A PTGG Based Pop Music Generator

Final Project in CPSC 431 for Sam Levatich

What was implemented:

I utilized the PTGG module for grammatically generated music in Haskell to fuel a pop music generator based on the common pop music form I-V-vi-IV (the four chord song) allowing for minor substitutions, particularly on the V chord. This was done through the separate generation of a verse, chorus, and bridge (a different verse generated on the dominant) each containing a bass, harmonic, and melodic line differentiated both through ruleset as well as rhythmic density. Rulesets were consistent with the four chord structure, but the melodic grammar was changed slightly for the chorus to reduce similarity to the verse. The PTGG to music transformation also differed slightly depending on line and portion: chorus harmony was interpreted as arpeggiated chords, verse, bridge, and modulated chorus (otherwise the same as chorus) were interpreted as block chords, and all else was interpreted as single notes. The ultimate structure is shown below:

Mel: Verse - Chorus - Verse - Chorus - Bridge (V) - Chorus - Mod Chorus (ritardando)
Har: Verse - Verse - Chorus - Verse - Chorus - Bridge (V) - Chorus - Mod Chorus (ritardando)
Bas: Verse - Verse - Chorus - Verse - Chorus - Bridge (V) - Chorus - Mod Chorus (ritardando)

Each block of the song is 2 repetitions of the 4 chord structure, ultimately 4 measures.

How to run:

After loading PopGen into ghci, run the following, where i is a random integer seed and n is the absPitch of the key (Middle C is 48, mid range recommended):

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play $ songGenerator i n
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Other notes:

In the end I only supported pop songs in major keys because my rulesets didn't account for modal mixtures achieved through the alteration of scale degrees six and seven (though certain parallel chord substitutions are supported in the ruleset through the PTGG modulation syntax). I included one piece generated in minor for example purposes. Additionally, melodic generation was based primarily on my own intuition (and ultimately consisted mostly of runs up and down the scale) which created little rhythmic variation (apparently a still fertile area of research!). I also think there is a lot of potential for improvement on the player/signal processing side of this project since so much of pop music is determined by vocal stylings of the artist.