OM-Harmonist Tutorials

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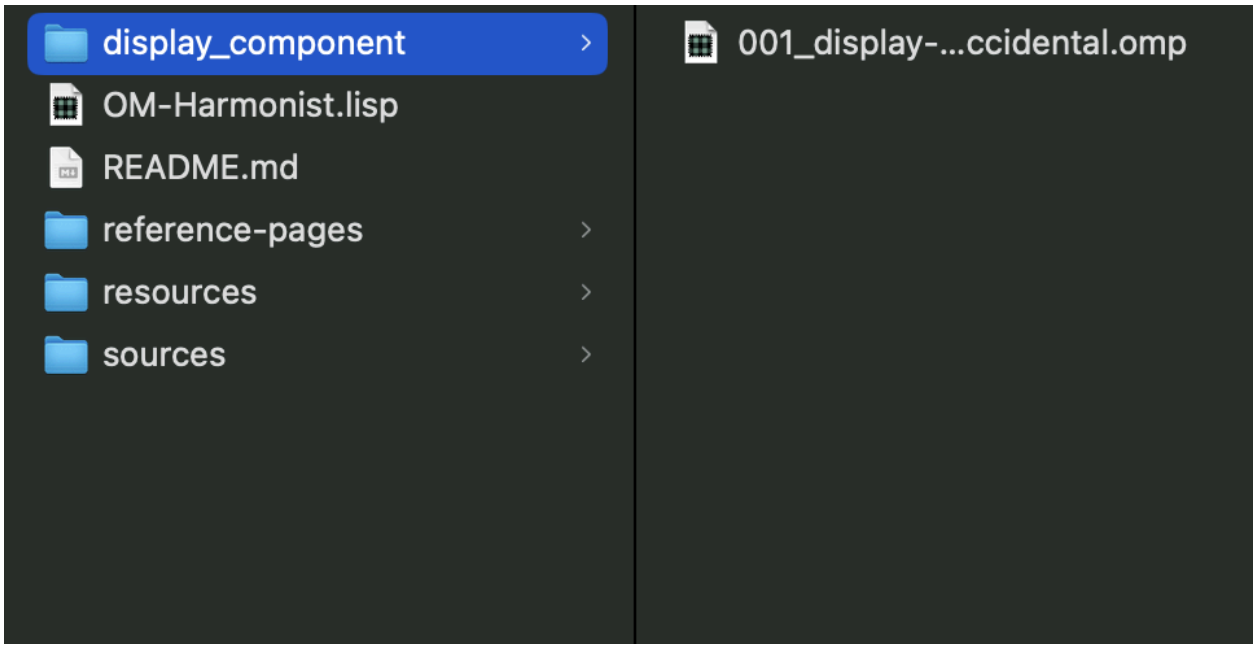
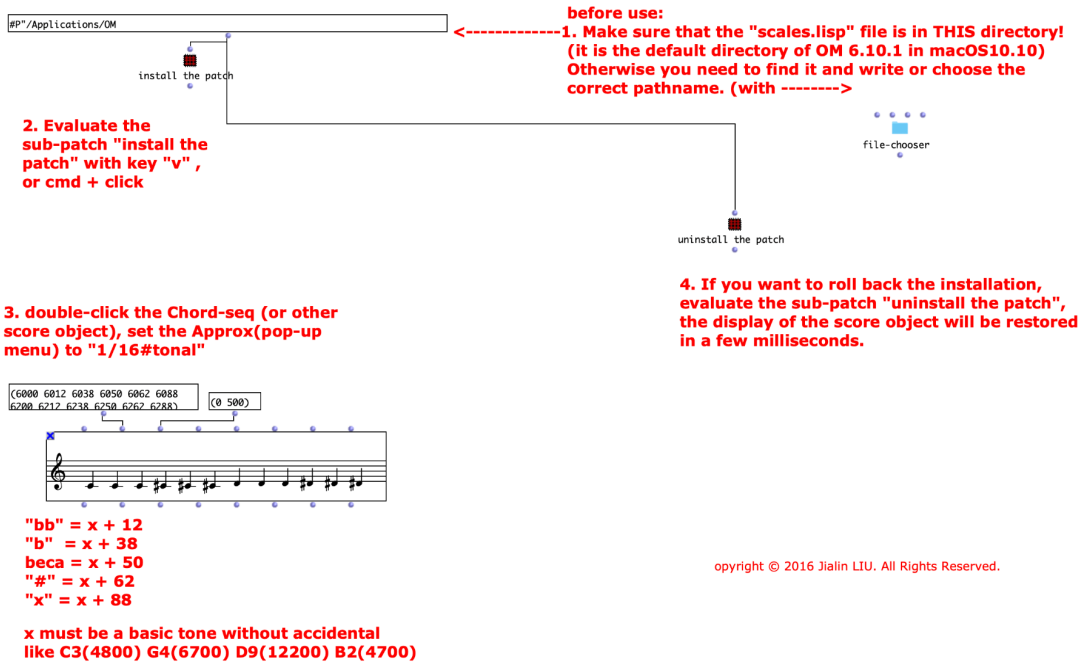
Contents

