# Music Composition

- About 40 years making
- Interdisciplinary - music, acoustics, psychology,  math, physics, programming, AI…
- How people hear and understand rather tradition or cultural artifacts.
- Tried to bring nature into music - chaos

# This is the Outline

- Chaotic Sounds
- Aesthetics
- Computers in Music
  - Algorithmic Composition -
    - & How Not to Do It
  - Relationships vs Mimetic Content
- My Current system
  - Structure - Cognition Models - Articulation
  - Future
- More About Cognitive Models
- Conjecture
- Examples

# Chaotic Sound

- Stream 
- Crowd 
- Crowd 

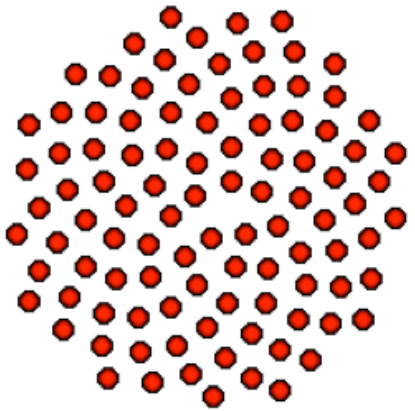
Edited stream chopped 

Edited crowd chopped 

Edited crowd repetition 

# Aesthetic Tools

- Novelty and familiarity - memory
- Primary senses
- Relationships - constant and changing
- Structure and surface
- (Information) density



# Computers & Music

Nobody asks Yo Yo Ma
"Now let's hear you do it without the cello"

- Fast accurate computation for
- modulations dissonances, density…
- Well controlled relationships
- Well controlled changes
- Continuity and complexity

# Algorithmic Composition

Modern algorithmic composition strategies include

- Markhov Models
- Generative Grammars
- Baysian Networks
- Transition Networks
- LInear Dynamic Models
- Chaos - Nonlinear Dynamic Models
- Genetic Algorithms
- Cellular Automata
- Artificial Neural Networks
- All above mixed with Predicate Logic

Most efforts are mimetic - based on parsing and copying previous “successful” compositions


OLD MUSIC
NUTS
DOG
HAT
TOMBONE
TONIC
BLUE
TEMPO
JIMI
DRUMS
JAZZ
FARM
SWEET
NEW MUSIC

**Not!**

# Mimetic Content

Meme is unit of imitation

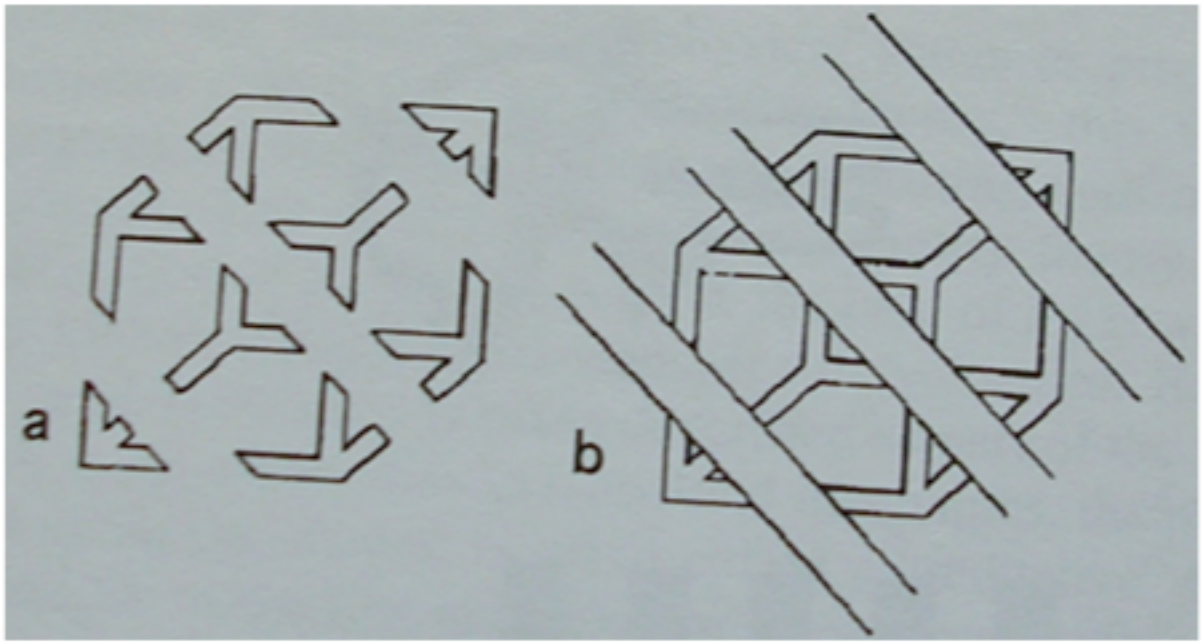
For music this is roughly equivalent to semantics - basis for traditional music

