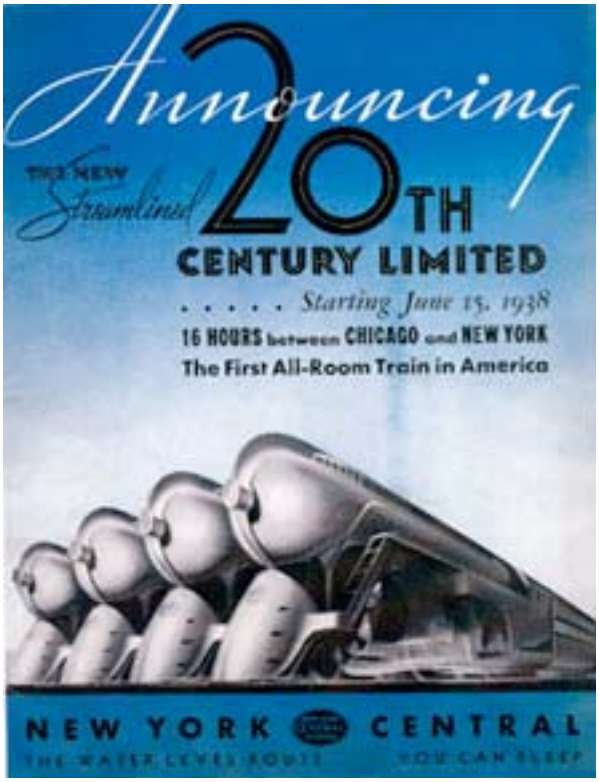
OUTLINE

TWENTIETH CENTURY HARMONY

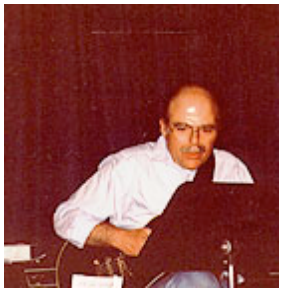
CREATIVE ASPECTS AND PRACTICE

BY VINCENT PERSICHETTI



Any tone can succeed any other tone, and any tone can sound simultaneously with any other tone or tones, and any group of tones can be followed by any other group of tones

Michael Morangelli
Composer



Has performed extensively both in New York City and Boston. His credits include the Angelo Tallaracco and Bob January Big Bands, Fire & Ice Jazz Octet, and the Blue Rain Lounge Quartet. He was also staff guitarist for South Park Recording Studio.

In Boston 1985 - 2004, he has played with the George Pearson Group (local headliners at the Boston Jazz Society Jazz Festival in 1990), Urban Ambience, and was founder and leader of the Whats New Septet (1995). His Jazz compositions have been recorded by Comraderie Tapes and included in the missing links Tape Sampler.

Composing for film since 1996, he has provided scores for Board Stories, Rules of Order, the independent production American Lullaby, the CityScape production Wastebasket, and Il Moccio - an April 2004 New York Film and Video entry. He has also provided music, efx, and sound design for Eric Mauro and his work has appeared on theBitScreen.com, the Seoul Animation Festival, Aspen Shortfest, and the ExCentris New Media Festival in Montreal.

Film

Worked with high quality samples. Delivery on DAT accompanied by the Audio Data files and either the sequence or Finale Lead Sheet Conductors score if required.

All material is laid up to QuickTime for review with spotting and cue notes if required.

Web

Flash audio materials are optimized for file size and laid up in Flash suitable for web display.
Both the .fla file and the .swf file are accompanied by all sound and music samples in AIFF or Wave format (with Sound Designer II if required).

All Flash animations can be converted to QuickTime should that format be required.

