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# Music Scoring for Games



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# Overview

- » Goals for Game Scores
- » Techniques from Linear Media
- » Scoring Non-Linear Games
- » Does MIDI have a future in games?
- » Q & A

# Goals for Game Scores

- » Similarities to traditional media
  - Emotional connection/cues
  - Provide context for environment
- » Unique game aspects
  - Engage for much longer experience
  - Music as a game play element

# Where Games Differ from Linear Scoring

- » Undefined/unpredictable timings
- » Game duration expectations
- » Interactive, not passive
  - Voice
  - Multiplayer
- » Technical considerations
  - Disc bandwidth/memory
  - Implementation needs



# Addressing Game Needs Through Score

- » Have conversations with:
  - Game designer / producer
  - Game programmer
- » Score as a gameplay device
- » Keeping score 'appropriate'
  - Variations
  - Interactivity
- » Score vs. ambience
  - Score fatigue / "Silence is golden"



# The Production Process

- » Budgeting
  - Guides quantity, quality
- » Spotting
  - Goals and uses for music
  - Defining entrances, exits
    - ⊗ Events / triggers
    - ⊗ Game state
    - ⊗ Timing information (time outs)
- » Defining delivery mechanisms
  - Linear or interactive
  - Live orchestra, synthesized, or mixed

# The Production Process (Cont'd)

- » Composition/orchestration
- » Music contracting
  - Pre-records (synth, soloists, etc.)
  - Recording session(s)
    - ⊕ Multi-tracking
  - Mixing session(s)
    - ⊕ Sweetening, mastering
- » Game integration
- » In-game tweaking (mixing, transitions, etc.)





# Linear Music in Games

- » Play/Stop of linear tracks appropriate in some scenarios

CD Player/Radio/Jukebox

- ⊕ Licensed music
- ⊕ Personalization

Cutscenes, scripted game events

- » Less desired uses

Conflict with desired emotional level

Music wallpapering (in some genres)

# Fitting Linear Score / Ambience Into a Non-Linear Game

- » Interesting loops are interesting – the first time
- » Boring loops are boring – forever

*“If something is boring after two minutes, try it for four. If still boring, then eight. Then sixteen. Then thirty-two. Eventually one discovers that it is not boring at all.”*

*-John Cage*

*“At no time in human history have so few notes been heard so many times.”*

*-Overheard at GDC*

# Interactivity and Game Scores

## Too Little?

- Ignored, actively muted/replaced
- Can breed repetition

## Too Much?

- Risk of creating music mini-games
- Risk of spoiling surprises

# Keeping It Fresh: Variations

» Loops: Rhythmic/melodic variation

Seamless stitching



Crossfading

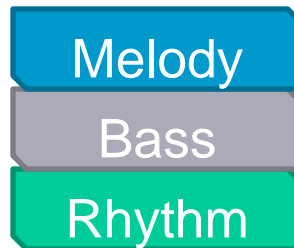
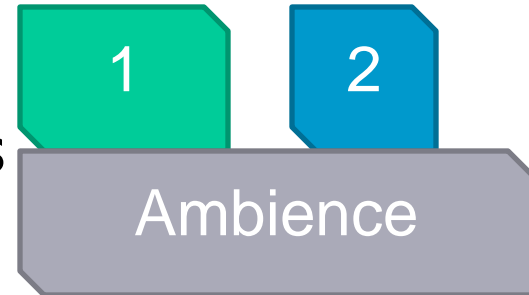


» Dynamic mixing: Coloration/density

Blending ambience and score

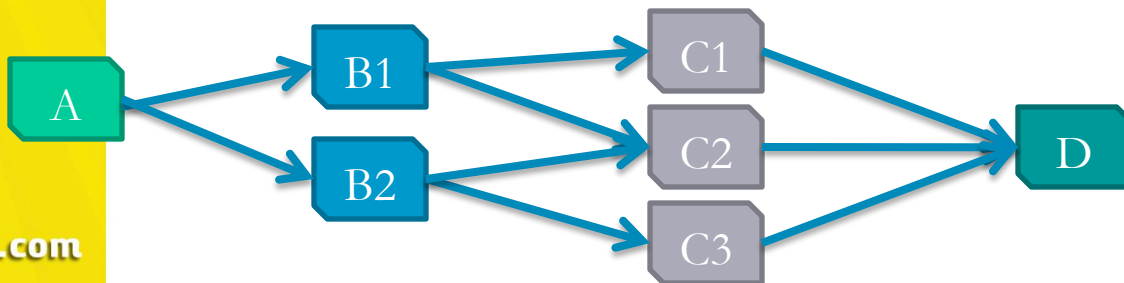
Score layering

Streaming considerations



# Keeping It Appropriate: Dynamic Score

- » Intensity/emotional levels
  - Driven by game state
  - May be one or more dimensional
- » Scripted cue triggers
  - Ambience → Score for significant events
  - Score → Ambience upon event completion or timeout
- » Branching music
  - Based on randomization or game events



