

Music 5

Lecture 4

Thursday, April 30, 2020

Lecture Outline

1. Announcements
2. General Information
3. Research Spotlight: Sound synthesis in games
4. Module 5: Music History and Music Perception
5. Stage Assignment

Announcements

- **The following items are DUE before Sunday, [May 3](#) at 11:59 pm:**
 - Module 5 Quiz: Challenge of Western Musicology
 - Module 5 Quiz: From Cognition to Composition
 - Module 5 Stage Assignment
- Now that the class enrollment size appears to be stable, I have started grading your submissions. Grades for Module 2 are now posted. Grades for Modules 1, 3, and 4 will be posted soon.

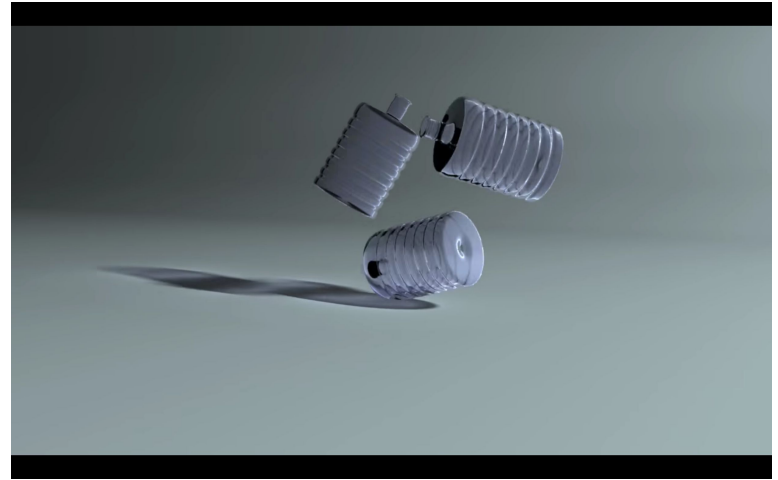
General Information: Submission guidelines

- For all assignments, please **attach a PDF or Word document** containing your writing responses and SoundCloud links (as applicable)
- If the assignment prompt has an ordered list of questions, please include **answers in the same order.**

Research spotlight: Sound synthesis in games

Here's an example of an animation that uses physics-based sound synthesis instead of recorded audio (would you call this music?)

[Harmonic Shells: A Practical Nonlinear Sound Model for Near-Rigid Thin Shells](#)



Module 5: Music History and Music Perception

Module 5: Objectives

1. List different aspects of music cognition and how they differ from perception
2. Demonstrate the concept of reduced listening and apply it to sound art
3. Learn how to create a sound walk and soundscape
4. Know the names of year ranges of the main historical periods in Western music
5. Articulate examples of relations between music and political economy

Module 5: Live session topics

- Review and discuss the **Goodall film** to reinforce main historical periods in Western music
- Discuss parallels between **timeline of music** and **timeline of political economy**
- Demonstrate what music elements require **cognition** (melody and memory, musical form)
- Demonstrate aspects of **music perception** (pitch, color)

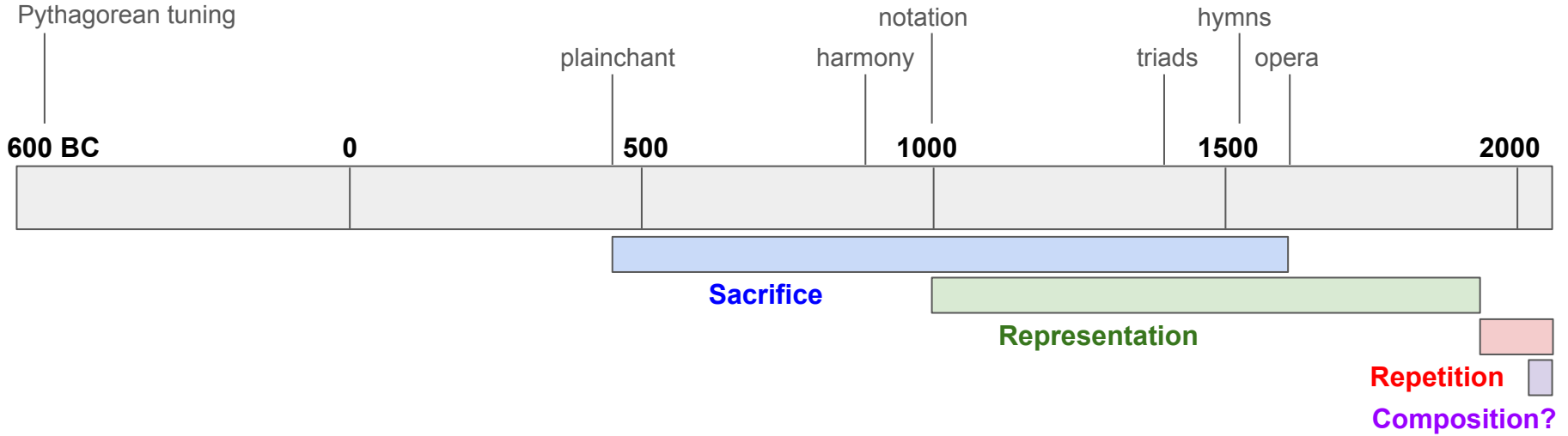
Module 5: Goodall film (*The Story of Music*)

