Real Time Soundtrack Generator

Ezra Davis (solo project)

Running

Open and run the contents of `code/sg-main.scd`. This will launch the soundtrack generator and my simple UI.

```Bash
# Run pacman with python 2:
# Install OSC package:
pip install pyosc # (Must be pip for python 2)
# Run pacman:
cd pacman
python pacman.py -p KeyboardAgent # (Also must be Python 2)
```

Sources

- The Python pacman game (except for roughly the first 60 lines in `KeyboardAgents.py`) comes from a Berkeley AI assignment
- The `.wav` files come from the original Pacman game via www.classicgaming.cc
- The Context Free Grammar design for tonal harmonies comes from Martin Rohrmeier's paper Towards a generative syntax of tonal harmony

My promises from the proposal

- [x] Write a SuperCollider program that creates different music when given OSC messages:
    - [x] reverb
    - [x] scale(s)
    - [x] tempo
    - [ ] *implied promise*: Complex section changes (e.g. play a bridge?)
    - [x] Voices
        - [x] On/off messages
        - [x] Panning, volume, etc...
        - [ ] Handle long-running ambiance synths

    - [x] Overall sound complexity (# of notes played at once)
    - [x] Trigger short sound effects
    - [x] Basic quantization/synchronization
- [x] Have interesting voices...
    - [x] Make a few `SynthDef`s
    - [x] generate melodies with Markov chains
    - [x] Use Automatata for section changes (and more)
    - [ ] Use envelopes for making gradual changes
- [x] Make a simple UI that controls the 1st program
- [x] Stretch goals
    1. [x] Voices interact
    2. [x] Generate soundtrack to real game (Python Packman)
    3. [ ] Output MIDI (probably to Garageband)