Generative music

- Good old fashioned algorithmic composition?
- planting seeds, Goethe and Eno’s gardening metaphors
- designing realtime generative systems which produce products on demand, not just a single fixed product
- Humans may design the systems and consume/modify the outputs, but are not typically ‘within’ the running of the algorithm (no IGA or IMS, live coding, text music etc). Typically computer programs without human computation, output only
Examples

- More deterministic: isorhythm and Music for Airports, Jem Finer’s LongPlayer
- Works on rand()%, the Algorithmic Stream, Infinite CD, Morpheus CD
- Karlheinz Essl’s Lexicon Sonate (non-interactive version)
- Brian Eno’s Generative Music 1 installation with Koan (1996)
- ‘Infinite Length’ Pieces (examples: iDAB, pythcirc, Canonic Hill Loss, Decison, Mother Fuga, infno)
- Existing as standalone computer programs

Problem: How to Analyse?

- Music’s innate combinatoriality of material (Prokofiev 1978, pp. 46-9)
- How many runs of the work are representative? (Statistical sampling problems: can’t guarantee random sampling, normal distributions)
- Mathematical versus psychological space
- Testing against composer’s statements as specification; but artists often obfuscate or hide technical details
Wading into the program code

- May not be available! Black box testing/reverse engineering
- White box testing procedures: hard task to design tests supplying representative coverage
- Archiving is a general issue in digital media

Automated critics

- May never be available or remain slower than RT (and the original generative program might only run at RT or slower!)
- Certain gross timbral measures and transcriptions with success rates from 40-80% or so are currently available in computational audio analysis. But transcription is ill-defined and most auditory mechanisms remain beyond the state of the art
Other tactics

- Reductionism - dangerous! Changing the program can cripple emergence…
- Strategies inspired by other work - analysis of jazz improvisation, speech literature, musical style analysis, rule-based art

Counter-examples

- ‘To establish a system for representing any aspect of music is almost a challenge to a composer to invent music which the system is incapable of representing.’ (Marsden 2000, p.168)
- Why do we need more music, let alone automatic music generating programs? Or even worse, computational creativity giving us automatic GM program generation!
- Perhaps we should solve problems of analysis first just for single fixed works…
What next?

- Generative music already exists: as musicologists, we should engage with it
- Certainly, generative music poses novel problems (and rewards) for the analyst

Example analysis

- Two short SuperCollider demo examples by James McCartney, ‘toy’ problems, white box testing possible