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THE END OF AN ERA

THE COMMON PRACTICE ERA: CONCEPTS & PRACTICES (1650-1900)

TONALITY

- One tone which assumes more importance than the others AND to which the others are related
- Emphasized by the almost exclusive use of the V-I progression at the close of the composition

SCALE SYSTEMS

- Tonality was expressed through two scale systems – Major & Minor
- Systems of earlier times had fallen into disuse

KEYS

- Each major & minor scale system can be found on 15 different pitch locations called KEYS
- Systematized into two Circles of 5ths

CHORDS

- Music is based upon the use of chords
  - : Not all possible chord constructions in 3rds were regularly used
- A chord retains its identity whether or not the root is found as the lowest sounding note
- Progression of one chord to another is based upon the root movement
  - : Movement by 5^{th} was most common
- Some progressions were more widely used
  - : Not all possible root relationships within a key were regularly used
  - : Chord progressions requiring the use of parallel 5ths or octaves were carefully avoided

NON-HARMONIC TONES

- Tones not belonging to the chord may sound simultaneously with a chord structure
- Must be introduced AND resolved in certain established ways

MELODY

- Melodic lines are constructed so that each tone will be part of a chord or an ACCEPTABLE non-harmonic tone
- A succession of melodic tones will usually imply an ACCEPTABLE chord succession

RHYTHM

- Metric patterns are usually organized into metric units of 2, 3, & 4 beats
- The primary accent falls on the 1st beat of any metrical group
- Any other accent in any melodic line is a syncopation against the primary accent

HARMONIC RHYTHM

- The rhythmic pattern created by the frequency of chord change conforms to the metric structures

THE NEW MUSIC

HISTORICAL EVOLUTION

- These basic concepts underlay the composition of music in the COMMON PRACTICE ERA
- Exceptions in the practices while numerically quite frequent represent only a small percentage of the total compositional output
- These limitations however were subject to the inroads of change for the ENTIRE course of this historical period
- By the end of the 19th Century no further change could take place within the style WITHOUT destroying the style itself
- This is exactly what happened

BEGINNING OF CHANGE: THE MIDDLE & LATE 19TH CENTURY

- Sense of Major & Minor tonality bore the brunt of change
- The necessity of progression to a tonic goal was challenged
- More and more frequent use of chromatic tones blurred the impression of major & minor scales
- The tonic note became one of 12 equally important tones rather than one of the 7 diatonic tones and the focus of melodic progression
- Dissonances became longer in duration
  - More and more found in groups of two or three at a time
  - Created the temporary impression of new chord structures not built on 3rds
- The effects of dissonance and chromaticism weakened tonality
  - Avoiding the positive establishment of a tonic
  - Lack of expected chord resolutions
  - Varieties & frequencies of deceptive progressions
- As a result of these changes the late 19th Century style had no were else to go
  - The only path left to express original ideas in music was one of repudiating the general practices of the Common Practice Era
  - This change was as radical as that of the 17th Century
- This period of change is still with us – the 20th Century begins a period of experimentation with new ideas and techniques
  - A major question is – will a new Common Practice Era evolve?
  - 20th Century music – without a basis of “common practice” – is dependent on comparison with the previous period for understanding

: First efforts were directed towards a writing which SPECIFICALLY would NOT sound like the Common Practice Era

PRACTICES THAT EVOLVE & PRACTICES THAT CONTRADICT

- As an example – the music of Debussy
  : Scales other than Major or Minor – Melody & Chords
  : Whole tone scale
    - Only two chords in 3rds can be constructed
    - Other possible chords are not built in 3rds
    - Only one transposition of this scale is available
  : Pentatonic Scale
    - Used melodically
    - Used for chord construction
    - Several transpositions are possible
  : Contrived Scale
    - a pattern made of intervals of the composer's choosing
  : Parallelism
    - Not to be used in earlier periods
    - Is a characteristic of Debussy
  : Chords built on other than Thirds
    - Fourths
    - Chords of added 6th

Note:

Resources of the Whole Tone & Pentatonic Scales are relatively limited

Debussy made extensive use of both

The Contrived Scale served well throughout the 20th Century

- These Compositional devices of the 20th Century can be (roughly) divided into two classifications
  : Those derived from the past
    - As a revival after a long period of non-usage
    - Those from the recent past used in new ways
  : Those based upon new and original ideas unique to the 20th Century
- Melodic
  : Use of the Medieval Modes
    - Revived by 20th Century composers after 300 years of non-use
    - Compositions are not ordinarily written entirely in a given mode
    - Rather the mode adds a new scalar color during the course of the composition
  : Use of scale & harmonic patterns of the composer's choosing
    - Not tied by the previous century's major & minor scale system or harmonic system
    - Melodic lines of sound independent of the harmony
  : Pointillism
    - Individual pitches are separated by wide leaps
    - Usually dissonant
    - Punctuated by many rests
- Chord Structures
  : Chords in Thirds
    - Still used – either exclusively or mixed with other types of chords
    - Now they are free from the necessity of progressing by favored root movements of the preceding era