# Keeping It Smooth: Transitions

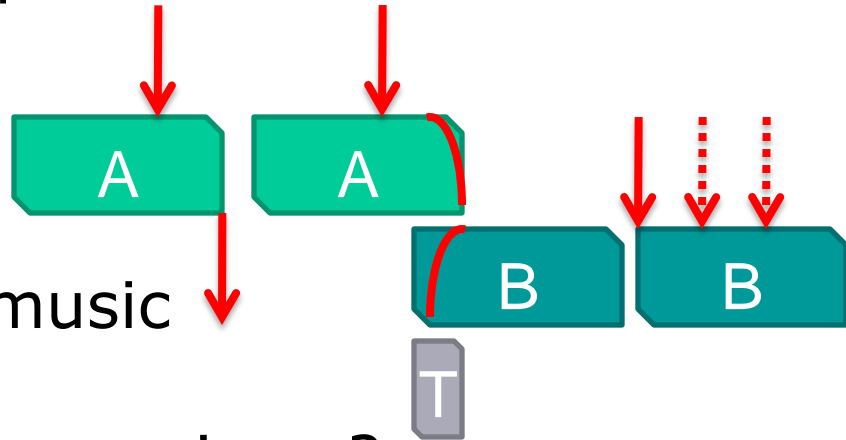
- » Getting there is half the challenge  
Increasing compositional burden

- » Defining:

**When** can the music change?

**How** does the music transition?

**Where** does the music go?



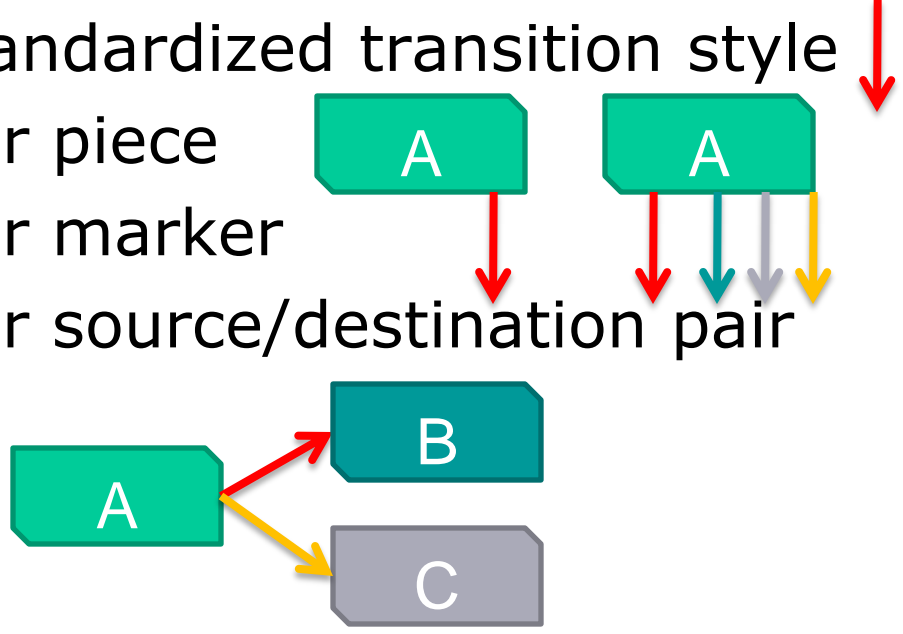
- » How accurate is the engine?  
Sample vs. msec vs. lesser accuracy  
Streaming vs. in-memory  
Compression and and seeking

# Logistics of Interactivity

- » Creative challenges
  - Non-linear composition
  - Maintaining musical continuity

- » Matrix of transitions

- One standardized transition style
- One per piece
- One per marker
- One per source/destination pair



# Implementing Interactive Scores

- » Prototype at each stage
- » Recording live for interactivity
- » Testing “on site” for potential issues
  - Need for dynamic auditioning tools



# Now does it work?

## » Programming challenges

Need ability to audition outside of game  
(tool, engine, etc.)

Visualization for what's happening

Try to "break" the music

## » Test challenges

Explaining interactive scores to testers

"Sounds good" vs. "Correct"

## » The game audio conundrum

# Interactive Music: Case Studies

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# MIDI and Game Music

- » In many ways, ideal
  - Just-in-time note triggering
  - Tempo manipulation/beat 'detection'
  - Actual music data is small
- » In many ways, not so much
  - Sample quality, no mastering/FX
  - Memory/bandwidth considerations
  - Competition with audience expectations

# Don't Count MIDI Out Yet...

- » Technical advances
- » Scores for downloadable games
- » Portable devices
- » Specialty scenarios
  - Legacy or resource constrained titles and platforms
  - User Mods / Customization
  - Online jam sessions

# Wrap Up

- » Balance

  - Interactivity versus continuity

  - Specificity versus personalization

- » Plan out and prototype

  - Compositional concepts

  - Programmatic/technical concepts

# Q & A

» Questions, comments?

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