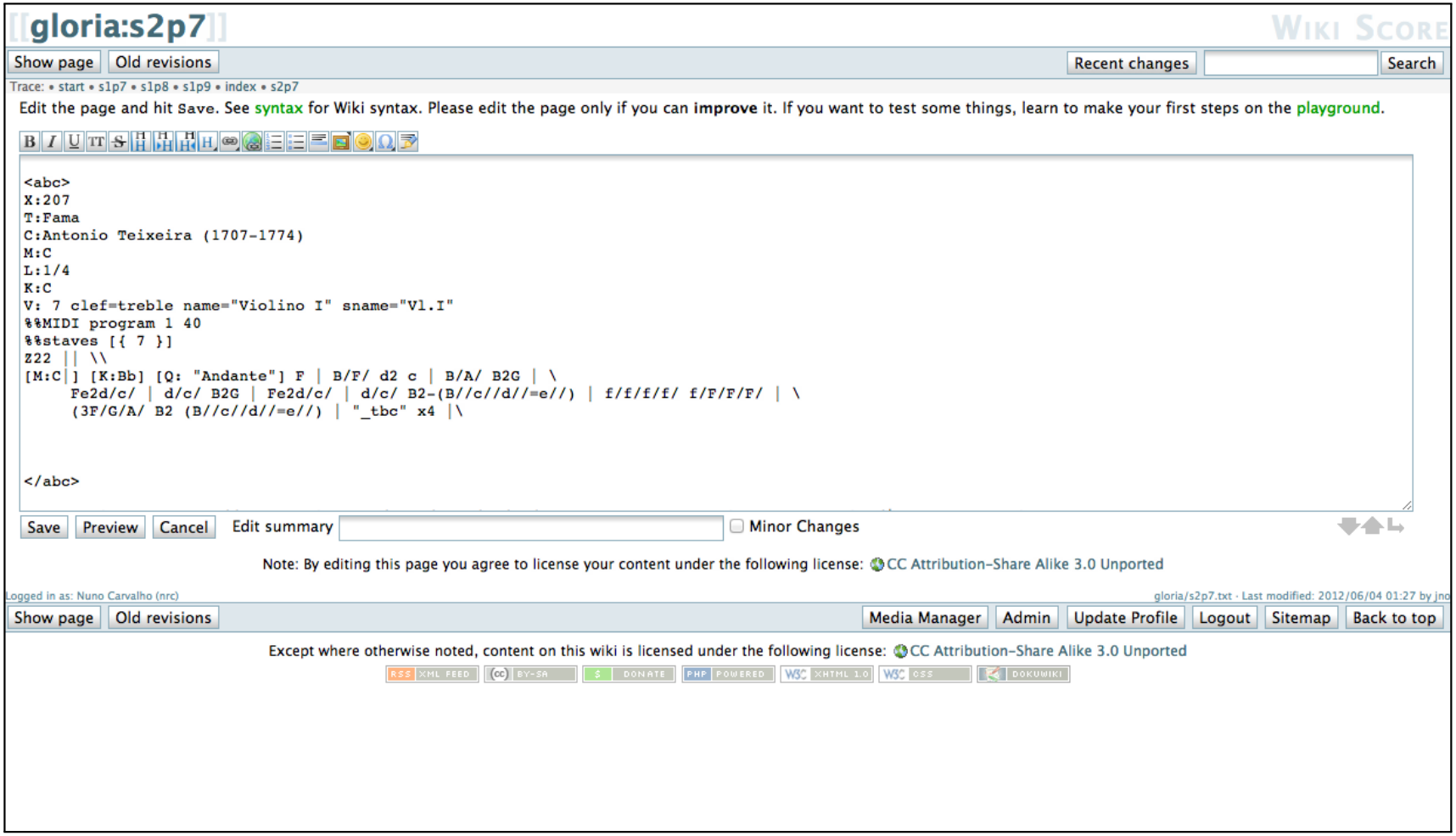
