

Name: David Garfinkle

E-mail: david.garfinkle@mail.mcgill.ca

Project Name: MusicXML Export

Summary

The aim of the project is to extend previous work done on MusicXML export. MusicXML is a standard intermediary music notation format which allows digitally-engraved music to be converted between various music notation softwares.

Benefits

Please explain how users will benefit from your project. How will the GNU project itself benefit?

Currently, Lilypond does not have any complete export option to an intermediary music notation format. Extending the functionality of MusicXML export will offer more flexibility to current users and will make GNU Lilypond more attractive to new users. For example, a new user is more likely to adopt or experiment with GNU Lilypond if they can export their work in Lilypond to alternative engraving software. Furthermore, current users have been asking for functional MusicXML support for at least 6 years, with the first issue tracker having been created in 2008. In short, this is an important project for both growing the user base and providing more flexibility to current users.

GNU Lilypond has been a part of the GNU project since 1996 and has provided users with free rights to text-based music engraving software. The GNU project will advance its goal for providing free, collaborative software by supporting Lilypond in collaborating with its proprietary counterparts. Lilypond's musicians will enjoy more freedom in music engraving!

Deliverables

What software will be added or changed? What parts of the project's code will be affected? Which documentation will you update?

Previous work has set the stage for exporting MusicXML from Lilypond's internal scheme structure. However, this work has not yet been integrated into the code base, and only a small subset of lily scores can be exported. Currently, export is limited to single-part scores with key & time signatures, clefs, sequential notes, chords, and articulations. This project aims to integrate and extend the current functionality, including necessary musical expressions such as polyphonic music, multiple parts, rests, tuplets, and ties. Better documentation will also be a major goal so it's easier for developers to add further functionality (such as trills, grace notes, repeats, etc).

Plan

What will you be working on, and how long will each part of the work take? What objective results will be visible at each stage? How will you know if you are ahead or behind schedule? If you are unable to complete the project, are the results from part-way through still useful? How?

How will everybody know whether things are on-track at the half-way evaluation point?

The work is compartmentalized. Starting and finishing each step will add independent functionality to the already-existing MusicXML export. A major goal is implementing polyphonic music and multiple parts. Necessary musical expressions (in terms of conveying minimum rhythmic and pitch information) such as ties, rests, tuplets, grace notes, and so on, should be within the scope of the project.

Additionally, the project should be integrated with the code base; this requires modifying the compilation of lily files and redirecting their output to the export function rather than creating a pdf music score.

A good half-way mark would be integrating the current export with lilypond along with the support for a number of additional music expressions. After this, I'll focus on exporting multiple parts, polyphonic music, and writing documentation. If I am unable to reach these goals, most of the work is still very useful because most subtasks are independent of each other, and so each completed subgoal makes the existing MusicXML export that much better.

Communication

Our experience with earlier Summer of Code projects is that good communication is essential to students' success. Students who communicate clearly and frequently with their mentor are more likely to be successful. Please indicate the ways in which you will contact your mentor (and a schedule for doing it) to ensure that they're always aware of your progress. While email is useful, real-time forms of contact help a lot. Also, how will your mentor be able to see your code as it progresses?

My mentor Werner Lemberg and I will communicate at least weekly with skype or IRC. I'll be committing work to my online Github for code review. The Lilypond community is really helpful and I'll make the most of it (if my mentor is not available) by posting to the mailing list.

Qualification

Why did this project appeal to you? How will you benefit from it? Why are you particularly suited to work on this? What will you do once the project is "finished"? Have you worked on any Free Software before? Of the skills that you will need to complete the project, which do you already have? What will you need to learn?

As an undergraduate student who pursues a multi-disciplinary education in music (piano), computer science, and mathematics, this project appeals to and makes use of the entirety of my skillset, and allows me to contribute to a project that will benefit many music engravers around the world.

Furthermore, I was given the great opportunity last summer to lay the groundwork for

Lilypond MusicXML export. I'm invested in the project already and would like to continue; there is great value in a robust XML export option for Lilypond music engravers. The required skills that I have include Scheme, Guile's SXML library, git, knowledge of Lilypond, and music reading. To achieve some of my goals, I'll need to dig deeper into Lilypond internals and the structure of MusicXML.