1 Oct 2020 ch1. Pitch Notation & Grand Staff MUSIC 116

<<< Musical Contour

乐谱 > score - musical notation

音符 > note - representation of pitch

音高 > pitch - single musical sound

五线谱 > staff - the five horizontal lines

> contour - "shape" of a melody

> descending contour - notation on staff moves downward from left to right each note lower than previous

> ascending contour - higher notes move from left to right

小节线 > bar line - vertical lines on staff

节拍 > measures - equal amounts of time

<<< Pitch Notation

> letter name of notes

音名 > musical alphabet - ABCDEFG

· When counting, include the first letter

音程 > intervals - distance between letter name pitches

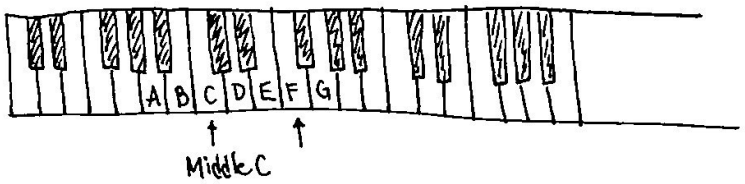
八度音阶 > octave - pitches separated by eight letter names

> octave equivalance - pitches an octave apart sound similar

<<< Piano Keyboard

中央C > Middle C - the C closest to middle of the keyboard

· No black keys between EF and BC

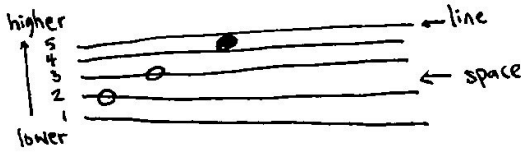


<<< Staff Notation 五线谱记谱法

· Staff have 5 lines, 4 spaces

· bottom 1, top 5

· note heads - oval

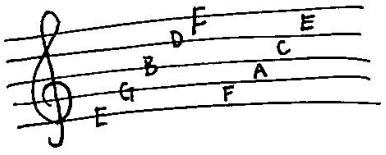


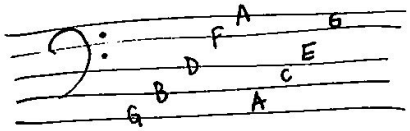
<<< Treble and Bass Clef 高音&低音谱号

谱号 > clef - symbol appears far left of staff, denote corresponding pitches

高音谱号 > treble clef - G clef, higher notes

低音谱号 > bass clef - F clef, lower notes





<<< Naming Pitches with Octave Numbers

> octave number - specify which octave pitch appears

- lowest C on piano C1
- highest C on piano C8
- middle C on piano C4
- octave : C → B

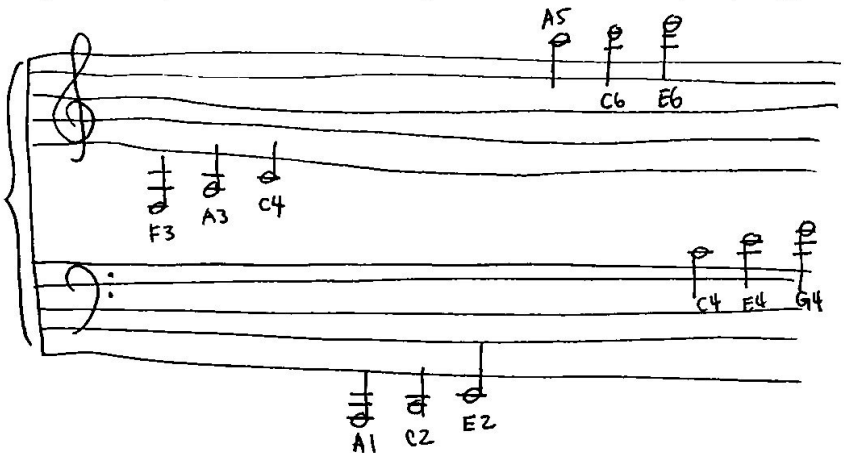
<<< ledger lines 附加线

附加线 · ledger lines - extra lines extends above | below staff

<<< The Grand Staff 大谱表

大谱表 > grand staff - a treble staff and a bass staff connected by a curly brace and a line

音域 > register - highness or lowness of a pitch (the octave which it lies)