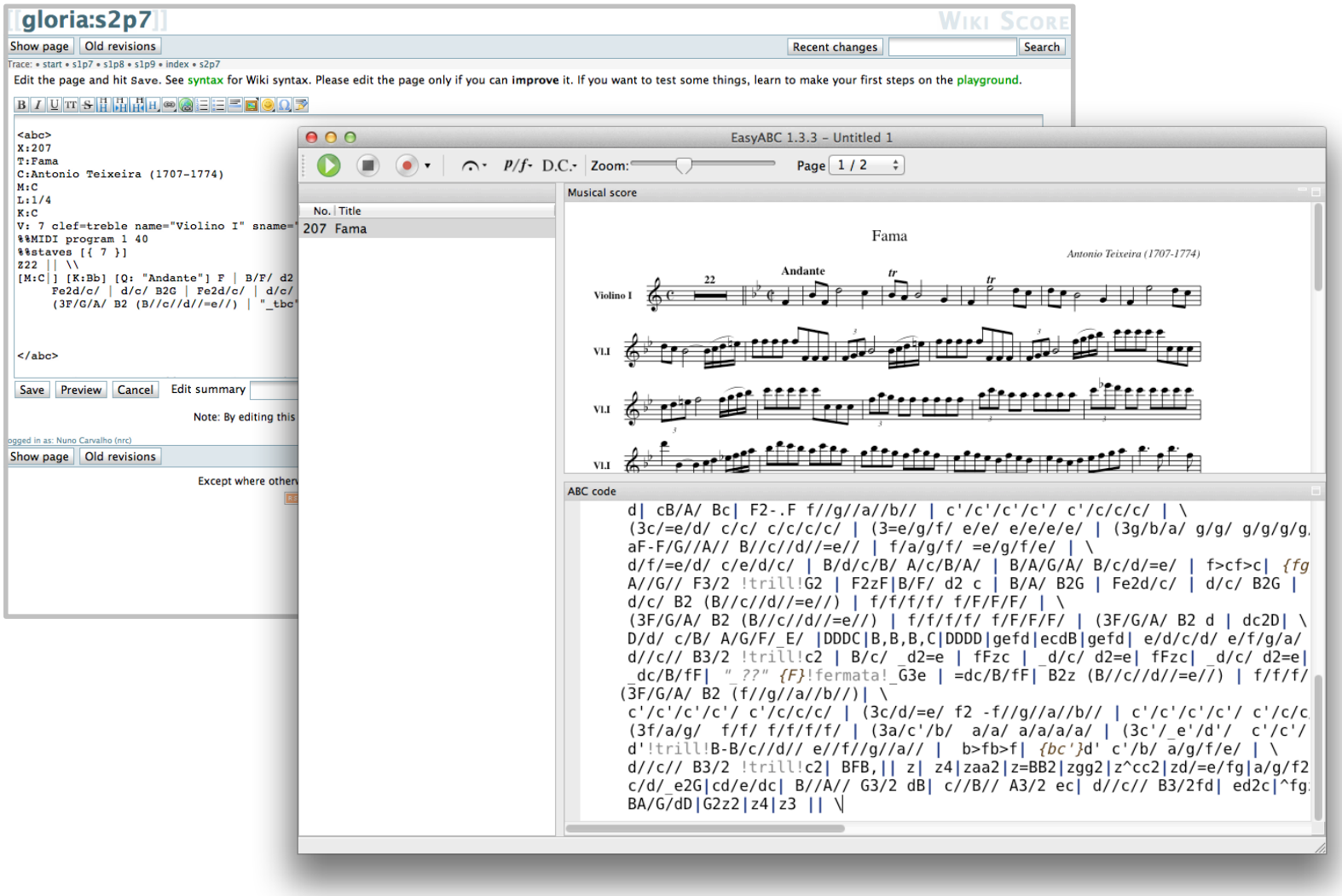
