Applications of MuseData

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Music 253
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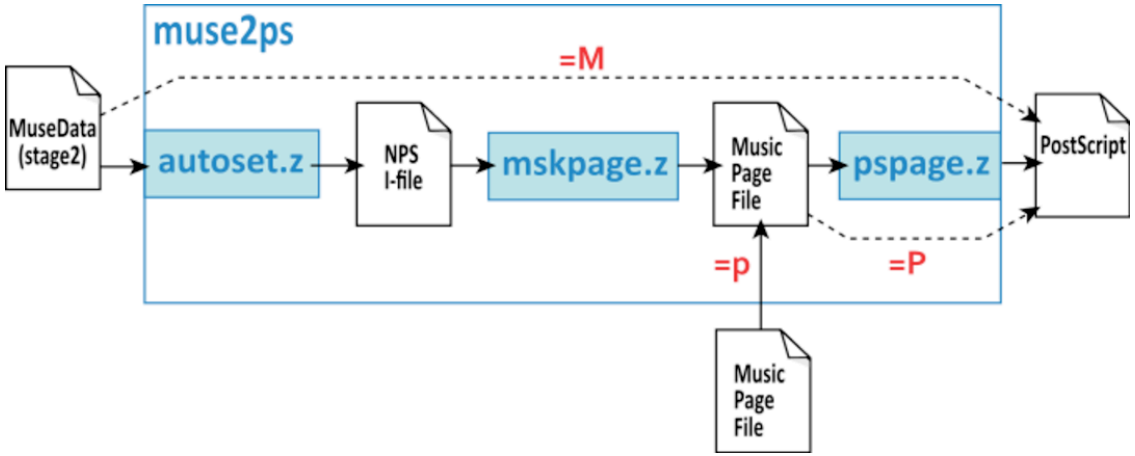
muse2ps

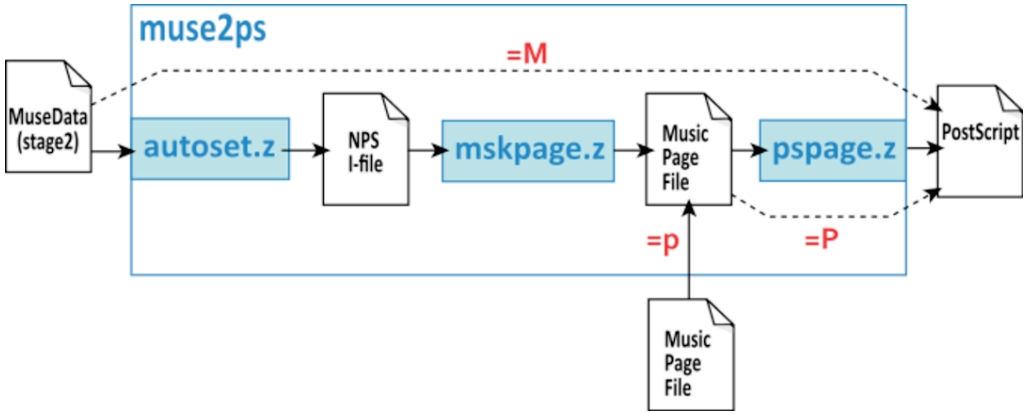
Command-line interface to the MuseData printing system

Converts MuseData data into Graphical Music as PostScript files.



- Source code (pre-compiled Zbex code with C-language wrapper):
  https://github.com/musedata/muse2ps
- Documentation
  http://muse2ps.ccarh.org

muse2ps sub-programs



- autoset.z Typeset music onto a single infinitely long musical system

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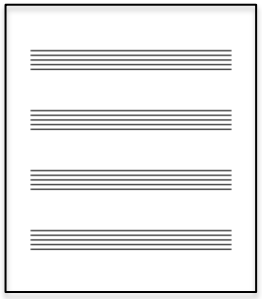
- mskpage.z Split infinite system into partial systems and pages:



- pspage.z Convert page-layout files into PostScript files

These are separate progams in dmuse IDE, but bundled for use in muse2ps

- .z == Zbex language file, see: http://wiki.ccarh.org/wiki/Zbex_programming_language

muse2ps options

http://wiki.ccarh.org/wiki/Muse2ps#Options

muse2ps option index

- =c compression
- =C composer
- =d diagnostics
- =D dash spacing
- =E eof insertion
- =f fill by staff
- =F fill by system
- =g grand staff spacing
- =G group selection
- =h note space
- =i indentation flag
- =I indentation amount
- =j justification
- =k display options
- =l page length
- =m left margin
- =M embed stage2 data
- =n number of systems
- =p page files input
- =P embed page files
- =Q min. dist. dur.
- =s system spine
- =S title/system space
- =t top margin
- =T title
- =u subtitle
- =v staff spacing
- =w system width
- =W thin barlines
- =x no suggestions
- =X no last barline
- =y no line controls
- =Y no initial time sig.
- =z music size

Command-line options

cat file.md2 | muse2ps =z12c120j | ps2pdf -sPAPERSIZE=letter - - > output.pdf

Embedded options in file header:

@muse2psv1==z12c120j

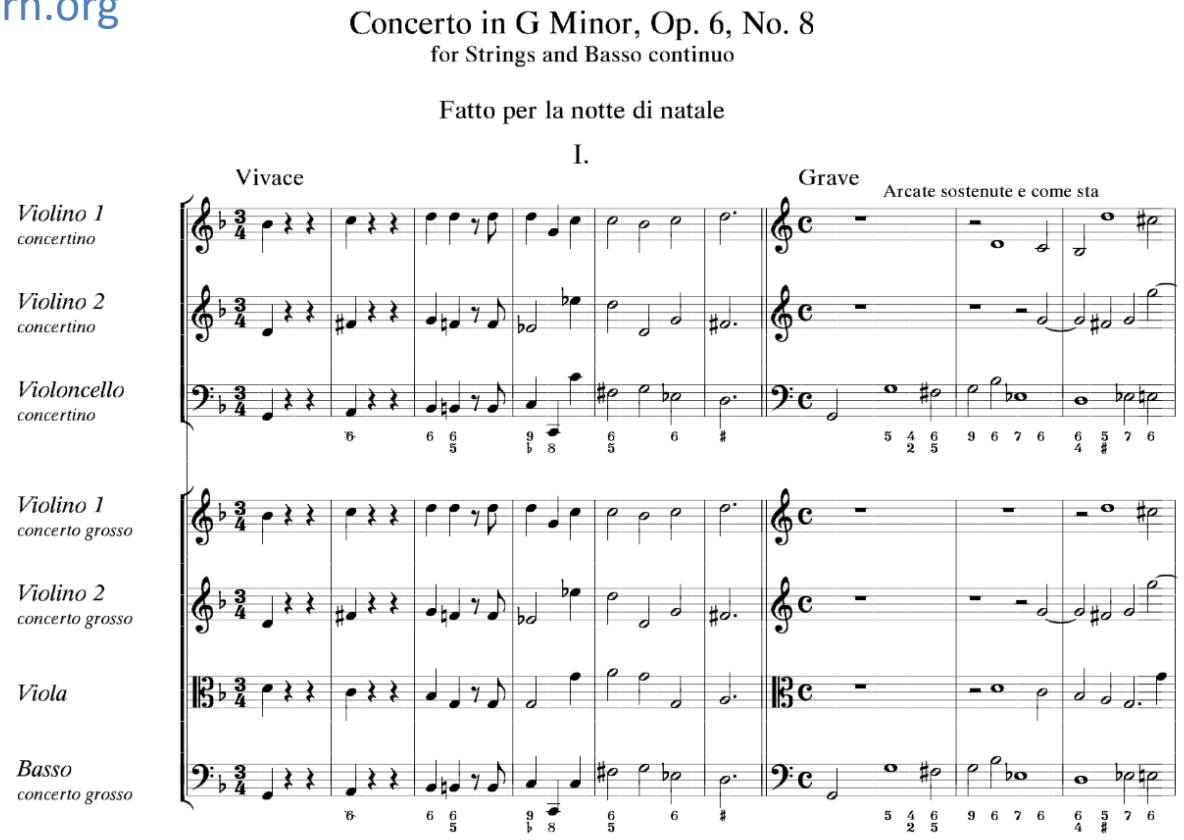
MuseData on Github

https://github.com/musedata

Corelli:

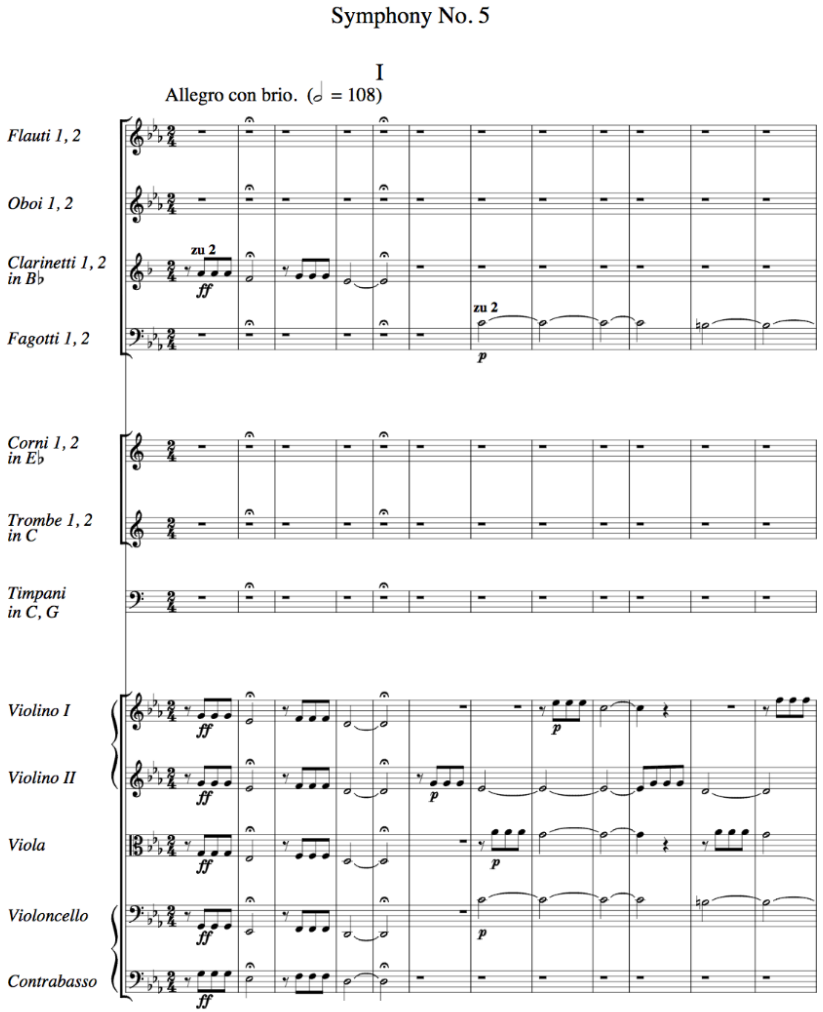
https://github.com/musedata/corelli

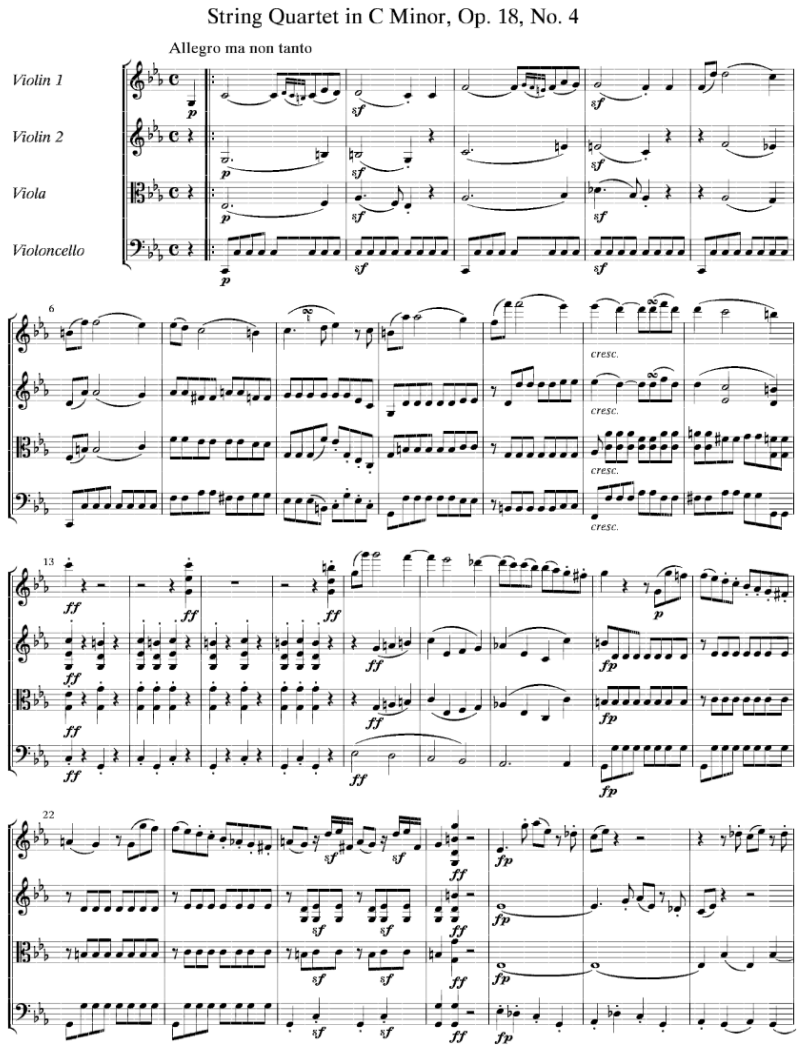
http://corelli.ccarh.org



Beethoven Symphonies, Quartets

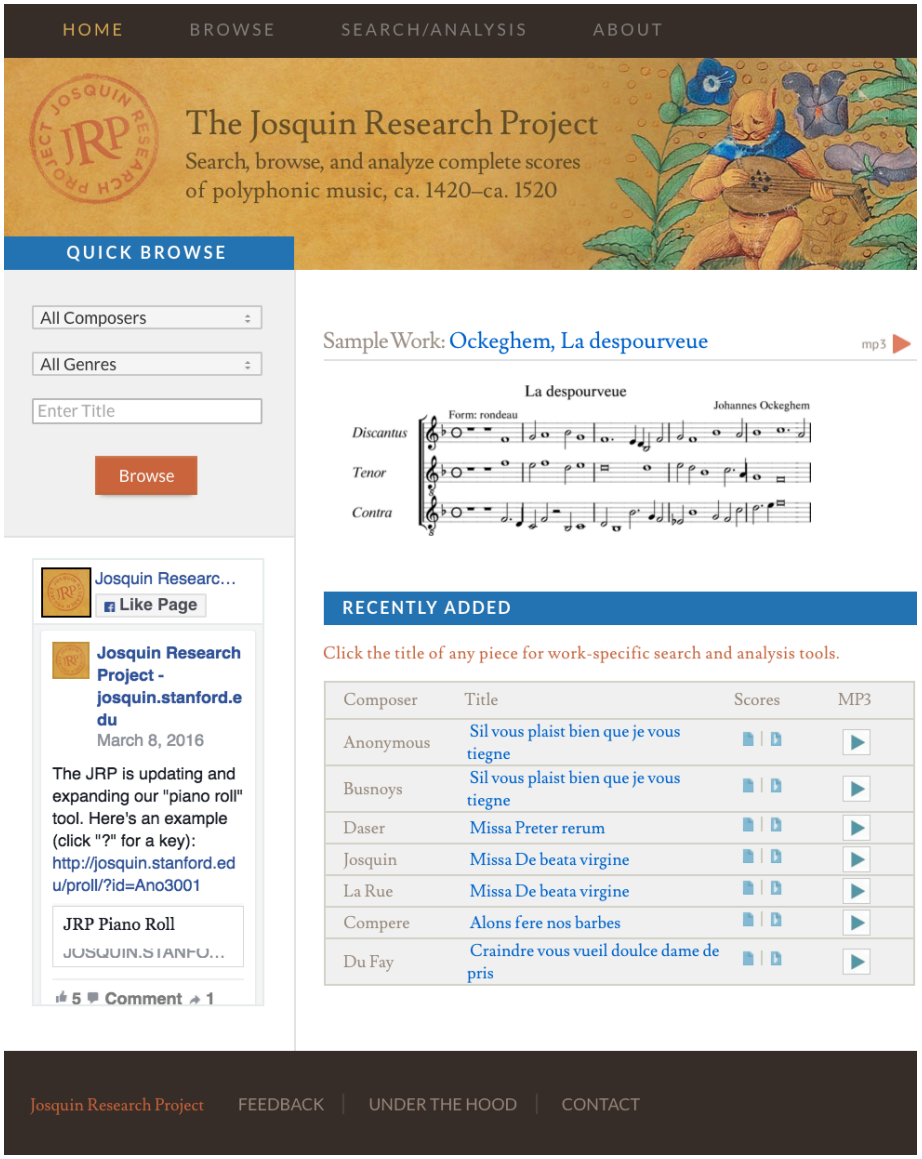
http://beethoven.ccarh.org





Josquin Research Project

http://josquin.stanford.edu



Josquin des Prez (c.1450-1521)

Dynamic notation generation for searching

SEARCH ?