- Modal melodies are often harmonized with chords of traditional construction but in root progressions required by the modal scale

: Free use of parallel motion

: Free from the classification as consonant or dissonant

- May move freely without regard for the preparation and resolution of "dissonance"
- The differentiation of the quality of a chord structure is comparative
- More dissonant or consonant than another
- But not consonant or dissonant in itself

: Chords built on other than Thirds

- Chords in Fourths
- Clusters
  + Three or more CONSECTUTIVE tones sounding simultaneously
- Polychord
  + Two distinct chord structures sounding simultaneously

• Tonality

: Polytonality

- Simultaneous sounding of more than one key
  + In practical usage – Two
  + Requires that EACH of the two tonalities be unmistakably clear

: Atonality

- While these previous examples display techniques not to be found in the period of Common Practice they have one feature in common – a sense of tonality
  + Not necessarily described as major, minor, or modal
  + But do have a tone (or more in Polytonality) which others gravitate
- As early as the 1st decade of the 20th Century, some composers attempted to break this link
  + By writing in such a way that a sense of traditional tonality was impossible or at least difficult to perceive
  + Notable were the works of Arnold Schoenberg, Alban Berg, & Anton Webern
- The Twelve Tone System
  + Schoenberg's "Method of Composing with Twelve Tones Which are Related Only One with Another"
  + Makes it impossible for any one tone of this technique to assume more importance than any other
  + Therefore, no single tone can assume the role of key center
  + Also known as "dodecaphaony" or "dodecaphonic"
- Serialism
  + Uses the Twelve Tone System to organize pitches
  + But also duration (both sound & silence), Dynamics, & Timbre

• Meter & Rhythm

: Still plays an important role as used in earlier centuries

- The regularly recurring accents and measure lengths typical of Common Practice are still found in much of the music written since 1900
- Of three principal elements of music – melody, harmony, & rhythm – rhythmic elements have been retained to a much greater extent

: Syncopation in principle has not changed

- A real matter of increased degree of use
- Accompanied by more irregularity of placement

: Polyrhythm
  - Two different meters (and accents) played simultaneously – i.e. 3/8 over 4/4

: A return to the principles of rhythmic and metric structure commonly found in 16th Century musical composition
  - Here the poem – the words – locate the accent in the composition
  - Produces a free and even unregulated metric feeling
  - Produced in 20th Century music in one of two ways
    + With a single time signature and regular barring with the actual metrical accents to be determined by the performer
    + By writing in each new time signature – especially when no poetic text is available

- New Sound Sources

: A previous constant characteristic – the sources of musical sound – was relatively consistent
  - Vibrating string
  - Vibrating air column
  - Vibrating membrane

: 20th Century provided for the 1st time in music history new resources in sound itself
  - Electronic manipulation of natural sound
  - Electronic production of new sound

: Musique Concrete
  - Combines old sound sources with manipulation of these sounds through various techniques utilizing a tape recorder
    + Changing speed of play back
    + Reversing the tape
    + Cut & splice for effects or superimposition
  - No score for final composition – the tape itself is the score

: Electronic Music
  - Use of synthesizer
    + Can duplicate existing natural sounds
    + Can produce unique "new" sounds
  - Often combined with musique concrete tape constructions

: Computer Music
  - Here the machine is the composer
  - The programmer codes "styles" or "rules" with the machine produces sounds within this programming

- Chance Music

: Also called "aleatory music" or "music of indeterminancy"

: A reaction to the highly organized techniques of serialism

: Gives the performer (and sometimes the conductor) the choice of what to play, when, and for how long
  - From a group of composed possibilities
  - Improvisation on these possibilities
  - Combination of score & improvisation

: Voices, conventional instruments, electronic instruments, prerecorded tapes may all be part of a chance music ensemble