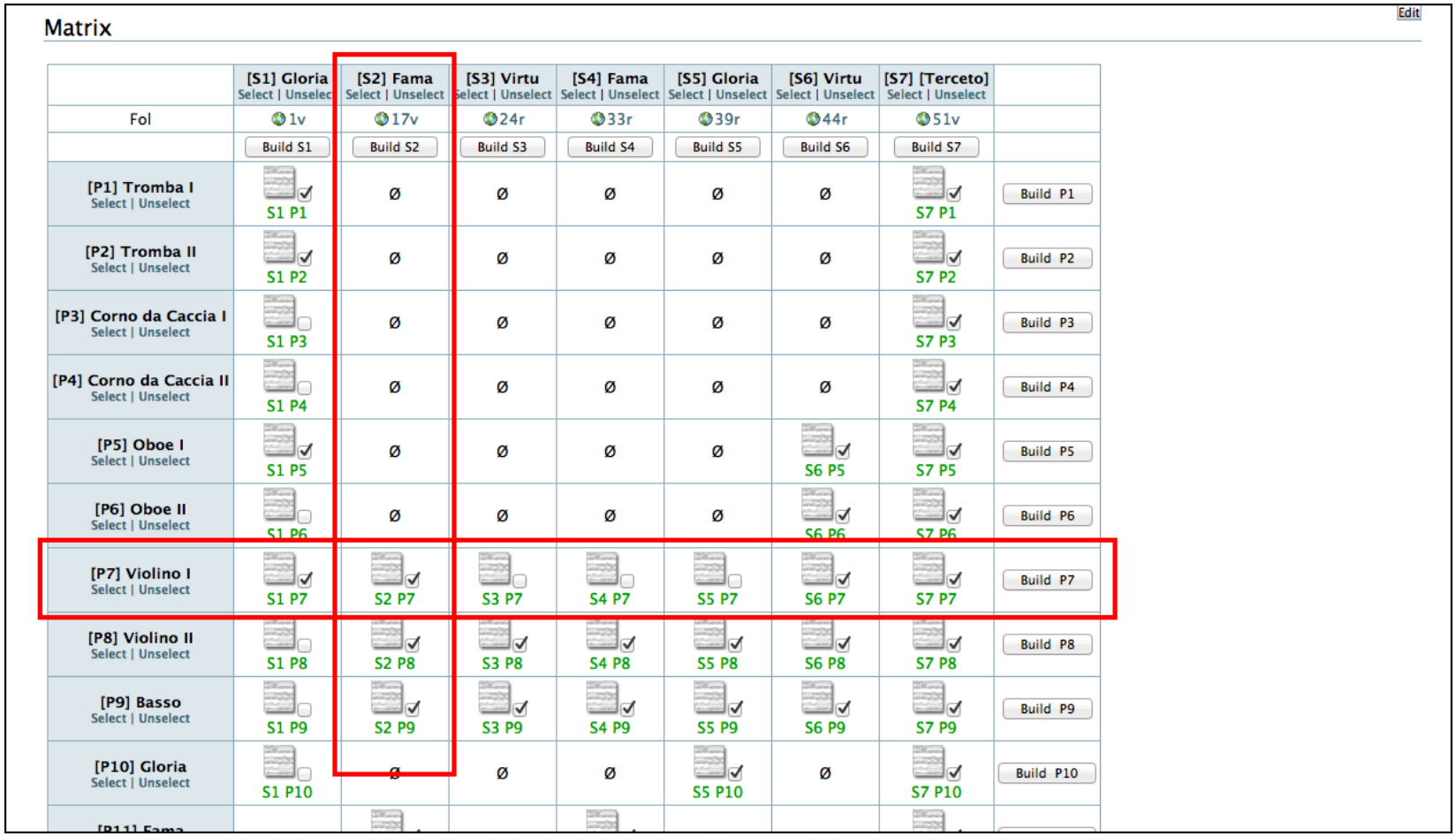
Cell Page Editing