Chapter 1: Display Module



After you have downloaded, unzipped, and installed the OM-Harmonist library into the correct location, please follow these steps:

1. Inside the main `OM-Harmonist` folder, locate and open the `display_component` sub-folder.
2. Drag the Patch from this folder directly into your current OpenMusic workspace (as shown in the image below).
3. Follow the internal instructions within the patch itself to complete the configuration.

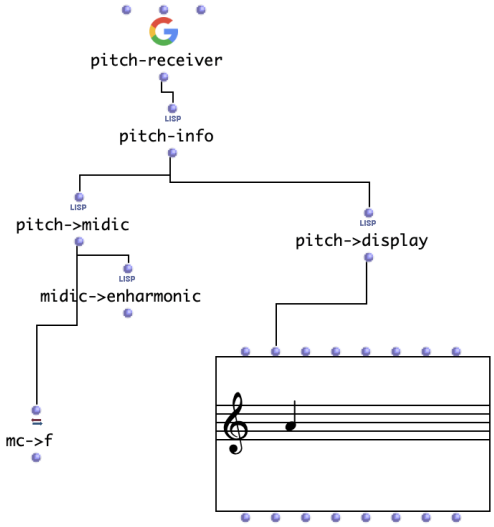


Please Note: This step is essential for the library's core functions to work correctly!

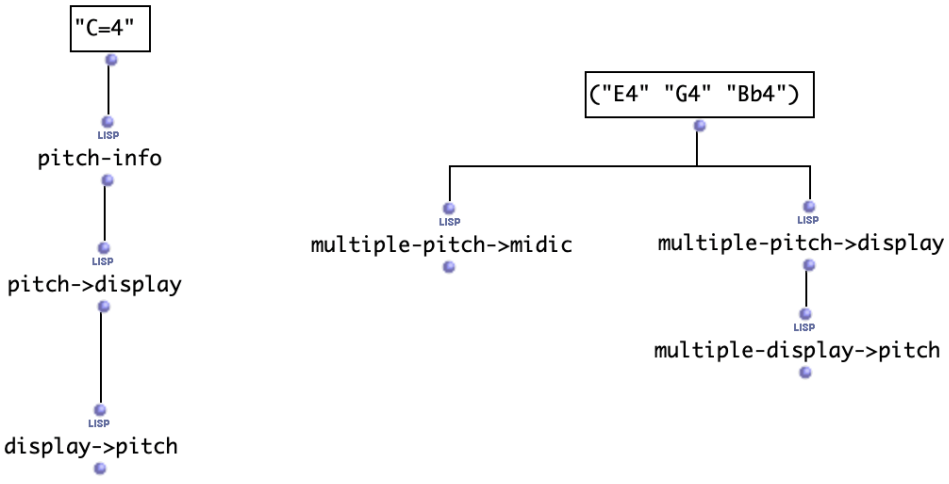
This setup is required for the correct display of accidentals within a tonal framework, addressing a limitation in the native OpenMusic environment.

The algorithm for this component was developed by composer ©Jialin Liu (https://soundcloud.com/jialin-liu-457820276).

Chapter 2: Score Data Input/Output Module



The patch shown above is a system for single-note input. To use it, select a pitch in the `pitch-receiver` object and evaluate the connected `chord-seq` to produce the output. Its primary function is to serve as a data entry tool for musical information.