<<< Writing Music

- stem goes up on right side, if above middle line
- stem goes down on left side, if below middle line
- draw ovals for notes
- stem spans octave
- notes above staff, no ledger lines above
- notes below staff, no ledger lines below

13 Oct 2020 ch 2 Accidentals & Whole / Half Steps MUSIC 116

<<< Sharps, Flats, Naturals

> sharp sign (#) ; raise any note to the next
> flat sign (b) - lower any note to the next
> natural (♮) - returns pitch to natural state
} accidentals 變音記號

· accidentals applies within a bar
> enharmonic - sound the same but spelled differently
· accidentals on the left of notes in staff, on the right of note name

<<< Half Steps & Whole Steps

> interval - distance between any two notes
> step - any two adjacent keys on keyboard
> half step (semitone) - interval between any pitch & next closest pitch on keyboard
> whole step - two half steps
> diatonic half step - half steps spelled with two adjacent letter names (G-Ab)
> chromatic half step - half steps spelled with same letter name (G-G#)

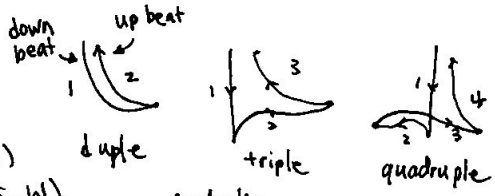
<<< Double Sharps & Flats

> double sharp (𝄪) - raise pitch by two half steps
> double flat (bb) - lower pitch by two half step

20 Oct 2020 Simple Meters MUSIC 116

<<< Meters

> simple meter - pieces with beats that divide into two
> beat - primary pulse { beat division
> meter - how beats are divided and grouped
  > duple - beats grouped into twos (S-W)
  > triple - beats grouped into threes (S-W-W)
  > quadruple - beats grouped into fours (S-W-S-W)

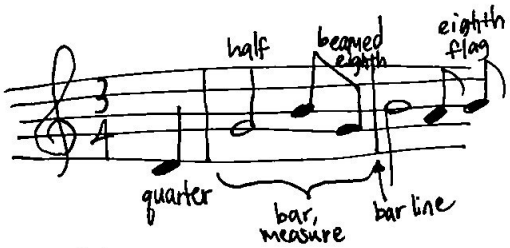


conducting patterns

> tempo - speed
> metrical accents - strong beats in a meter
> dynamic - volume

<<< Rhythmic Notation

> duration - time a note lasts
> rhythm - pattern of longer & shorter duration

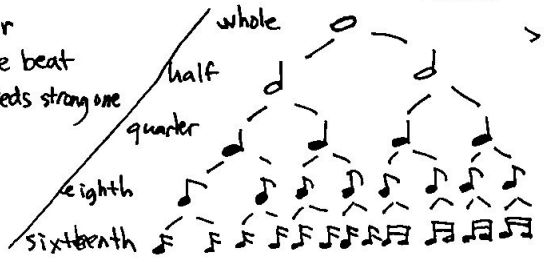


<<< Meter Signature (Time Sig)

meter sig. { 3 - beat quantity - # beats per bar
4 - beat unit - which note gets one beat

> anacrusis 弱起 - weaker beat precedes strong one

· C = 4/4 common time
· ¢ = 2/2 cut time



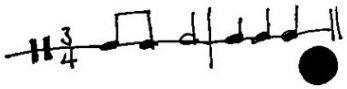
> dot - add ½ to its own
d. = d + d
♩. = ♩ + ♪

20 Oct 2020 ch3 Simple Meters MUSIC 116

<<< Counting Rhythm in Simple Meters

meter sig.	beat quantity	beat unit	beat division
$\frac{2}{4}$	2	4 ♩	♫
$\frac{3}{4}$	3	4 ♩	♫
$\frac{4}{4}$ (C)	4	4 ♩	♫
$\frac{2}{2}$ (¢)	2	2 𝅗𝅥	♩ ♩
$\frac{3}{2}$	3	2 𝅗𝅥	♩ ♩
$\frac{4}{2}$	4	2 𝅗𝅥	♩ ♩