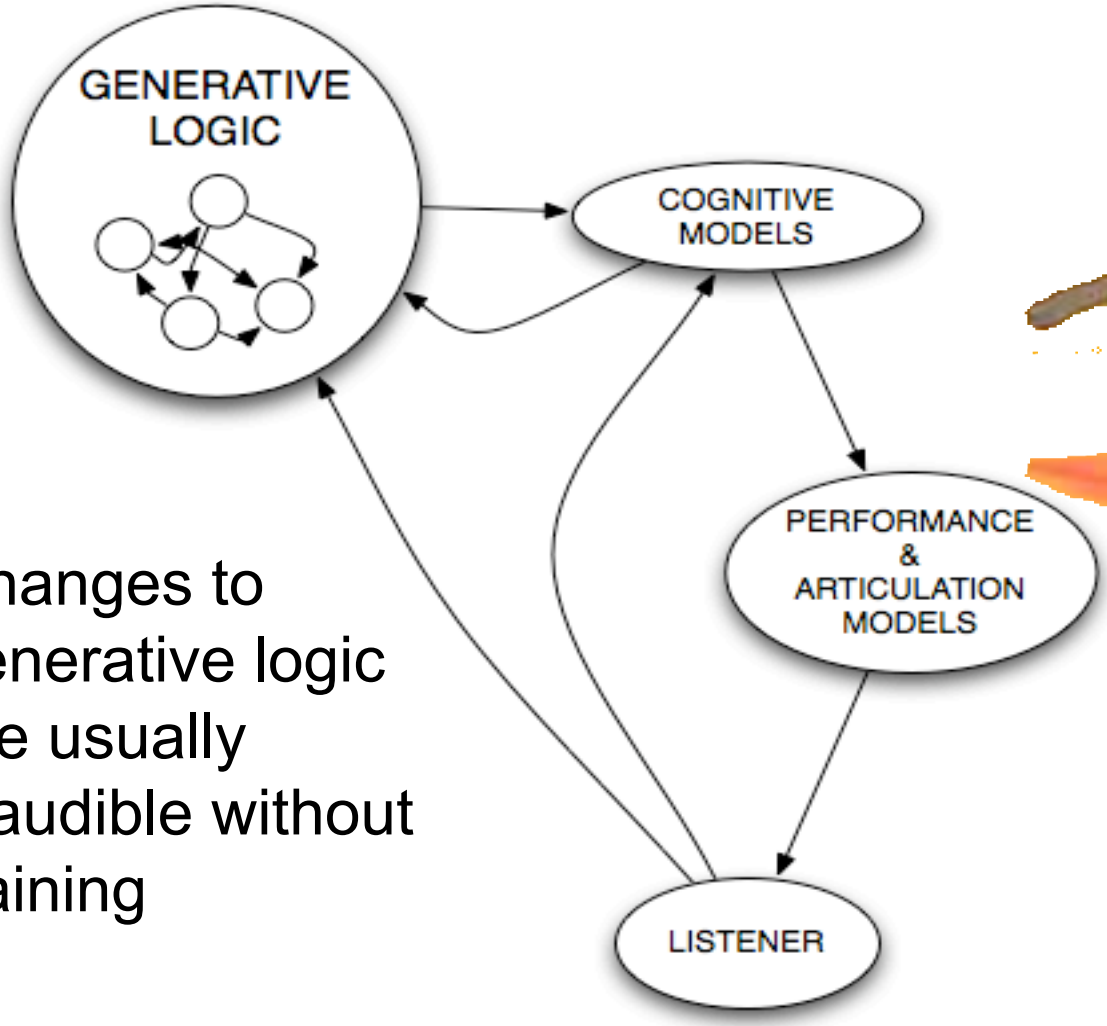
Most algorithmic systems are mimetic

My system uses relationships

# Relationships…

mean more than memes






My Current System

Changes to generative logic are usually inaudible without training

THE MODELS GENERALLY REPRESENT
METHODS OF MAKING OURSELVES COMFORTABLE
DURING INFORMATION HANDLING

MODELS ARE ACTIVE IN TIME AND CONTENT DOMAINS
JUST LIKE THE LISTENER

# GENERATIVE LOGIC

- Modulated Waveforms