cdefg

Enter Interval

Enter Rhythm

All Composers

All Genres

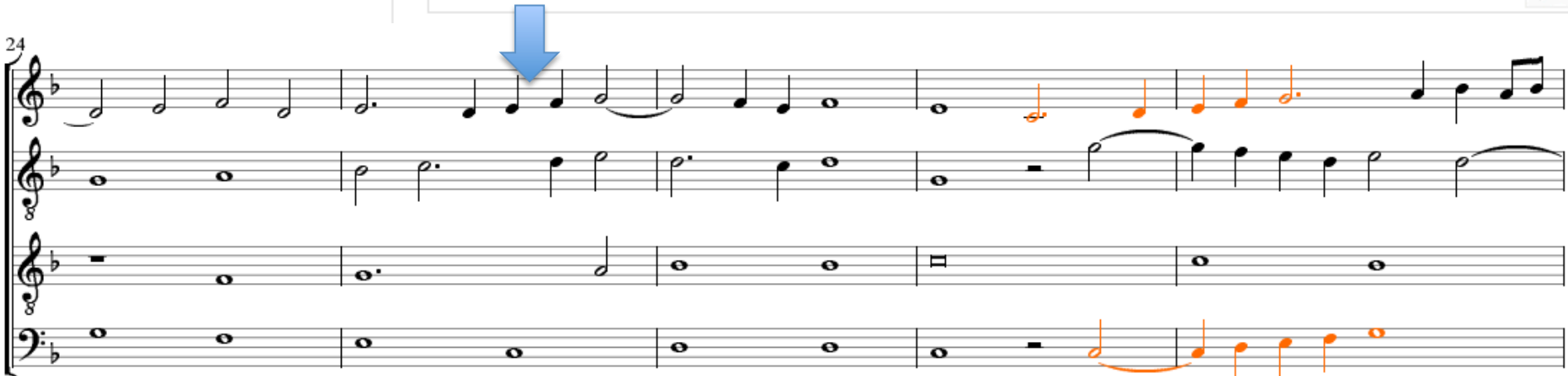
Search

Search Results for Pitch: "cdefg"

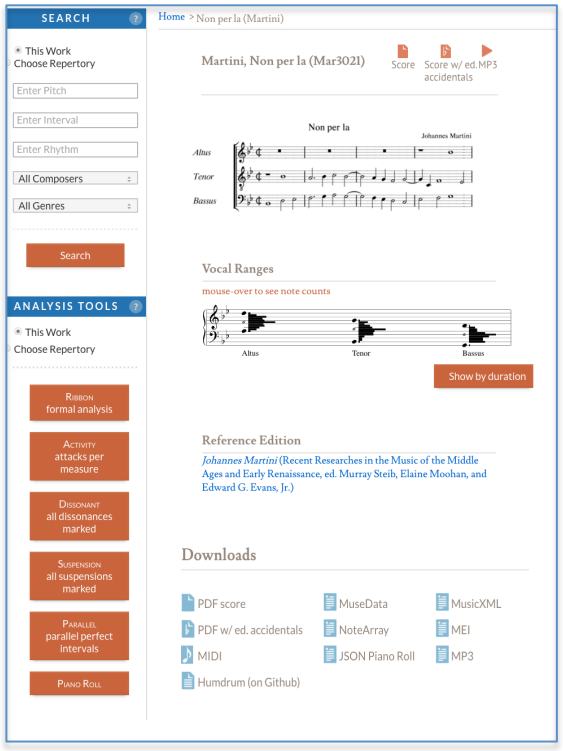
3185 matches in 425 works/742 movements

< 1 ··· 93 > view all

Match Locations	JRPID	Title	Voices	Scores	MP3
		Missa [Bergerette savoysienne]	4		
5	Ano1001a	Kyrie (Jena 32)	4		
6	Ano1001b	Gloria (Jena 32)	4		
11	Ano1001c	Credo (Jena 32)	4		
6	Ano1001d	Sanctus (Jena 32)	4		
2	Ano1001e	Agnus Dei (Jena 32)	4		
8	Ano1002	Sanctus Super iste puer magnus (Munich 3154)	4		
2	Ano3001	Fama malum (Brussels 228)	4		
8	Ano3002	Tambur tambur (Cortona/Paris)	4		



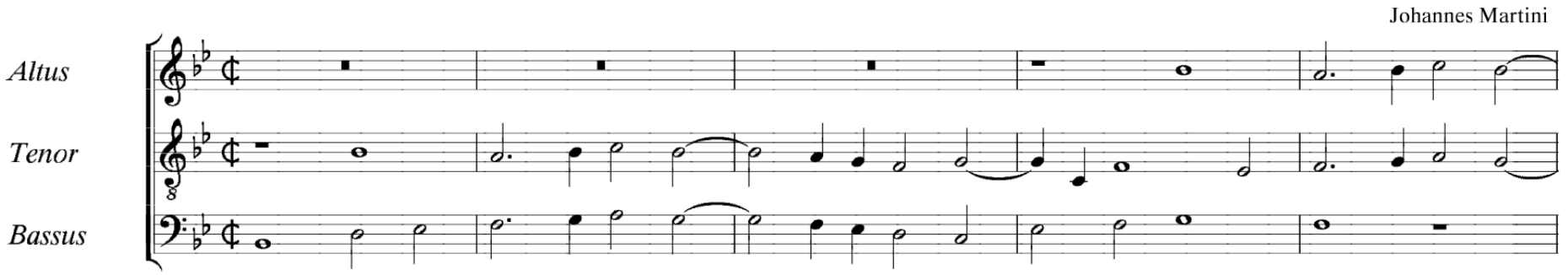
JRP work pages



http://josquin.stanford.edu/work/?id=Mar3021

Download score in various data formats

PDF created with MuseData:

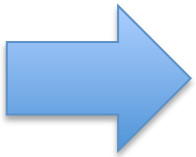


Humdrum to MuseData

http://josquin.stanford.edu/data?a=humdrum&f=Mar3021

```
!!!COM:      Martini, Johannes
!!!CDT:      ~1440///-~1497//
!!!OTL:      Non per la
!!!AGN:      Song; Chanson
!!!SCT:      Mar3021
!!!SCA:      Mar3021
!!!voices:   3
**kern       **kern       **kern
*staff3      *staff2      *staff1
*Ivox        *Ivox        *Ivox
*I"Bassus    *I"Tenor     *I"Altus
*I'B         *I'T         *I'A
*clefF4      *clefGv2     *clefG2
*k[b-e-]     *k[b-e-]     *k[b-e-]
*M2/1        *M2/1        *M2/1
*met(C|)     *met(C|)     *met(C|)
=1-          =1-          =1-
1BB-         1r           0r
2D\          1B-          .
2E-\         .            .
=2           =2           =2
2.F\         2.A/         0r
4G\          4B-\         .
2A\          2c\          .
[2G\         [2B-\        .
=3           =3           =3
```

muse2ps options



http://josquin.stanford.edu/data?a=musedata&f=Mar3021

```
@muse2psv1==jc90FW1w2250l2770m100
@muse2psv1==T^Non per la^
@muse2psv1==s^[(.)(.)(.)]^
@muse2psv1==C^Johannes Martini^i2l150v85,85,150Q16
Header Record 1: optional copyright notice
Header Record 2: optional file identification
TIMESTAMP: FEB/22/2017
03/02/2015 Chris Gage 11-06-2014
WK#:1 MV#:1
Header Record 6: source
Non per la
Header Record 8: movement title
Altus
Header Record 10
Group memberships: score
score: part 1 of 3
$ K:-2  Q:1  T:61/0  C:4
rest  8    1
measure 2
rest  8    1
measure 3
rest  8    1
measure 4
rest  4    1 w
Bf4   4    1 w
measure 5
```

CS 229 Machine Learning

- *Attribution of Musical Works to Josquin des Prez*. Phillip Lee, Kate Stuckman, Zachary Sunberg

  http://cs229.stanford.edu/proj2013/SunbergStuckmanLee-AttributionOfMusicalWorksToJosquinDesPrez.pdf

- *Composer Style Attribution*. Jacqueline Speiser, Vishesh Gupta.

  http://cs229.stanford.edu/proj2013/CS229-FinalProject.pdf

- *Composer Style Attribution*. Kevin Laube, Naroa Zurutuza.

  http://cs229.stanford.edu/proj2013/LaubeZurutuza-ComposerStyleAttribution.pdf

- *Reveal Hidden Information in Music Scores: Composer Attribution*. Fang-Chieh Chou, Yi-Hong Kyuo, Hsiang-Yu Yang.

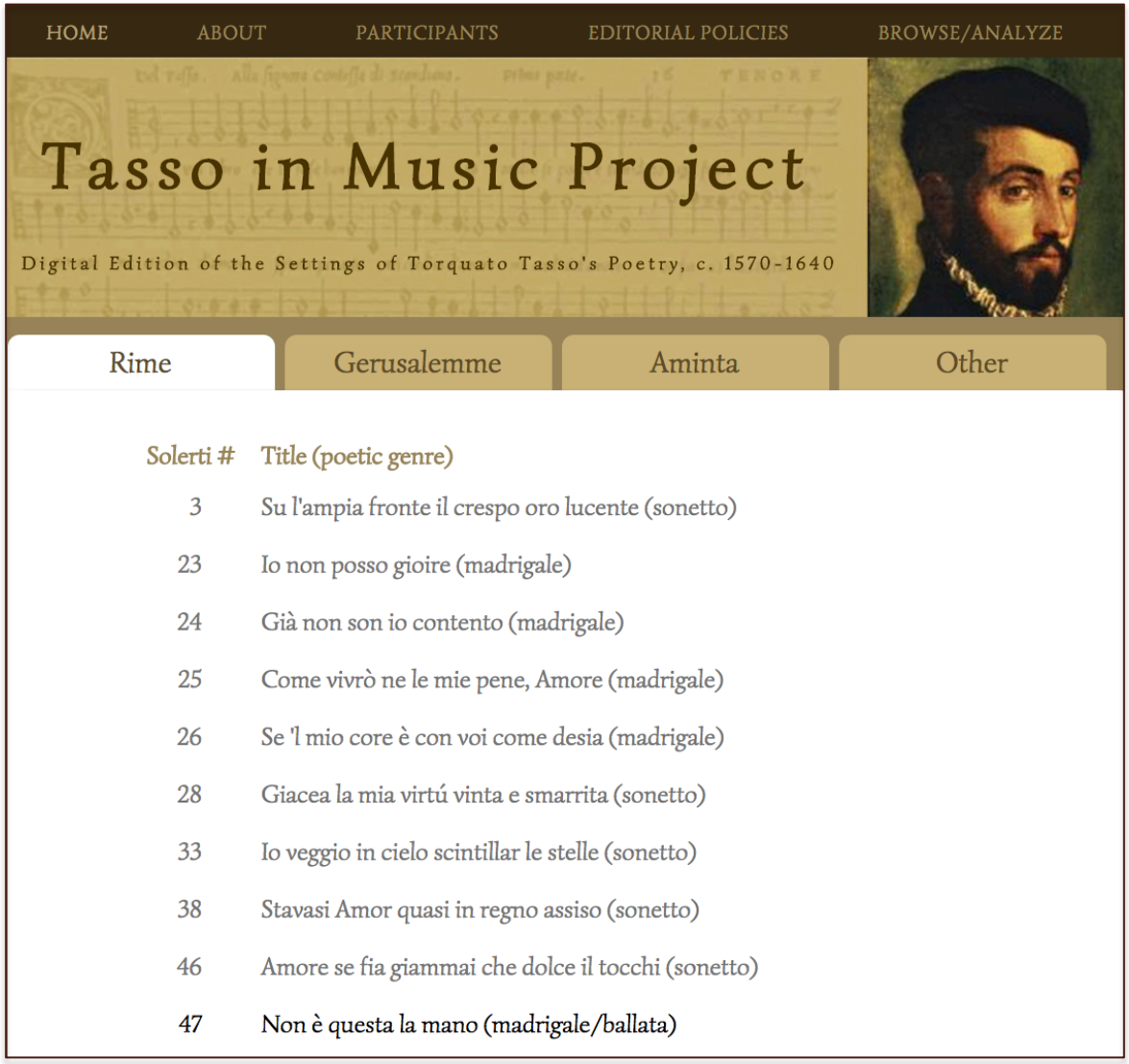
  http://cs229.stanford.edu/proj2013/ChouKuoYang-RevealHiddenInformationInTheMusicScoresComposerAttribution.pdf