: Works in conventional style often includes sections in aleatory style

: Each performance will be different – as different CHOICES are made

- New Notation
  - : Conventional notation deals with exact delineation of duration and pitch within the tempered system of tuning
  - : New forms of notation were developed to deal with the new sounds, metrical freedoms, performance of chance music, etc.
    - At present little standardization of these notational practices
    - Composers develop systems to express individual compositional focus

SUMMARY

- As the 20th Century progressed, expansion of experimentation seems the order of the day – with composers heading in many directions
- This experimentation contrasts with the consolidation of achievements during the Common Practice Era
- It may be some time before the true accomplishments of the 20th Century are known AND a rational and comprehensive theory of music for this century can be developed

THE FIRST HALF OF THE 20TH CENTURY, 1900 TO 1950

MUSIC THAT CAN BE DEFINED

- Harmonic Ideas have been in constant flux
- Composers have created new musical devices & techniques
- Amalgamation of the various sound formations and techniques is in process
- Something of a common usage of materials has arrived
- Resources include a wide range of materials of the past AND present
- 20th Century harmony is a account of the specific harmonic materials commonly used

1 – INTERVALS

GENERAL PRINCIPLES

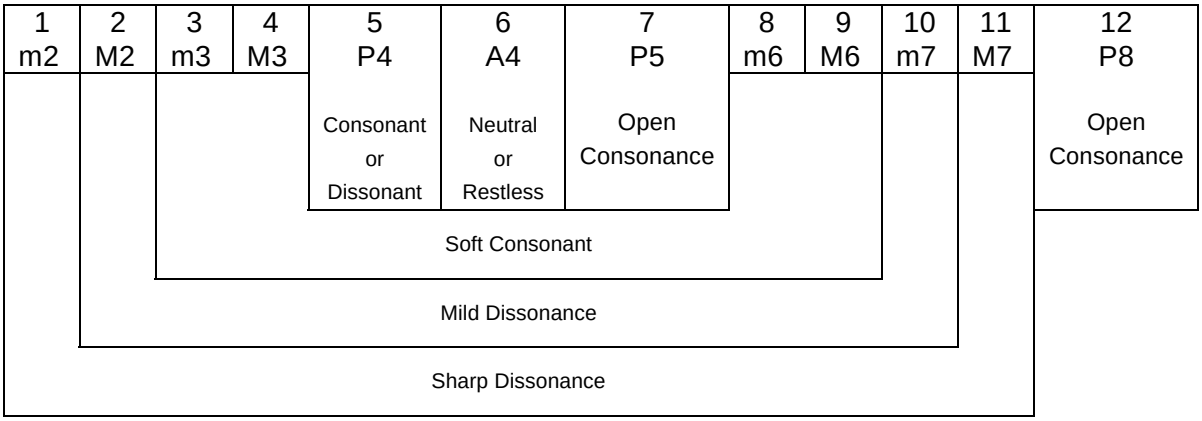
- Any tone can succeed any other tone
- Any Tone can sound simultaneously with any other tone or tones
- Construction

CONSTRUCTION

- An interval (like any other musical sound) may have different meaning for different composers
  - : Physical properties are constant
  - : Usage changes with context
- Observation of interval tension has evolved into a concept of the RELATIVE consonant-dissonant quality of intervals
- This consonant-dissonant concept is affected by:
  - : Factors within any given style
  - : Vary considerably from age to age
- Construction is factored on the concept that the notes of an isolated interval (simultaneously or successive) DO HAVE A BASIC QUALITY
  - : Determined by the intervals physical properties of sound waves and overtones
  - : In the tempered scale consonant intervals are those considered to be formed from the lower tones of the overtone series
  - : The upper tones produce the dissonant intervals
- Use of the chromatic tempered scale have reduced unlimited possibilities of intervals to TWELVE

Textural Characteristics

P5 & P8	Open Consonance
M3, M6 & m3, m6	Soft Consonance
m2 & M7	Sharp Dissonance
P4	Consonant OR Dissonant
A4 (Tritone)	Ambiguous: neutral or restless



TRITONE & PERFECT 4TH

- Tritone
  - : Divides the octave at midpoint
  - : Least stable of the intervals
  - : Sounds neutral in chromatic passages
  - : Sounds restless in diatonic
- P4
  - : Sounds consonant in dissonant surroundings
  - : Sounds dissonant in consonant surroundings
- Quality of the P4 & Tritone will be DETERMINED solely by CONTEXT