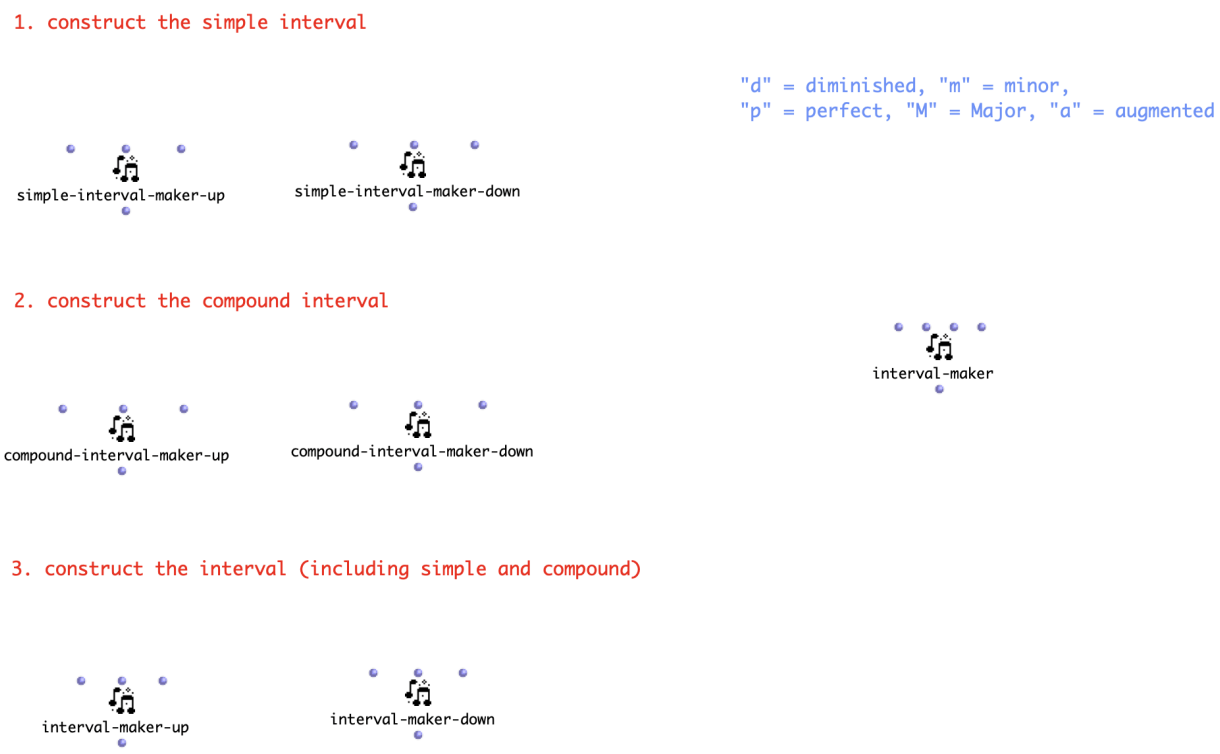


The patch shown above is a system for outputting musical data. It is the main output utility for the `part-writing` module discussed in Chapter 6.

Please Note: To create a function box from this library in your patch, you can either type `om::harm function-name` directly into the workspace (replacing `function-name` with the specific function's name), or you can right-click on the patch background and select it from the **Libraries > OM-Harmonist** menu.

Chapter 3: Interval Module

This chapter covers the main features of the interval module. The best way to learn is by doing, so please recreate the tutorial patches shown in the images that follow. You'll find them to be very intuitive and easy to get started with!



