

Project Proposal

Overview

I am interested in doing work involving representation of musical scores. In researching this topic, I found that there are several popular formats for this purpose, but there is a lack of easy-to-use tools to convert between them. Often I found sites talking about a particular converter but which either did not have software for download, simply did not work, or had many incomplete features.

For instance, there exist some databases which provide music in Lilypond format, such as Mutopia. Lilypond is a wonderful program for displaying musical notation, but though it can be converted to MIDI, it is not particularly suited for playback, as it lacks some metadata about instrumentation and specific note velocities, instead supplying notational ornamentation which would be typeset on the page. Also, it is not possible to import Lilypond data into many programs, because it is not an interchange format.

MusicXML and GUIDO, in contrast, *are* interchange formats. However, they are not directly compatible with Lilypond, which is the best free typesetting software. Thus, it would be desirable to convert freely between these three formats. Additionally it would be nice to convert these formats to MIDI, as well as SVG, which is a vector graphics format supported direct or indirectly by many web browsers, and is appropriate for display in-line with text on a web page. The latest Lilypond version, fortunately, claims to output SVG, however its SVG output is not entirely compatible with Mozilla Firefox, as there are (as usual) issues with font handling.

So far, I was able to find the following software:

Lilypond	Ly -> SVG, Ly -> MIDI, XML->Ly, source downloadable
LibMusicXML	Load and save MusicXML, source downloadable
xml2ly	XML->Ly, source downloadable, testing failed on hello.xml from Recordare.
ScoreSVG	Represents GuidoXML, editable with Java application, but no download available.
PyScore	XML->Guido, Guido->XML, XML->MIDI, source downloadable
MusicXML2SVG	XML->SVG, but no downloadable software

The most promising of these seems to be PyScore, which is written in pure Python, is multi-platform, and which converts between two of the three target formats. For my project, I would like to extend PyScore to convert to and from the Lilypond format. This would enable people to download Lilypond scores and import them into many software packages that support Guido and MusicXML. Conversely, it would enable people to output MusicXML from these software packages and typeset the scores with Lilypond's beautiful typesetting engine, or convert them to SVG for use on the web.

If time permits, I would also like to explore supporting more formats, such as NIFF, HummDrum, and MuseData. Having all these format conversions available freely in a single multi-platform package would be highly beneficial, so that users need not search the web for a different application for every conversion. Another idea is to create a simple and useful GUI interface to PyScore, for users who are not comfortable with the command-line.

Resources

PyScore:	http://dkc.jhu.edu/~mdboom/pyScore/
LibMusicXML:	http://libmusicxml.sourceforge.net/
MusicXML2SVG:	http://www.svgopen.org/2003/papers/StirringXml-VisualisationsInSVG/index.html
Slashdot:	http://slashdot.org/article.pl?sid=04/01/27/2051238&tid=141
Mutopia:	http://www.mutopiaproject.org/
Lilypond:	http://lilypond.org/web/about/
xml2ly:	http://www.nongnu.org/xml2ly/
ScoreSVG:	http://www.svgopen.org/2005/paperAbstracts/ScoreSVG2.html