Plugin Your Favorite ABC Editor



Project Matrix



Matrix

Edit

	[S1] Gloria Select | Unselect	[S2] Fama Select | Unselect	[S3] Virtu Select | Unselect	[S4] Fama Select | Unselect	[S5] Gloria Select | Unselect	[S6] Virtu Select | Unselect	[S7] [Terceto] Select | Unselect	
Fol	1v	17v	24r	33r	39r	44r	51v	
	Build S1	Build S2	Build S3	Build S4	Build S5	Build S6	Build S7	
[P1] Tromba I Select | Unselect	S1 P1	Ø	Ø	Ø	Ø	Ø	S7 P1	Build P1
[P2] Tromba II Select | Unselect	S1 P2	Ø	Ø	Ø	Ø	Ø	S7 P2	Build P2
[P3] Corno da Caccia I Select | Unselect	S1 P3	Ø	Ø	Ø	Ø	Ø	S7 P3	Build P3
[P4] Corno da Caccia II Select | Unselect	S1 P4	Ø	Ø	Ø	Ø	Ø	S7 P4	Build P4
[P5] Oboe I Select | Unselect	S1 P5	Ø	Ø	Ø	Ø	S6 P5	S7 P5	Build P5
[P6] Oboe II Select | Unselect	S1 P6	Ø	Ø	Ø	Ø	S6 P6	S7 P6	Build P6
[P7] Violino I Select | Unselect	S1 P7	S2 P7	S3 P7	S4 P7	S5 P7	S6 P7	S7 P7	Build P7
[P8] Violino II Select | Unselect	S1 P8	S2 P8	S3 P8	S4 P8	S5 P8	S6 P8	S7 P8	Build P8
[P9] Basso Select | Unselect	S1 P9	S2 P9	S3 P9	S4 P9	S5 P9	S6 P9	S7 P9	Build P9
[P10] Gloria Select | Unselect	S1 P10	Ø	Ø	Ø	S5 P10	Ø	S7 P10	Build P10
[P11] Fama								