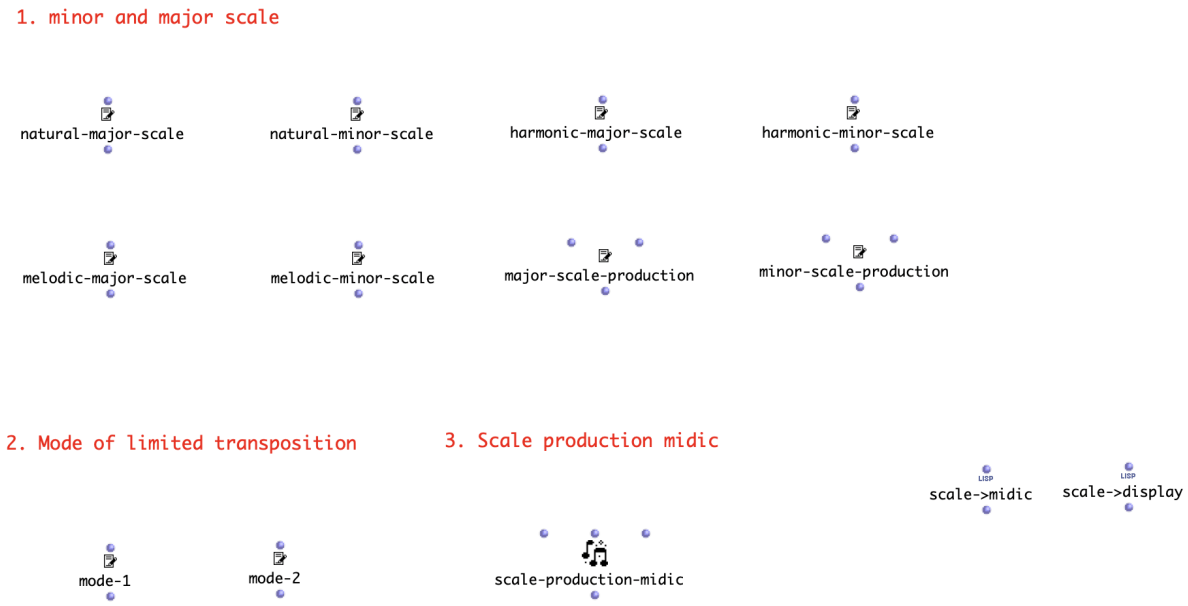
The patch shown in the figure above is a utility for chord construction, one of the auxiliary functions provided in the OM-Harmonist library.

1. interval identification within two octaves

This patch is designed to identify the quality of chords (e.g., major, minor, etc.) within a two-octave range. To access detailed documentation for any function, select its corresponding box in the patch and press the **D** key on your keyboard.

Chapter 4: Tonality Module

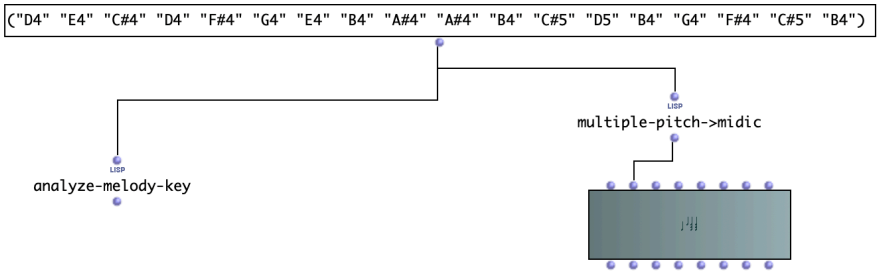
This chapter covers the main features of the tonality module. We will begin with the `scale-producer` patch, a utility designed to generate a wide variety of musical scales. This function is primarily intended as a pedagogical tool for students learning about scale construction.

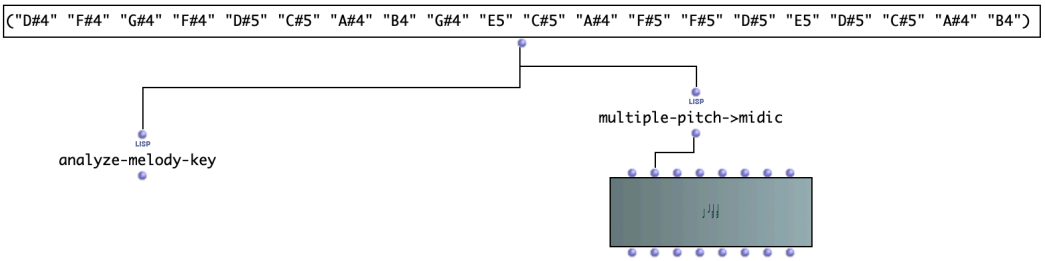


The second patch shown below is a practical utility for melodic key analysis. It outputs a list of possible keys, ranked by probability based on the input melody. Please note that while this tool does not yet handle modulations, it correctly processes most chromatic events, such as secondary chords.