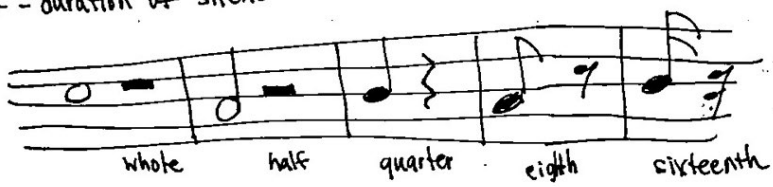
- $\frac{4}{3}$: ● 1-2-3
- $\frac{3}{8}$: 1&2&3&



• rhythm clef - two verticle lines preceding meter signature

<<< Rest

> rest - duration of silence

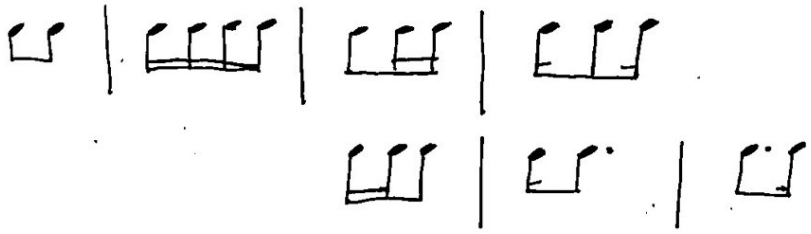


30 Oct 2020 ch4 Beat Subdivision & Syncopation MUSIC 116

<<< Beat Subdivision

- In simple meter, beat divides into two, subdivides into four
- ♩ divide → ♫ subdivide → 𝅘𝅥𝅯𝅘𝅥𝅯𝅘𝅥𝅯𝅘𝅥𝅯 (or ♫𝅘𝅥𝅯𝅘𝅥𝅯)

→ Rhythmic Pattern of Quarter Note



- The beaming reflects beat unit

<<< Ties and Slurs

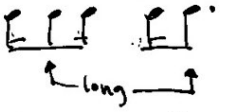
> ties - arcs connecting note heads of two identical pitches (can have same/diff duration)
- played together with sum of duration
- not played separately
- accidental continues with tie

> slur - arcs connecting diff pitches
- indicate smoothness / breath / tonguing / bowing

<<< Syncopation

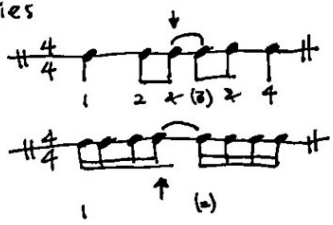
> syncopation - when expected accent is displaced - moved to another beat or part of a beat by dots, ties, rests, dynamic markings, accent marks.

→ Types of Syncopated rhythm (cross beats)

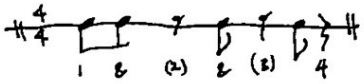


syncopation pattern of quarter note (within beat)

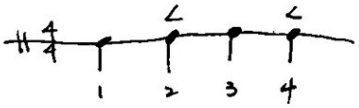
1. ties



2. rests



3. accent mark



<<< Triplets

> triplet - three-part division of beat in simple meter

♩ = ♫ = ♫̣ = ♩ ♪ = ♪ ♩

4 Nov 2020 ch5 Major Scales and Keys MUSIC 116

<<< Scales 音阶

> scale - ordered collection of pitches
- primary pitches in ascending order w/o repetition
- each note in a scale separated from the next by whole / half step
- first pitch often repeated an octave higher at the end

<<< Major Scales 大调音阶

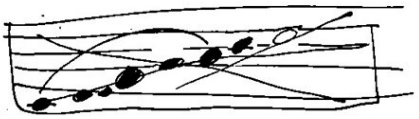
> major scale - pattern of WWHWWWH in ascending order
> diatonic scale - scales made of W and H steps and include all seven letter names

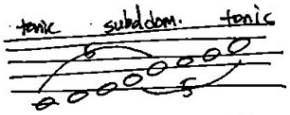
<<< Scale Degree

> scale degree - each pitch of the major scale 音级 ($\hat{1}, \hat{2}, \hat{3}, \hat{4}, \hat{5}, \hat{6}, \hat{7}$) ($\hat{8}=\hat{1}$)
> tonic - the first scale degree
> major key - melody gravitates to tonic of that scale
> transposing - write melody in another key
> Movable-do solfège - assign each scale degree a syllable - do, re, mi, fa, sol, la, ti, do
> fixed-do solfège - associate do with C, re with D ... so forth regardless of scale