- Chaotic models and phenomena

DEEP STRUCTURE

Randomness doesn’t work

# COGNITIVE MODEL

MEMORY

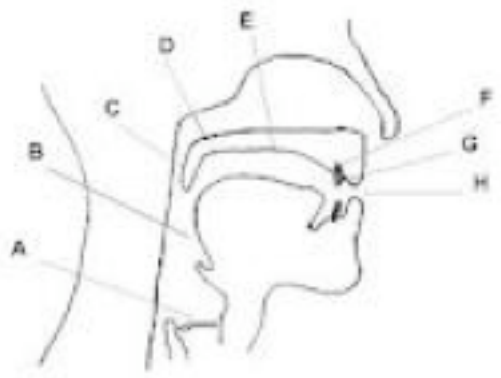
PATTERNS

RELATIONSHIPS

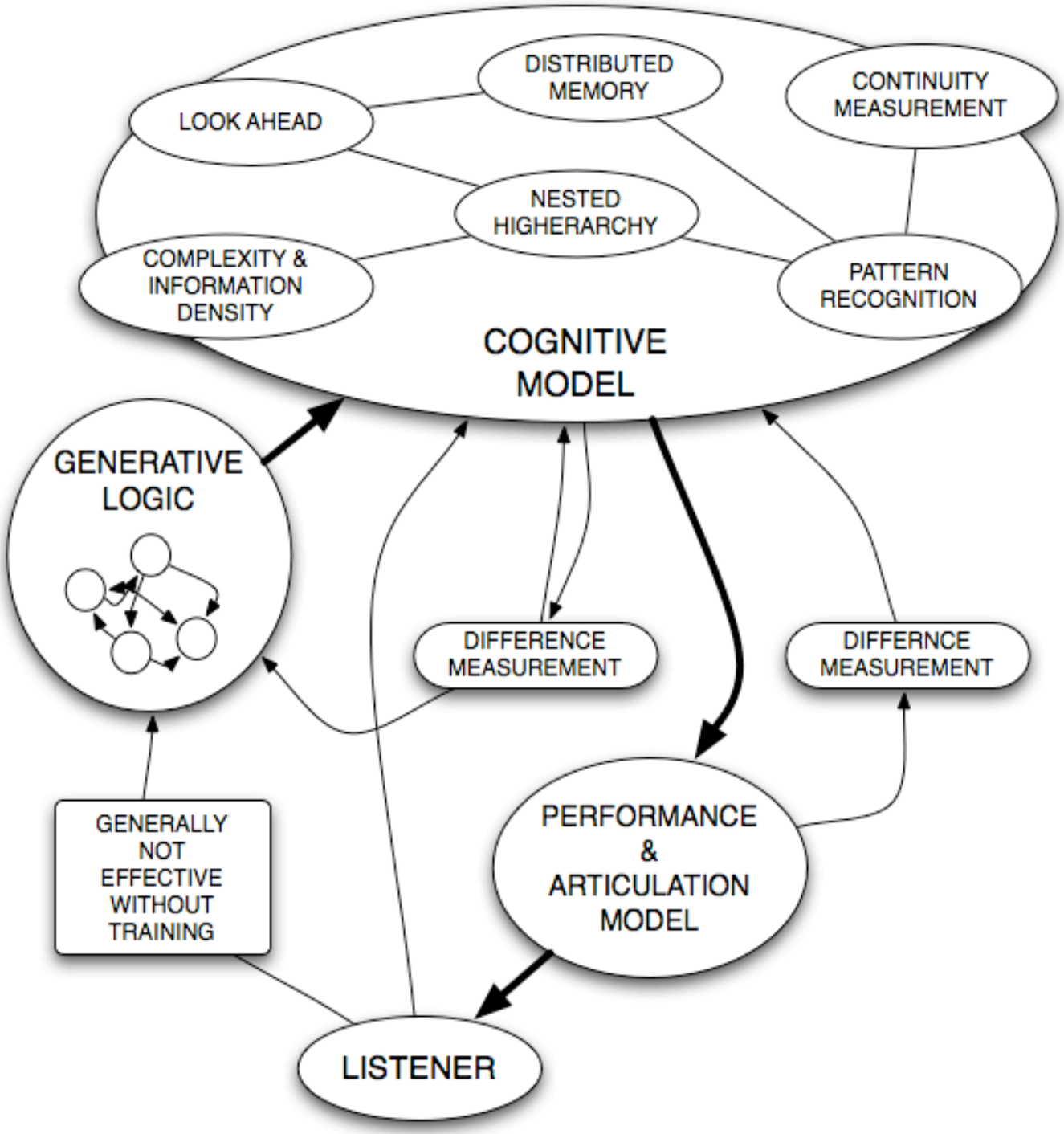
Mimic some aspect of consciousness in a simple form

# ARTICULATION

- Communication
- Instruments - players
- Voices
- Scoring
- Improvising




Computer allows presentation of some aspects more accurately than human performance




