

SCORES INTRODUCTION

Scores describe sound events
organized in time

Terminology – Pitch

- Musical scales are built from two-sizes of intervals: whole steps and half steps
- Whole step = 2 half steps
- “flats” lower by half step, “sharps” raise by half step
- In Nyquist documentation, “step” means half-step
 - **step-to-hz, hz-to-step, (osc step)**
- Middle C (ISO C_4) arbitrarily represented by 60
 - **c4 = 60, cs4 = 61, cf4 = 59,**
 - **b3 = 59, bs3 = 60**
- Steps are logarithms of frequency
 - frequency doubles every 12 steps
 - frequency doubling (or halving) is called an interval of an “octave”

Terminology – Harmonics, etc.

- Imagine a periodic function of time
- We hear that as a tone with pitch
- The repetition rate (1/period) is the “fundamental frequency”
(other frequencies are usually present and are called overtones, partials, or harmonics)
- Any continuous function can be decomposed into a sum of sinusoids. (a finite sum for digital audio)
- *Periodic* functions can be decomposed into sinusoids with frequencies that are *integer multiples* of the fundamental frequency (these are called *harmonics*)

Terminology – Sound Events

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| <ul style="list-style-type: none"> • Traditional music has “notes”: • Pitch • Time • Duration • Loudness (aka Dynamics) • Timbre (= instrument and other qualities) | <ul style="list-style-type: none"> • New music has “sound events”: • May be unpitched • Time • Duration • Loudness (aka Dynamics) • Potentially many evolving qualities |
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