- select one voice

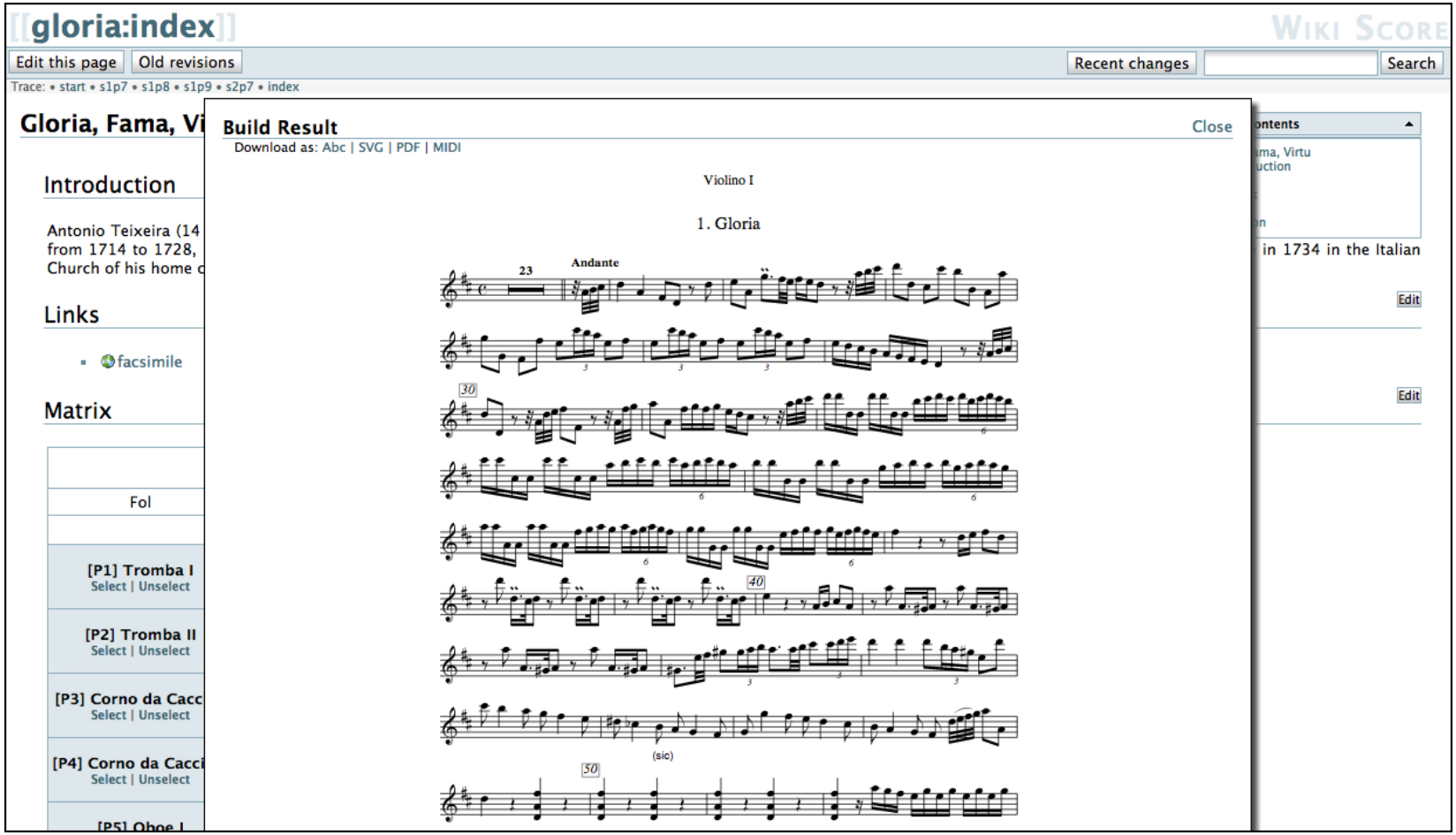
$$\begin{pmatrix}1 & 0 & \dots 0\end{pmatrix} \times \begin{pmatrix} Abc_{1,1} & Abc_{1,2} & \dots & Abc_{1,n} \\ Abc_{2,1} & Abc_{2,2} & \dots & Abc_{2,n} \\ \vdots & \vdots & \ddots & \vdots \\ Abc_{p,1} & & Abc_{p,2} & \dots \quad Abc_{p,n} \end{pmatrix} = \begin{pmatrix} Abc_{1,1} & Abc_{1,2} & \dots & Abc_{1,n} \end{pmatrix} \quad (1)$$

