LilyCollider and Rhythmic Structures[1]

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L ilyCollider[3] is an interactive software system designed to build sequences of music notation in an iterative way. LilyCollider creates a symbolic representation of all the notes, staves, rhythm trees etc. It is still a work in progress. I also developed another SuperCollider extension to work with music notation called SuperFomus[4]. LilyCollider extends the SuperCollider programming language (sclang), and wraps the LilyPond5 music notation software.

The examples provided here demonstrate some possibilities working directly with metric structures in the form of tree data structures. Trees are a very common data structure in computer science, it consists of a hierarchical tree structure with a set of linked nodes. Mikael Laurson proposed a representation for rhythm notation that is a very specific case of tree-like data type and is very adequate for the kind of manipulation one might imagine to do with metric rhythms6.

The patches exhibit the idea of rhythm trees as list comprehensions, or what one may call rhythmic comprehensions. List comprehensions are originally found in the purely functional language Haskell. With list comprehensions one can generate a list from other lists according to rules. Whereas with rhythmic comprehensions one can define an area of possible rhythms to work with for further filtering, manipulations, set operations with other rhythm matrixes etc. It lets one control the rhythmic complexity and shape of trees and create rhythmic families with a direct interface capable of further operations, building up a matrix of related rhythmic families.

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[2] http://bernardobarros.com ; http://babelscores.com/bernardobarros
[3] https://github.com/smoge/LilyCollider
[4] https://github.com/smoge/superfomus
[5] "LilyPond is a music engraving program, devoted to producing the highest-quality sheet music possible. It brings the aesthetics of traditionally engraved music to computer printouts. LilyPond is free software and part of the GNU Project." http://lilypond.org/
[6] http://jim.afim- asso.org/jim2003/articles/laurson.pdf