## Proposed Modifications

almost all in cognitive model

# Coping with Chaos

- Similar strategies for using chaos into music
- Ignore parts
- Look for trends
- Look for constants
- Look for relationships
- Slice time in smaller increments - fast response
- Slow down
- Reduce distractions

# CONJECTURE

Once we learn to create effects they can be modulated  very accurately over very long time spans - years

May lead to learning about perception and memory

Might help to modify consciousness in directed fashion much the same way as study, sports, or meditation

Music composed in this manner might be used to enhance work or study, stress reduction

# Examples

Stream01

Take It As It Comes

Can You Tell
Me a Secret

Balance Included

Wait_

Romantic Argument

List of Oceans

Signs of Flight

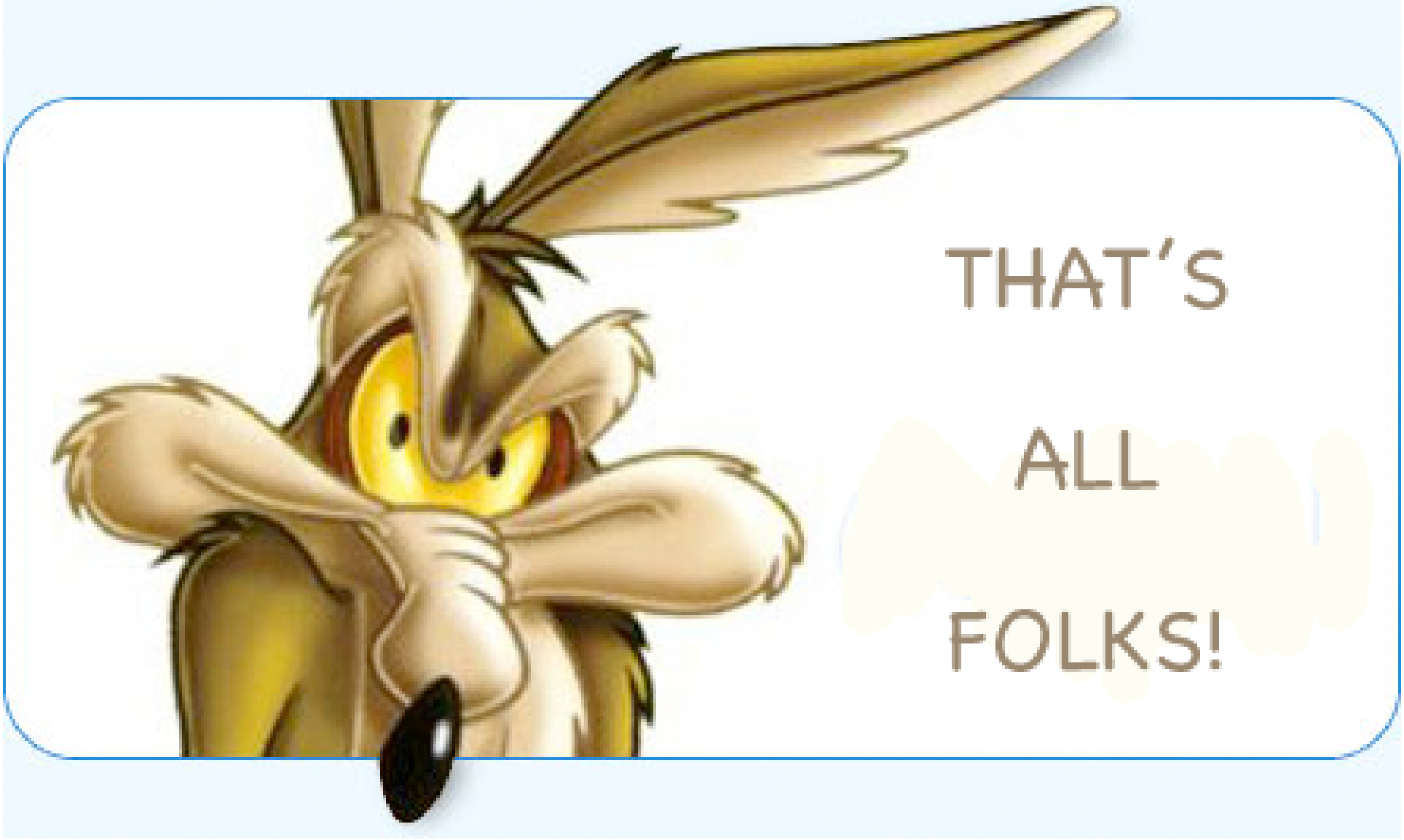
Every Other Corner

Memories

Algorithm & Blues

Down by the Sea

Sand Castles


THAT'S
ALL
FOLKS!