- select all voices

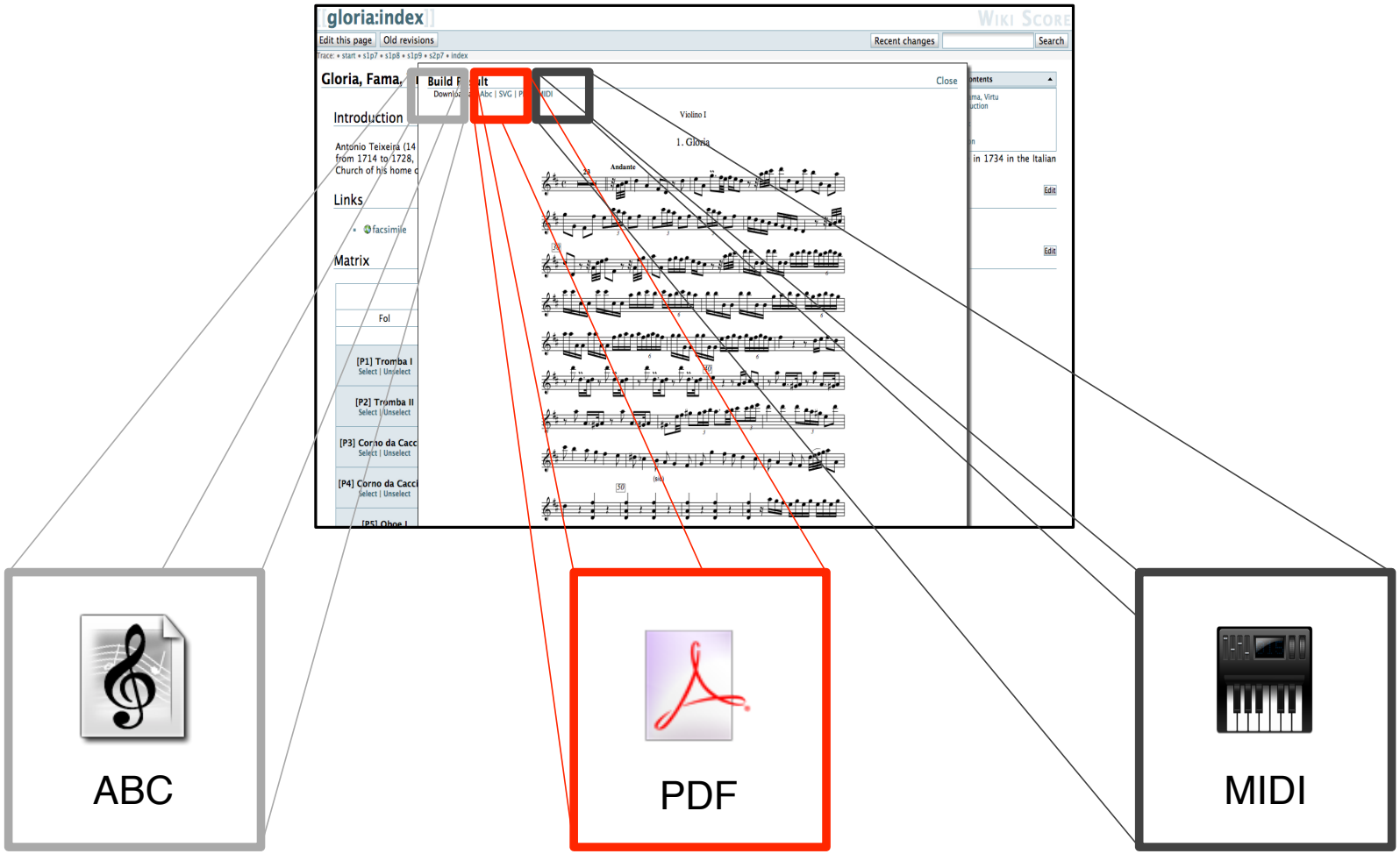
$$\begin{pmatrix}1 & 1 & \dots 1\end{pmatrix} \times \begin{pmatrix} Abc_{1,1} & Abc_{1,2} & \dots & Abc_{1,n} \\ Abc_{2,1} & Abc_{2,2} & \dots & Abc_{2,n} \\ \vdots & \vdots & \ddots & \vdots \\ Abc_{p,1} & Abc_{m,2} & \dots & Abc_{p,n} \end{pmatrix} = \begin{pmatrix} Section_1 & Section_2 & \dots & Section_n \end{pmatrix} \quad (2)$$