USE

- Intervals can follow each other in any order
- May be arranged to form ANY pattern of Tension Interplay
- Intervalic tension may be used to suit any design or function of the music
- Consonant-dissonant properties of intervals may be used to support OR oppose other forces
  - : Instrumental timbre
  - : Dynamics
  - : Tempo
  - : Etc.
- Various degrees of tension may be accepted as consonance
- As Composers & practices change the concept of consonance & dissonance may change

: Consonant intervals may sound dissonant in passages dominated by dissonant intervals
: Less dissonant intervals may sound consonant in a harmony comprised of strong dissonant intervals

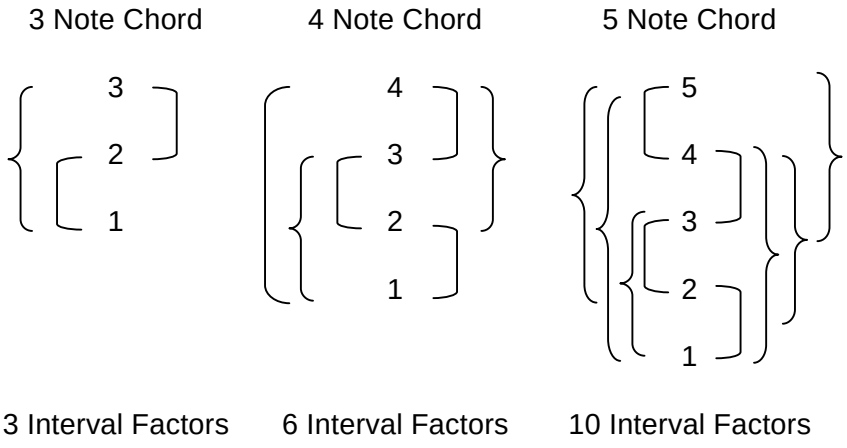
INVERSION & SPACING

- Spacing is an important compositional technique
  : When intervals are inverted their consonant-dissonant quality changes
    - Spacing is altered
    - Register is altered
  : Varies with the individual interval
    - P5 becomes P4 and alters function
    - When a sharp dissonance in inverted marked changes in INTENSITY occur
    - The m2 becomes a M7 and loses some its "sting"
    - The inverted Tritone causes a pronounced shift in register
- If spaced more than an Octave apart
  : 3rds & 6ths become richer
  : Octave, 5^{th} & consonant P4 become stronger
  : 2nds & 7ths become less biting and more brilliant
  : Tritone
    - Neutral in chromatic passage
      + Becomes more ambiguous and veiled
    - Restless in diatonic progressions
      + Becomes even less addicted to resolution

INTERVALS IN CHORDS

- Two or more intervals occurring simultaneously form a chord
  : May be built with equidistant intervals (all M3 or P4, etc)
  : With different kinds of same interval number (M3 & m3)
  : Mixed intervals (M6 & P5)
- Before a chord is set in harmonic motion the consonant-dissonant quality of each interval CONTAINED within the chord should be noted
  : It is ONLY through differences in chordal value determined by *interval characteristic* that harmonic tension can be CONTROLLED
  : Produces – with an awareness of intervallic tension – a harmonic movement of a more flexible nature

Examples: Interval Factors



- Chordal tension affects and is affected by:
  - : Dynamics
  - : Medium
  - : Spacing
- All chords fall into one of two categories
  - : Chords that CONTAIN at least ONE SHARP dissonance
  - : Chords that CONATAIN NO SHARP dissonances
    - Subdivided by
      - + Chords with ONE TRITONE
      - + Chords with NO TRITONE
    - Chords containing a tritone tend to have a restless quality
    - Chords without a tritone have stability – even when extremely dissonant
- P4 in a chord lends ambiguity
  - : Interval can function either as a consonance OR dissonance
  - : Other intervals WITHIN chord will determine it's character
    - Classified only within it's TOTAL interval context
      - + By Bass note & note NOT involved with P4
      - + When this interval is a mild OR sharp dissonance, P4 sounds like an open consonance
      - + When this interval is a soft consonance, P4 sounds mildly dissonant