→ Scale Degrees

- $\hat{1}$ tonic - tone which scale is built
- $\hat{2}$ supertonic - above $\hat{1}$
- $\hat{3}$ mediant - midway $\hat{1}$, $\hat{5}$, ~~equidistant above/below~~
- $\hat{4}$ subdominant - equidistant ~~above/below~~ from tonic like dominant
- $\hat{5}$ dominant - dominates tonal music
- $\hat{6}$ submediant - three below tonic, three above mediant.
- $\hat{7}$ leading tone (tendency tone) - have tendency to move up to $\hat{1}$





$\hat{1}\ \hat{2}\ \hat{3}\ \hat{4}\ \hat{5}\ \hat{6}\ \hat{7}\ \hat{8}$

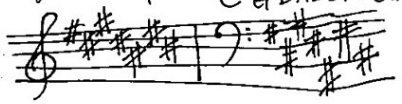
<<< Writing Major Scale

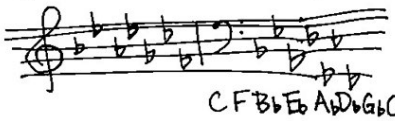
> tetrachord - four-note group
- Major scale has eight pitches - tonic repeated
- All accidentals should be either sharp or flat, no mixture.

<<< Major Key Signature

> key signature - signs after clef sign instructs applying accidentals throughout the piece
- sharp: F C G D A E B fa do sol re la mi ti
- flat: B E A D G C F

C G D A E B F♯ C♯





C F B♭ E♭ A♭ D♭ G♭ C♭

- Determine major key from signature:
  - sharp: the last sharp is $\hat{7}$, go one half step up is $\hat{1}$
  - flat: the last flat is $\hat{4}$, count down 4 steps is $\hat{1}$. (second to last flat is $\hat{1}$)

<<< Circle of Fifth

- ♯ goes 5 steps up, ♭ goes 5 step down
> arrangement of key signature by # of sharps & flats in a circle

10 Nov 2020 ch6 Compound Meters MUSIC 116

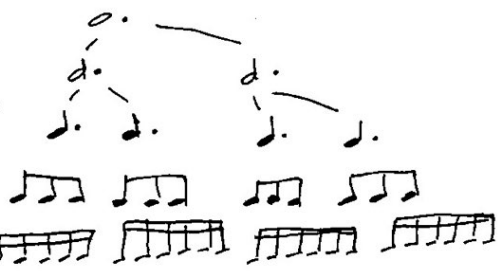
<<< Compound Meters

> Compound Meters - each beat divides into three parts

- beats may be grouped into twos (duple), three (triple), or fours (quadruple)
- ♩. beat unit, divide into ♫, subdivide into 𝅘𝅥𝅯𝅘𝅥𝅯𝅘𝅥𝅯𝅘𝅥𝅯

→ beat division

dotted whole
dotted half
dotted quarter
eighth
sixteenth



→ rhythmic patterns

<<< Meter Signature

6 - top - # beats per bar times 3

8 - bottom - note value of beat division; add three of these divisions to get a beat unit

- Compound duple - $\frac{6}{8}$
- Compound triple - $\frac{9}{8}$
- Compound quadruple - $\frac{12}{8}$

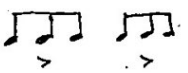
<<< Subdivisions

- beaming reflects meter's beat grouping:
  - $\frac{6}{8}$ ♫ ♫ ; not ♫ ♫ ♫

<<< Duplets & Syncopation

> duplet - two part division in compound meters

→ Types of Syncopation

-  ties from weak part of a beat across a strong part
  1 la li (2) la
-  accent: mark on weak beat / weak part of beat
  1 la li 1 la li
- 𝄽 ♩ rest on strong part of beat
  1 la

<<< Asymmetric Meter

- Special effect, used rarely, with symmetric meter to create unstable → stable
- $\frac{5}{8}$ ← prime number not multiple of 2/3.

