

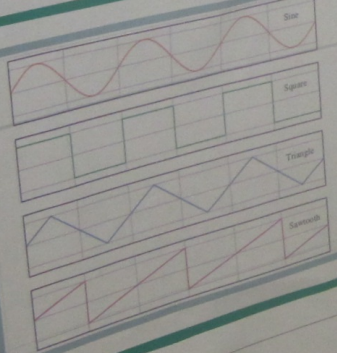


## What is "8-bit era" in video games?

- A time frame lasting from 1983-1990
- 8-bits of memory are being processed at one time (not the total) ex. 00101101
- Music
  - Composed by computer programmers with some musical background (few were classically trained)
  - Songs usually lasted from 30-45 seconds
  - Influenced by Jazz, Rock and Classical music

## Why is it significant?

- Video game projects were developed by more than one or two people
- Allowed for specialty programmers (such as graphics, controls and music)
- Music was composed by actual musicians rather than computer programmers
- Technology limited the output of ideas so programmers had to be more creative
- Paved the way for video game music



### Example 1. Nes Channels

Chip used: MOS Technology 6502

- Nintendo had 5 sound channels (generalization of channels)
- Two pulse waves (acted as both melody and counter melody)
- Triangle wave (acted as base and sometimes percussion i.e. kick drums)
- Noise (percussion and sound effects)
- Sample 2 methods
- Method 1: speech
- Method 2: direct memory access
  - Better sound such as initial bass line, drums, cackling, etc.
  - Required too much memory for other sounds



## Compositional Devices and Techniques of 8-Bit Video Game Music

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### Techniques by Composers

- Subtractive Synthesis
  - Uses a filter to "subtract" specific frequencies of a sound wave
  - Offers unique sounds
- Heavy use of fast appoggiated chords
  - Allowed more freedom to the composition
  - Uses:
    - Rather than turning 3 channels into one chord, one wavelength is appoggiated at a fast pace to emulate a chord
    - Usually triangle wave because harmonics finish faster
    - Intensified "Boss" Battles
- Extensive use of repetition
  - Form:
    - Goes together with looping
    - Ex. Super Mario Bros AABBCAADDCCD
  - Sequencing:
    - Allows for prolongation
    - Saves time and memory for composer and computer to transpose
  - Extensive use of parallel modality
    - Major to Minor to Major
  - "Sunsoft Bass"
    - Developed by Naoki Kodaka
    - Uses the simple channel for bass line rather than percussion
    - Ex. Final's Over (1999)



Example 2. "Victory Progression" - Looping

- V = 1/4 DUT 1/4 H (in ascending pattern)
- D = 1/4 DUT 1/4 H (in descending pattern)
- Sometimes V or D (with V or D in descending motion)
- Sometimes H or H (with H or H in descending motion)
- Ex. The base will stop eventually

Example 3. Music inspired by Bernabucci

- Shows how many different notes can be made with only 4 notes
- Shows how composition is changing with use of different notes, appoggiated and ascending notes to construct ascending

### Looping

- Introduction
  - Originally used as an intro to begin the looping music
  - Later became a common practice
- Types of Looping
  - Loop designed so that the final section is unresolved and resolves to beginning
    - Ex. Ends at V or Beginning 1 or 4=1 in final beat or chord in the first beat or chord
  - Small transition
    - Such as a coda or codetta
    - Music will slow down or pause before looping

### Algorithmic Composition

- Using the computer to generate the music
- "Riffology" - generates acceptable improvised melodies with very little computing overhead (Peter Langston)
- Ballblazer Atari-7800 (LucasArts, 1984)
  - A 32 note melody is programmed and improvised with the computer over a constant bass (volume and rhythm is also generated with computer)

### Aleatoric or Open Form

- Musical form where the order of movements or sections is indeterminate or left up to the performer (gamer)
- Lucy Jones (Commodore 64, 1984)
  - 18 rooms, each room has own song (four-bar song with only melody and bass)
  - Flowed together with use of supported bass (only played octaves of the root of chord)
  - Loops after four bar phrase
  - If player enters new room (song), the music will first complete previous four bar phrase before playing new phrase

### Modern "8-bit"

- Games today continue to be done in the style of "8-bit"
- Mega Man 10 (2010)
- Scott Pilgrim Vs. The World (2010)
- Video game inspired bands
  - Anamanaguchi
  - "Endless Fantasy"
  - The Protomen
  - Glitch Mob

### Selected Annotated

- [Super Mario Bros. \(1985\)](#) - The Music of Super Mario Bros. (Super Mario Bros. Soundtrack) - [Composers: Koji Kondo](#) - [Publisher: Nintendo](#) - [Year: 1985](#)
- [The Legend of Zelda \(1986\)](#) - The Legend of Zelda (The Legend of Zelda Soundtrack) - [Composer: Koji Kondo](#) - [Publisher: Nintendo](#) - [Year: 1986](#)
- [Super Mario Bros. 2 \(1986\)](#) - Super Mario Bros. 2 (Super Mario Bros. 2 Soundtrack) - [Composer: Koji Kondo](#) - [Publisher: Nintendo](#) - [Year: 1986](#)
- [The Legend of Zelda II: The Adventure of Link \(1987\)](#) - The Legend of Zelda II: The Adventure of Link (The Legend of Zelda II Soundtrack) - [Composer: Koji Kondo](#) - [Publisher: Nintendo](#) - [Year: 1987](#)
- [Super Mario Bros. 3 \(1988\)](#) - Super Mario Bros. 3 (Super Mario Bros. 3 Soundtrack) - [Composer: Koji Kondo](#) - [Publisher: Nintendo](#) - [Year: 1988](#)
- [The Legend of Zelda: A Link to the Past \(1991\)](#) - The Legend of Zelda: A Link to the Past (The Legend of Zelda: A Link to the Past Soundtrack) - [Composer: Koji Kondo](#) - [Publisher: Nintendo](#) - [Year: 1991](#)
- [Super Mario World \(1990\)](#) - Super Mario World (Super Mario World Soundtrack) - [Composer: Koji Kondo](#) - [Publisher: Nintendo](#) - [Year: 1990](#)
- [The Legend of Zelda: Breath of the Wild \(2017\)](#) - The Legend of Zelda: Breath of the Wild (The Legend of Zelda: Breath of the Wild Soundtrack) - [Composer: Koji Kondo](#) - [Publisher: Nintendo](#) - [Year: 2017](#)
- [Super Mario Odyssey \(2017\)](#) - Super Mario Odyssey (Super Mario Odyssey Soundtrack) - [Composer: Koji Kondo](#) - [Publisher: Nintendo](#) - [Year: 2017](#)