$$Section_i = Abc_{1,i} + Abc_{2,i} + \dots + Abc_{p,i} \quad (3)$$

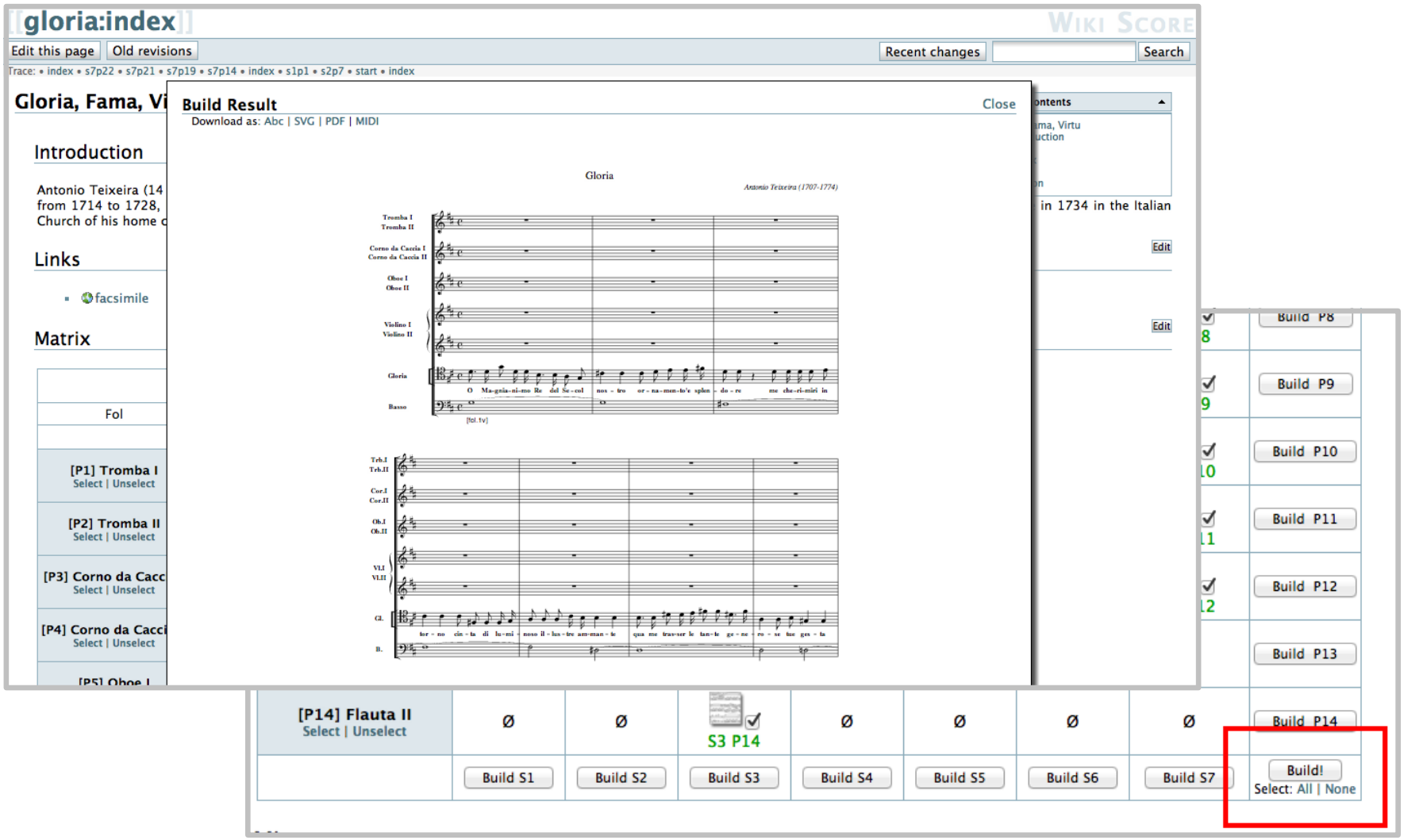
Building a Section or Part



Export in Different Formats



Build Project



Current Status

Project	Manuscript	Sections	Parts	Cells[1]	% Complete
Demetrio a Rodi	438 pages	41	28	311	6.8%
Gloria, Fama, Virtu	115 pages	7	14	48	29%
A Vivandeira	47 pages	10	12	83	<1%
Verbum Caro Factum Est	4 pages	5	4	13	95%
Total	604 pages	63	56	451	–

[1] non empty

Final Notes

Conclusion

- ABC is a simple and inexpensive yet powerful notation for transcribing music
  - many tools available
  - plain text
- take advantage of a common collaborative work environment
- transcribe huge manuscript scores in small time spans
- easier to transform and process

Future Work

- improve synchronization
- booklet building
- improve browser plugins
- add your project?

Thank You!