17 Nov 2020 — ch 7 Minor Scales and Keys — MUSIC 116

Parallel Keys

> parallel keys - major minor in same key (tonic)
- same tonic
- diff key signature
- diff whole/half arrangement
- share first five notes, with $\hat{3} \rightarrow \flat\hat{3}$

> change of mode - changing between parallel major & minor

Natural Minor

> natural minor - WHWWHWW

> modal scale degrees - $\hat{3}, \hat{6}, \hat{7}$, helps distinguish major & minor

major	do	re	mi	fa	sol	la	ti	do
minor	do	re	me	fa	sol	le	te	do
	$\hat{1}$	$\hat{2}$	$\flat\hat{3}$	$\hat{4}$	$\hat{5}$	$\flat\hat{6}$	$\flat\hat{7}$	$\hat{1}$

- Minor lacks the pull from $\hat{7}$ to $\hat{1}$ due to whole step, instead of half step in major

Harmonic Minor

> harmonic minor - WHWWH (Az) H

$\hat{1}$	$\hat{2}$	$\flat\hat{3}$	$\hat{4}$	$\hat{5}$	$\flat\hat{6}$	$\hat{7}$	$\hat{1}$
do	re	me	fa	sol	le	ti	do

- features half step between $\hat{7}$ & $\hat{1}$

> augmented second (Az) - interval between $\flat\hat{6}$, $\hat{7}$, equiv to a step and a half

- begin with natural minor, raise $\flat\hat{7}$ half step

(OR)

- begin with major, lower $\hat{3}$ to $\flat\hat{3}$, $\hat{6}$ to $\flat\hat{6}$

$\flat \rightarrow \natural \rightarrow \# \rightarrow x$

Melodic Minor

- ascend with $\hat{6}, \hat{7}$, descend with $\flat\hat{7}, \flat\hat{6}$.

Comparing Scale Types

> subtonic - $\flat\hat{7}$ in natural minor

> raised submediant - $\hat{6}$ in melodic minor

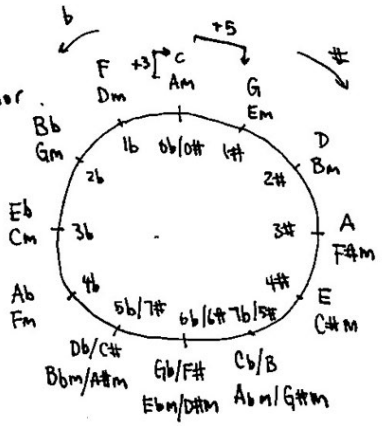
Relative Keys

> relative keys - keys that share same key signature (but diff tonic)

- rel major ↔ rel minor

→ Find rel minor from major
- way 1: find $\hat{6}$ of major, that's tonic of rel minor.
- way 2: { count 3 letters down ↵ / count 3 half steps down ↵

→ Find rel major from minor
- way 1: find $\flat\hat{3}$ of minor
- way 2: { count 3 letters up ↵ / count 3 half steps up ↵



<<< Intervals

> interval - distance between two pitches < size - 1-8 / quality - major, minor, perfect

> melodic interval - intervals measured between successive pitches ⟷ melodic

> harmonic interval - intervals between simultaneous pitches ↓ harmonic

> octave - 8ve / 8va, same notename

> unison (U) - exact same pitch, no actual interval

count both beginning pitch & ending pitch

<<< Interval Quality

> interval quality - diff of their sound when two intervals of the same size span a diff # of half steps

Interval Size	Interval Quality
2, 3, 6, 7	major (M)
	minor (m)
U, 4, 5, 8	perfect (P)

augmented major minor diminished

augmented perfect diminished

<<< Spelling Intervals Method 1: Using White Keys

· A major/minor interval retains its quality when matching accidentals are added to both notes.

→ Seconds in C Major

· Major seconds (M2): $\hat{1}, \hat{2}, \hat{4}, \hat{5}, \hat{6}$

· Minor seconds (m2): $\hat{3}, \hat{7}$

→ Thirds in C Major

· Major thirds (M3): $\hat{1}, \hat{4}, \hat{5}$

· Minor thirds (m3): $\hat{2}, \hat{3}, \hat{6}, \hat{7}$

→ Fourths in C Major

· perfect fourth (P4): $\hat{1}, \hat{2}, \hat{3}, \hat{5}, \hat{6}, \hat{7}$

· augmented fourth (A4): $\hat{4}$

· Minor intervals are half step smaller than major intervals

· Major → minor, move 1 pitch toward the other < lower top note / raise bottom note

· minor → major, move 1 pitch away from the other < raise top note / lower bottom note

→ White Key Method

1. Given white key, write white key (interval) first, identify its quality, then adjust size by adding accidental on the other note.
2. Given note with accidental, write second note of interval with matching accidental, then follow #1.