- *Application of Classification Algorithms to Renaissance Music Attribution*. Alex Adamson.

  http://cs229.stanford.edu/proj2013/Adamson-JosquinMusicAttributionProject.pdf

Tasso in Music Project

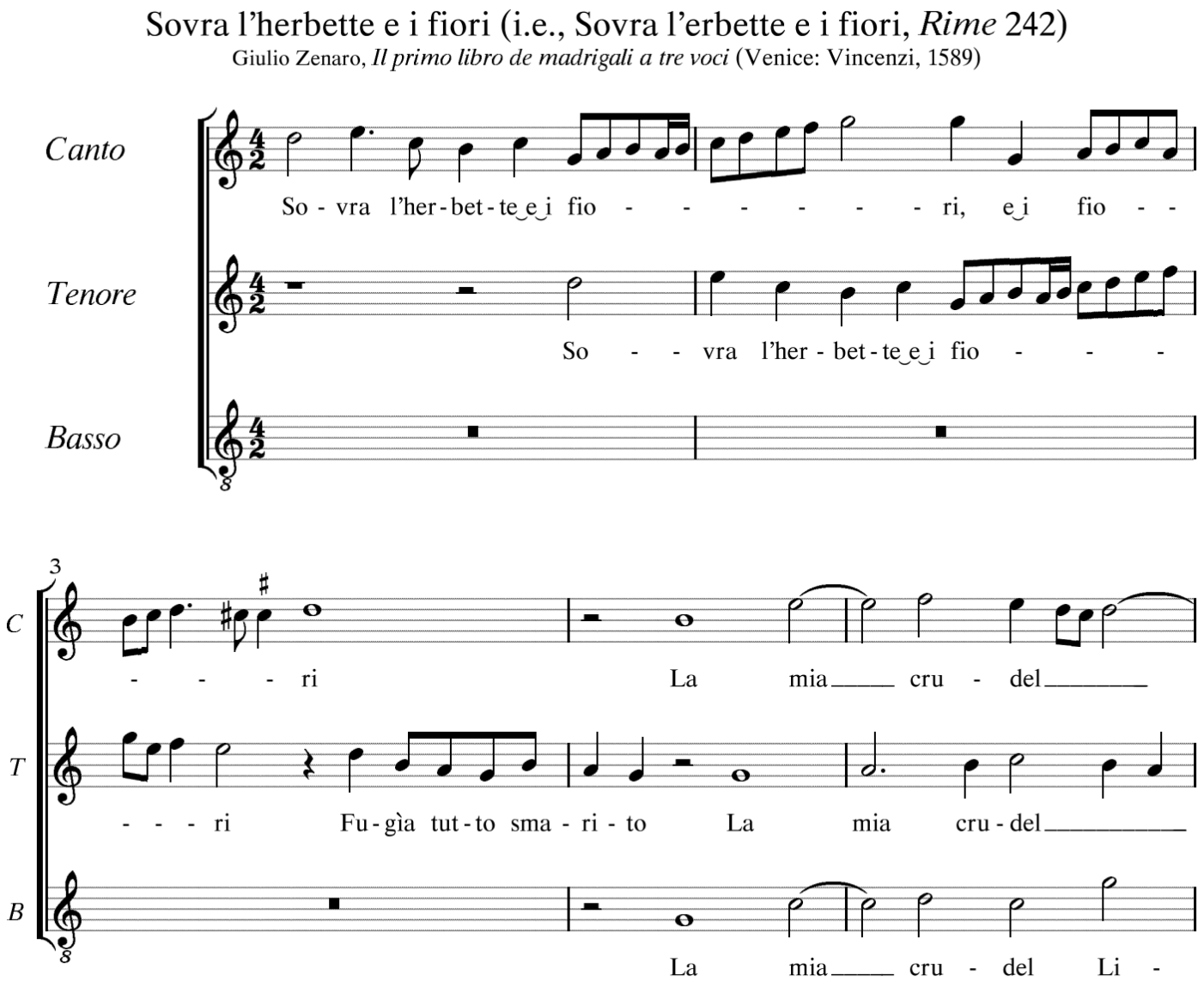
http://www.tassomusic.org



Username: tasso
Password: ossat

MuseData generated scores

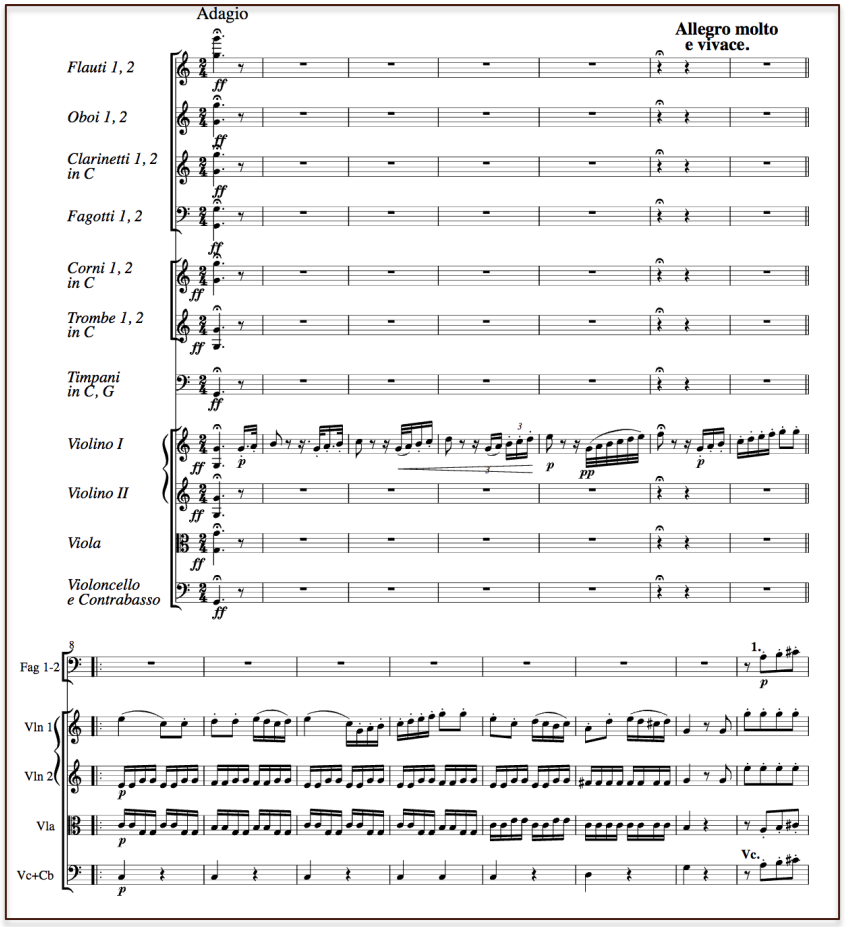
http://www.tassomusic.org/data?&a=notation&f=Trm0242a



muse2scr

Convert MuseData into SCORE PMX data

Similar to muse2ps



MuseData to SCORE (PMX)

```
(C) 1997, 2002, 2005 Center for Computer Assisted Research in the Humanities.
ID: {beethoven/bhl/orch/sym1/stage2/04/01}
TIMESTAMP: MAY/19/2010 [md5sum:1b1733fa57e6899e3e203c9240d61c67]
02/13/97 Fran Bennion
WK#:21       MV#:4
Breitkopf & H\a3rtel, Leipzig, Series 1 No. 1
Beethoven Symphony No. 1 in C Major, Op. 21
Fourth Movement
Flauto 1
0 0
Group memberships: sound
sound: part 1 of 18
$  K:0   Q:4   T:2/4  C:4  D:Adagio
G6    6       q.    d        Fff
P    C34:Y60
rest   2       e
measure 2
rest   8
measure 3
rest   8
measure 4
rest   8
measure 5
rest   8
measure 6
$    D:Allegro molto e vivace.
rest   4       q             F
rest   4       q
measure 7
rest   8
mheavy3 8                    |:
rest   8
measure 9
rest   8
measure 10
rest   8
measure 11
```

```
99.  1.0  SCORE (tm) San Andreas Press .pmx file.  created: 05/15/12 by muse2sc program
99.  1.0    Data converted from the MUSEDATA format.  Source data compiled by
99.  1.0    the Center for Computer Assisted Research in the Humanities,
99.  1.0    located at Stanford University.  (http://www.ccarh.org)
99.  1.0  Composer: L. Beethoven     Source: Breitkopf & H\a3rtel, Leipzig, Series 1 No. 1
99.  1.0  Work: Beethoven Symphony No. 1 in C Major, Op. 21 Mvmt: Fourth Movement
99.  1.0  Page: 1        (c) Copyright 2007 by CCARH
t    1.0   2.366     5.00     1.00     1.20
_00Vc+Cb
8.   1.0  15.000     0.00     0.52   200.00     0.0000    0.00    1112.5010