M0 = natural Major scale, m0 = natural minor scale
M1 = harmonic Major scale, m1 = harmonic minor scale

1. Determine the tonality to which the melody belongs

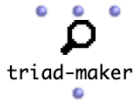




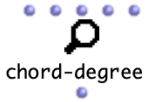
Chapter 5: Chord Module

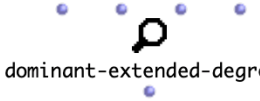
In this chapter, we will explore three main patches that cover most of this module's functions. Please follow the images to build them and experiment on your own. As before, they are very intuitive to use!

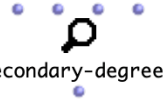
1. chord-maker (don't need tonaliy information)



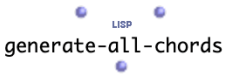
2. Generate target chords using tonality and degree information







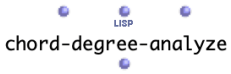
3. Generate all common chords in the target tonality



The first patch shown above is the `chord-maker`. This utility is designed to quickly generate a target chord based on different inputs and conditions.

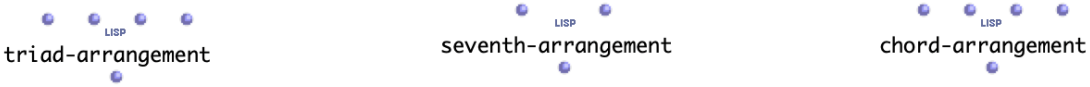
```
1. Find all chords in the tonality that contain the high note
```


```
2. Analyze the degree of a chord belonging to this tonality, and what chord is it
( chord can only contain a maximum of 4 notes, and it could be any arrangement!)
```



The second patch is the main utility for chord analysis. The details of its functionality is provided in the text comments within the patch itself (shown above).

```
1. "SATB" voice leading
```



The third patch shown above is a `chord-voicer`, a tool designed to generate various voicings for a given chord in a standard four-part harmony setting. This is a foundational function for the library's automatic part-writing capabilities.

Chapter 6: Part-Writing Module

This chapter introduces two primary utility patches that form the core of the library's four-part writing and analysis capabilities.

