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Music & Technology II

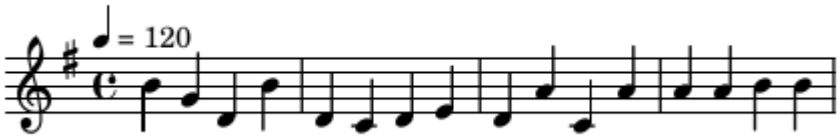
Musical Emotion

For my final presentation, I will present a comparative analysis between the emotions evoked by stereo-typically sad/happy music (by the definition of Western music) and the actual emotions found to be conveyed by these works. The final comparative examples will be randomly generated so as to dispel any bias which may arise from human interference. The software being used for such production is written in Python3 which takes in a key and an output file name, and produces a Lilypond file and PDF file of the created piece, under the provided title. The music produced is a single staved piano score. The next page contains an example run of the code for the key of g. My goal for this project is to be find out what simple elements make a piece evoke happy emotions versus sad emotions (for a western audience) and to refine my musical generator to eventually produce a piece which is more universally agreed upon to evoke happiness(or sadness) in a person upon listening. Because of the fact that the current western ideology is that major implies happy and minor implies sad, my current means of production include producing the same exact piece in major and minor and comparing the two. As the research develops, I plan to integrate my findings into the producer script to produce more accurate representations of happy or sad music, and possibly find some middle ground along the way. I believe that the line between the two emotions will be influenced more heavily by tempo, meter, rhythm, and instrument choice than by musical mode alone. While I do not plan to be able to test the influence of instrument choice in this study, that would be a great area to expand this work to were the study to continue beyond this semester. By the end of this phase of the study, I hope to have a more concrete hypothesis upon which future work can be built for the investigation of emotional evocation within music, specifically with regards to the emotions of happiness and sadness. While the musical examples produced at the end of this process should be longer and more complex than the ones presented below, the examples on the next page provide a good foundation upon which this more complex system can be built. In relation to the examples below, one obstacle I expect to face is distinction of the current minor examples as minor and not major within the presented key signature.

```
marchdan@marchdan-ThinkPad-T460s:~/Dropbox/Spring2019/Tech2/MTech_blog/code$ python3 producer.py g example1
The notes for Major are: ['b', 'g', 'd', 'b', 'd', 'c', 'd', 'e', 'd', 'a', 'c', 'a', 'a', 'a', 'b', 'b']
The notes for Minor are: ['bb', 'g', 'd', 'bb', 'd', 'c', 'd', 'eb', 'd', 'a', 'c', 'a', 'a', 'a', 'bb', 'bb']
GNU LilyPond 2.18.2
Processing `lily/example1Major.ly'
Parsing...
lily/example1Major.ly:1: warning: no \version statement found, please add

\version "2.18.2"

for future compatibility
Interpreting music...
Preprocessing graphical objects...
Finding the ideal number of pages...
Fitting music on 1 page...
Drawing systems...
Layout output to `example1Major.ps'...
Converting to `./example1Major.pdf'...
Success: compilation successfully completed
GNU LilyPond 2.18.2
Processing `lily/example1Minor.ly'
Parsing...
lily/example1Minor.ly:1: warning: no \version statement found, please add

\version "2.18.2"

for future compatibility
Interpreting music...
Preprocessing graphical objects...
Finding the ideal number of pages...
Fitting music on 1 page...
Drawing systems...
Layout output to `example1Minor.ps'...
Converting to `./example1Minor.pdf'...
Success: compilation successfully completed
```

This example produces the following Lilypond code and corresponding musical passages:

```
\header
{
        title = "example1Major"
        subtitle = "2019-04-02"
        composer = "Daniel Ackermans"
}

{
        \key g \major
        \clef "treble"
        \time 4/4
        \tempo 4 = 120
        b'4 g' d' b' d' c' d' e' d' a' c' a' a' a' b' b'
}
```




```
\header
{
        title = "example1Minor"
        subtitle = "2019-04-02"
        composer = "Daniel Ackermans"
}

{
        \key g \minor
        \clef "treble"
        \time 4/4
        \tempo 4 = 120
        bes'4 g' d' bes' d' c' d' ees' d' a' c' a' a' a' bes' bes'
}
```