14.  1.0  15.000     5.00
14.  1.0  15.000     4.00     9.00
3.   1.0  15.452     0.00     1.00
14.  1.0  21.679     1.00     4.00
1.   1.0  27.815     6.00    10.00     0.00     1.0000    0.00     0.00
9.   1.0  27.815    -0.28    53.00     1.10
2.   1.0  38.283     0.00     0.00     0.00     1.0000    0.00     0.00
14.  1.0  49.113     1.00
1.   1.0  51.008     6.00    10.00     0.00     1.0000    0.00     0.00
2.   1.0  61.476     0.00     0.00     0.00     1.0000    0.00     0.00
14.  1.0  72.305     1.00
1.   1.0  74.200     6.00    10.00     0.00     1.0000    0.00     0.00
2.   1.0  84.669     0.00     0.00     0.00     1.0000    0.00     0.00
14.  1.0  95.498     1.00
1.   1.0  97.393     6.00    10.00     0.00     1.0000    0.00     0.00
1.   1.0 107.861     6.00    10.00     0.00     1.0000    0.00     0.00
14.  1.0 118.691     1.00
1.   1.0 120.586     6.00    10.00     0.00     1.0000    0.00     0.00
2.   1.0 131.054     0.00     0.00     0.00     1.0000    0.00     0.00
14.  1.0 141.883     1.00
1.   1.0 144.320     7.00    20.00     0.00     1.0000    0.14     0.00
2.   1.0 154.788     0.00     0.00     0.00     1.0000    0.00     0.00
14.  1.0 166.971     1.00
1.   1.0 168.866    10.00    20.00     0.00     1.0000    0.14     0.00
2.   1.0 173.920     0.00     0.00     0.00     1.0000    0.00     0.00
14.  1.0 182.132     1.00
t    1.0 183.215    13.5      1.00     1.20
_01Vc.
```

Command-line SCORE to SVG

```
#!/usr/bin/perl
use HTTP::Request::Common;
use LWP::UserAgent;
my $data;
my $line;
while ($line = <>) {
  $data .= "$line";
}
$ua = LWP::UserAgent->new;
my $response = $ua->request(
     POST 'http://score.sapp.org/cgi-bin/score',
     [     outputformat => 'svg',
           embedpmx     => 'yes',
           inputdata    => [$data] ]);
if ($response->is_success) {
  print $response->decoded_content;
} else {
  die $response->status_line;
}
```