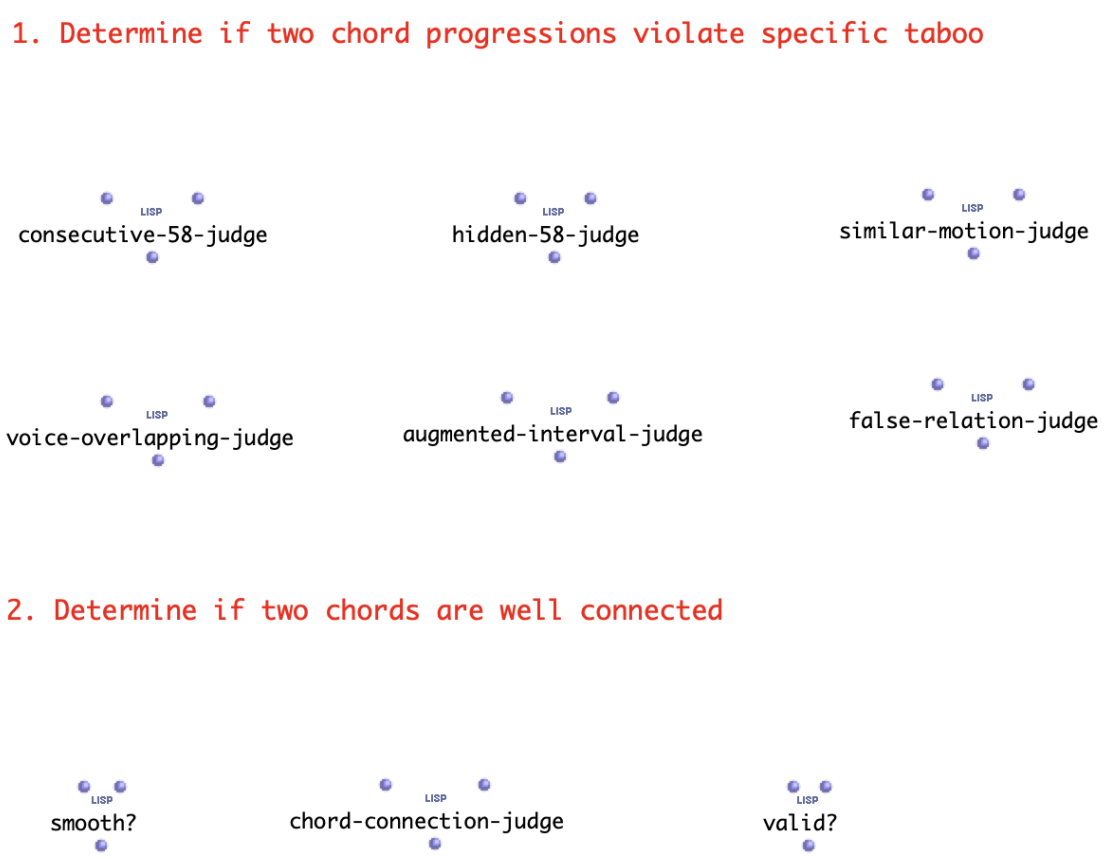


Figure 1: The `voice-leading-checker` Patch

- **Function:** This patch evaluates the voice leading between two consecutive chords to determine if the connection complies with specific rules.
- **Output:** All functions within this patch return a boolean value: `t` (true) for a correct connection, or `nil` (false) if voice-leading errors are detected.

```
1. harmonize the given melody and provide a roman-numeral analysis
```

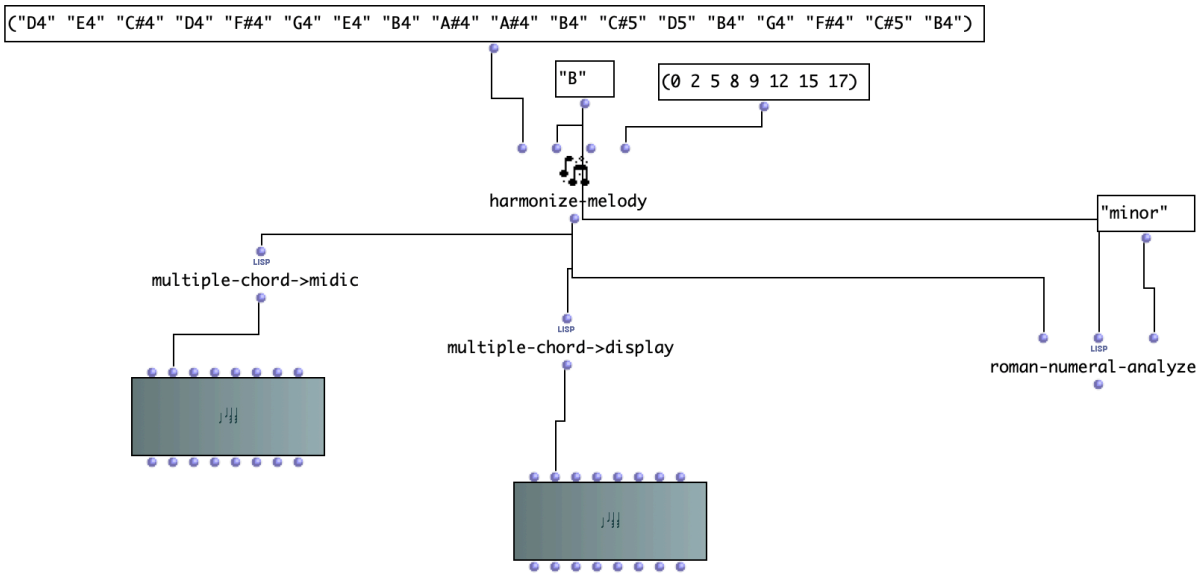


Figure 2: The `four-part-harmonizer` Patch

- **Function:** This patch automatically harmonizes a given soprano melody, generating a complete four-part chorale-style setting.
- **Output & Current Limitations:** The patch outputs a *single*, harmonically correct voicing. However, this is not guaranteed to be the most musically optimal solution. Due to its current architecture, the algorithm halts and returns the *first* valid result it finds.
- **Future Development:** An updated version is planned that will find and output *all* possible solutions, allowing the user to select the best option. Stay tuned!