<<< Inverting Intervals

1. Keep one pitch stable.

   Move lower note up an octave, or move upper note down an octave.

   - perfect ↔ perfect
   - major ↔ minor

2. two interval sizes sum to 9

   - 1 ↔ 8
   - 2 ↔ 7
   - 3 ↔ 6
   - 4 ↔ 5

   } help to spell larger intervals 5-8 from 1-4 (known)

<<< Spelling Intervals Method 2: Scale & Key Signature Method

1. Write the notes of the interval (Given bottom note)
2. Think of key signature of bottom note
   - major interval - major key sig.
   - minor interval - minor key sig.
   - perfect interval - major/minor key sig
3. Add accidental to upper note if needed for #2

	Abbr.	# ½ step
unison	U	0
	m2	1
	M2	2
	m3	3
	M3	4
	P4	5
tritone	A4/d5	6
	P5	7
	m6	8
	M6	9
	m7	10
	M7	11
octave	P8	12

<<< Augmented & Diminished Interval

> augmented - when major/perfect interval made a chromatic half step ~~higher~~ larger.

> diminished - when minor/perfect interval made a chromatic half step smaller.

- A4/d5 are exactly three whole steps, six half steps
- use ♮, ♯, 𝄫 for augmented & diminished.
- diminished/augmented intervals can usually be respelled as major/minor intervals that are enharmonically equivalent.

For a	start with	add accidental for one pitch
dim 3,6,7	m 3,6,7	inward ½ step
dim 4,5,8	P 4,5,8	inward ½ step
aug 2,3,6	M 2,3,6	outward ½ step
aug 4,5,8	P 4,5,8	outward ½ step

<<< Compound Intervals

> compound intervals - intervals larger than octave

> simple intervals - octave or smaller

<<< Consonant & Dissonant

> consonant - U, P5, P8, m3, M3, m6, M6, melodic P4

> dissonant - m2, M2, m7, M7, harmonic P4, any aug or dim

7 Dec 2020 ch 9 Triads & Seventh Chord MUSIC 116

<<< Triads

> texture - how horizontal & vertical component join

> homophonic - all voices in musical texture move together with identical rhythm

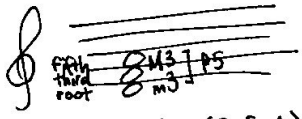
> chords - intervals made by homophonic voices

> triad - three-note chord built from stacking two thirds

> root - lowest note

> third - middle note

> fifth - top note



D minor (D-F-A)

> major triad - $\begin{matrix} m3 \\ M3 \end{matrix}$] P5

> minor triad - $\begin{matrix} M3 \\ m3 \end{matrix}$] P5

> quality - difference between triad types

> doubled - a chord member appear in two places, an octave (or more) apart

<<< Triad Quality in Major Keys

> diminished triad - $\begin{matrix} m3 \\ m3 \end{matrix}$] d5

· major triad - $\hat{1}, \hat{4}, \hat{5}$

· minor triad - $\hat{2}, \hat{3}, \hat{6}$

· diminished triad - $\hat{7}$

· triad labels { major - capital (I)
Minor - lowercase (i)
diminished - lowercase with circle (i°)

$\hat{1}$	$\hat{2}$	$\hat{3}$	$\hat{4}$	$\hat{5}$	$\hat{6}$	$\hat{7}$	} major scale
M	m	m	M	M	m	d	
I	ii	iii	IV	V	vi	vii°	

<<< Triad Quality in Minor Keys

· major triad - $\hat{1}, \hat{4}, \hat{5}$

· minor triad - $\hat{3}, \hat{6}, \hat{7}$

· diminished triad - $\hat{2}$

> augmented triad - $\begin{matrix} M3 \\ M3 \end{matrix}$] A5

$\hat{1}$	$\hat{2}$	$\flat\hat{3}$	$\hat{4}$	$\hat{5}$	$\flat\hat{6}$	$\flat\hat{7}$	} natural minor
m	d	M	m	m	M	M	
i	ii°	III	iv	v	~~VI~~	~~VII~~	
		⋮		V		vii°	} harmonic minor
		III^{+}					