Save to a file such as score2svg and then Run:

chmod 0755 score2svg

score2svg file.txt > file.svg

Command-line SCORE to EPS

```
#!/usr/bin/perl
use HTTP::Request::Common;
use LWP::UserAgent;
my $data;
my $line;
while ($line = <>) {
  $data .= "$line";
}
$ua = LWP::UserAgent->new;
my $response = $ua->request(
     POST 'http://score.sapp.org/cgi-bin/score',
     [     outputformat => 'eps',
           embedpmx     => 'yes',
           inputdata    => [$data] ]);
if ($response->is_success) {
  print $response->decoded_content;
} else {
  die $response->status_line;
}
```

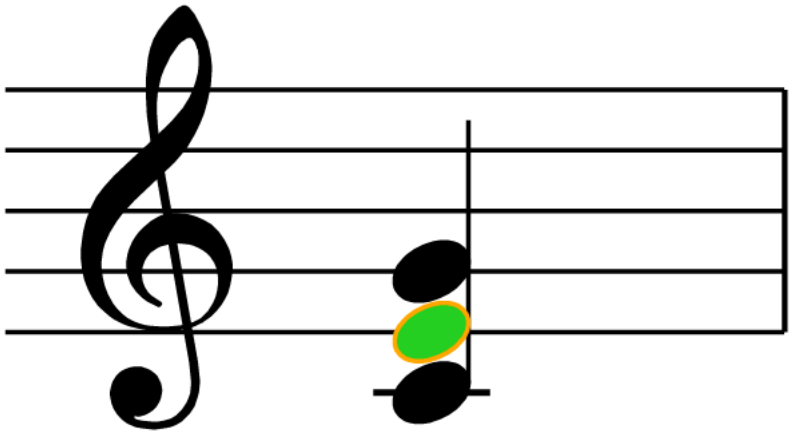
Save to a file such as score2eps and then Run:

chmod 0755 score2svg

score2svg file.txt > file.eps

SVG Code embedding in SCORE

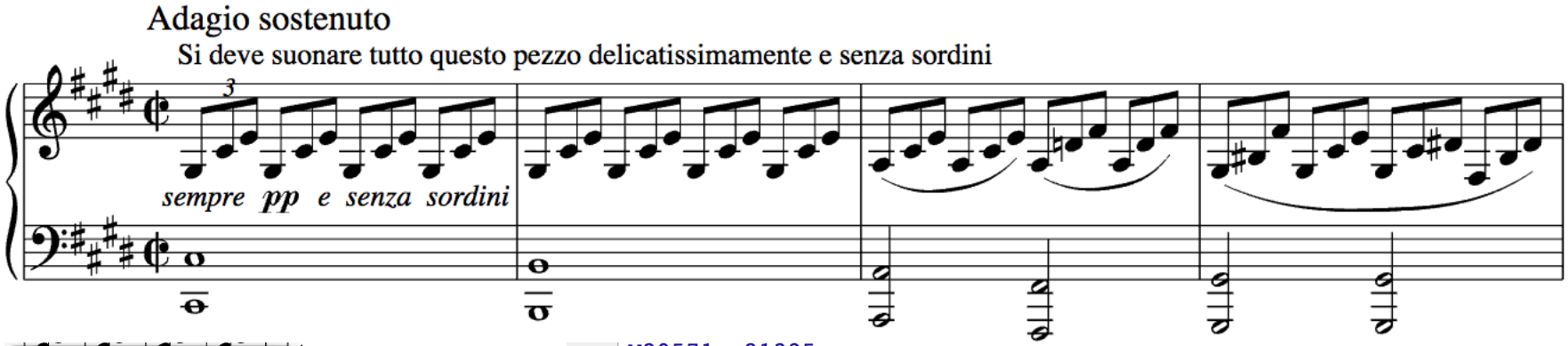
http://score.sapp.org/example/8001/01

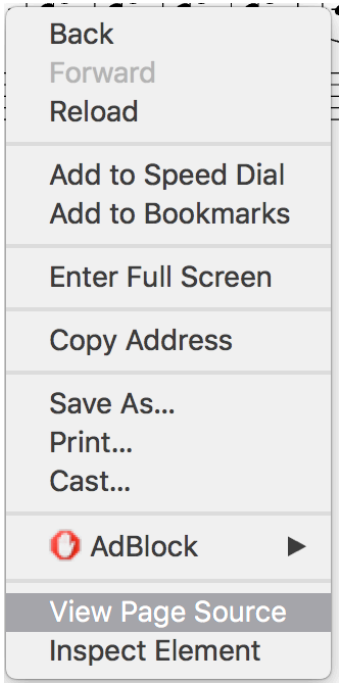


```
#SVG_SCALE: 3
sta 1 0 0 0 30
treb 1 3
1 1 15 1 10 0 1 2
t 1 1
_99%svg%<g color="limegreen" stroke="orange">
1 1 15 3 0 0 1
t 1 1
_99%svg%<\g>
1 1 15 5 0 0 1
bar 1 30
```

Wikipedia incipits

https://en.wikipedia.org/wiki/Piano_Sonata_No._14_(Beethoven)





```
M29571 -21335
L29571 -20456
"/>
</g>
</svg>
<?SCORE version="4"
#SVG-SCALE: 1.2
8  1    0.000   0.0   0.75 200.000
14 1    0.000   2.0   8.00
14 1    0.000   2.0
3  1    1.235   0.0   1.00
17 1    6.595   0.0   4.00    1.000
18 1   15.630   0.0 98.00    1.000
1  1   20.990 -1.0 10.00    2.000   4.0000   7.00
1  1   20.990   6.0   0.00    2.000   4.0000
14 1   64.085   2.0
1  1   65.695 -2.0 10.00    2.000   4.0000   7.00
1  1   65.695   5.0   0.00    2.000   4.0000
14 1  108.790   2.0
1  1  110.400 -3.0 10.00    1.000   2.0000   7.00
1  1  110.400   4.0   0.00    1.000   2.0000
1  1  131.010 -5.0 10.00    1.000   2.0000   7.00
1  1  131.010   2.0   0.00    1.000   2.0000
14 1  152.820   2.0
```