- Greeks viewed music as a science and an art. The Greek philosopher **Pythagoras** invented a music tuning system that some people still use today.
- Christian plainchant (also called Gregorian chant) emerged near the end of 5th century. In this style of music, people **sang in unison** (i.e. with no chords)
- By the 9th century, music included simultaneously sung intervals (octave, fourth, and fifth). The addition of new notes to a melody is called **harmony**.
- In 1000 AD, Guido of Arezzo made the first standardized **notation** system
- Around 1400 AD, major and minor thirds were invented by John Dunstaple. With these new intervals came the development of **triads** (root + 3rd + 5th).

Module 5: Goodall film (*The Story of Music*)

- By 1500 AD, music was printed and distributed widely
- In the early 1500s, Martin Luther developed hymns that parishioners could easily sing together in church
- The first opera was made around 1600 AD. In an opera, music is used in combination with theatrical elements, including narratives, characters, dance, and costumes.
- By 1600 AD, music had a mix of religious and secular elements

Module 5: Timeline of music and political economy



Module 5: Cognition and music perception

- **Cognition** is what our minds do to gain knowledge and understanding about things. It includes memory, attention, reasoning, and **perception** (including auditory perception).
- Our auditory perception has the following capabilities:
 - We hear **frequencies** between 10-20,000 Hz. This affects how we perceive pitch and timbre (i.e. color).
 - We recognize **sound events** as distinct when they are separated in time by 1/20th of a second or more
- What would music sound like if we *didn't* have these limitations?
- The way we hear music may be influenced by our unique **musical culture**
 - For example, it's possible that people in the West have been trained to expect that a song will end on the **tonic chord** (the first chord in the scale), and so now the technique of ending a song on the tonic chord is commonplace because the tonic chord gives listeners the feeling that they've "come home", or the song has resolved. (Note: a chord progression that creates a sense of resolution is called a **cadence**).

Module 5: Musical consonance

- Musical consonance is associated with sounds that are regarded as pleasant or acceptable
- What aspects of our perception of musical consonance are biological or fixed? What aspects are cultural or malleable?
 - Our perception of **roughness** is biological and therefore may be impossible to change
 - Our perception that certain **scales**, **tuning systems**, and **cadence** are consonant may be a cultural phenomenon and therefore may be open to change
- The idea that aspects of musical consonance are cultural (i.e. not universal) was one major driver for modernist/postmodernist music

Stage Assignment

Module 5: Stage assignment (*Clapping Music*)

- Here are links to performances of *Clapping Music*:
 - Full performance: <https://www.youtube.com/watch?v=liYkRarIDfo>
 - Full performance with score: <https://www.youtube.com/watch?v=IzkOFJMI5i8>
 - Explanation of *Clapping Music* app: <https://www.youtube.com/watch?v=7Z23EmPsoto>
- The assignment has **two parts**:
 1. Record your performance of “clap 1” (**include at least 4 measures**)
 2. Record your performance of one of the phase shifts of “clap 2” OR copy your performance of clap 1, paste it in a new track, then shift it the appropriate amount in time using Audacity (**include at least 4 measures**)
- I recommend using a **metronome** when you perform this piece. If you google “metronome”, your browser should direct you to one that you can use.
- Let’s go over how to do the assignment in **Audacity**...

Module 5: Stage assignment (*Clapping Music*)

- You must record your performance of Part 1. You may not simply use the audio file provided on Canvas for Part 1. **You could lose points if you do this.** The purpose of the audio file on Canvas is to guide your performance of the “clap 1” track. However, you don’t have to use it. For example, you may prefer to record your performance at a slower tempo.
- When you’re done with your performances, export your Audacity project as a WAV file then upload the WAV file to SoundCloud. Finally, paste your SoundCloud link in a PDF or Word document, then submit your document on Canvas.

Questions