DOUBLING

- Any kind of chord has – under normal – conditions it's own natural doubling (i.e. roots in a major triad)
- Possible to write a chord in numerous other ways
  - : Any note may be doubled, tripled, or omitted for specific textural purposes
  - : Doubling may be used to:
    - Enrich simple chords
    - To point up characteristic part writing
    - Strengthen certain parts of chords
      - + Doubled M3 adds color

        + Doubled dissonant tone increases bite
        + Excessive coupling (all voices doubled) produces percussive sounding harmony
    : Chord members may be arranged so that specific kinds of intervals monopolize the musical pattern
        - The chosen interval may form separate intervallic strands that move in contrary motion

SPACING

- An inseparable part of the character of a tonal structure
    : For ordinary balance, wide intervals are placed at the BOTTOM of chord
    : For tautness, wide intervals are placed on TOP of chord
    : For evenly distributed TENSION, all instruments (or voices) are employed in their 'grateful' (natural) registers
    : Altered accordingly for:
        - Specific harmonic stress
        - Highlights as desired
- Closely spaced harmony (with crowded small intervals) CLEARS when each chord is broken into a succession of intervals in two part writing
    : Harmony that is clouded may remain so and be effective
    : Both cloudy and clear chordal materials are essential ingredients for musical composition
    : Overtone series is useful in measuring the aural difference

OVERTONE INFLUENCE

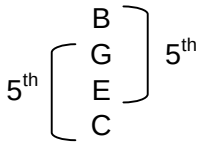
- Any tone generates a series of overtones (or partials) that reach upward indefinitely (not all are audible)
- A tone has both vertical and horizontal implications
    : Its overtones may be used simultaneously in chordal structures OR consecutively in melodic lines
- Some sounding bodies produce higher overtones than others
    : An instrument capable of generating high overtones (recognized by the ear)
        - Has a quality that is resonant & relatively dissonant
        - Due to the crowding of the upper partials
    : An instrument stops (aurally) with the lower or middle partials
        - Will sound relatively consonant
        - But has low resonance
- Basic harmonic materials may be traced to the overtone series
    : Only GENERAL facts concerning chordal structure and resonance are indicated by the partials
        - Triad is formed by 1 – 3 – 5
        - 7^{th} Chord is formed by 1 – 3 – 5 – 7
        - However, deductions concerning harmonic implications of partials beyond the 6^{th} is not wholly practical
            + Tempered scale does not coincide in pitch with the 7 – 11 – 13 – 14^{th} partials
            + Our tempered aural thinking can include tones up to the 6^{th} partial

These give instruments their individual tone quality

+ Beyond the 6th partial aural perception is merely rational
+ Acoustician's observations are ONLY useful if blended with artistic intuition

- Partial Location: the 5th (partial 3)
  : Is a lower partial than the 3rd (partial 5)
    - Consequently it is more powerful
    - This characteristic is an IMPORTANT factor in understanding relationships of tones, chords, and tonalities
  : Resonant harmony is NOT formed by seeking higher & higher overtones BUT by using overtones of overtones

Example: Chord C E G B



Both C & E have their 5th within the chord – a strong relationship

To add an additional resonant tone, should add a lower & stronger overtone of an overtone

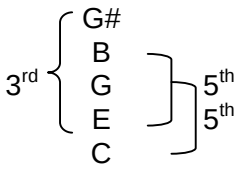
If stick with the overtone of bass note 'C' next note might be an 'F#'

This is a weaker overtone of 'C'

Rather, add overtone of overtone – such as 'G#' (partial 5 of 'E')

Stronger overtones are LOW and grow weaker moving higher

Chord then becomes



Reasoning to construct chord was with partial location within overtone series

Used two overtone series based on 'C' and 'E'

- Chordal structures are most resonant when the distance between the members are somewhat similar to those in the overtone series
  : Wide spacing in the lower register
  : Close spacing in the upper register
- The overtone series sets the norm for brilliance
  : For maximum brilliance let the lower tone of chord be accompanied by their own overtones
  : The resonant properties of an instrument OR objects surrounding the performance create additional sonority that underpins the sound

: The principle of supporting resonance by lower sonority is occasionally applied to chordal structures
  - In lower registers the addition of tones is limited by the danger of muddy progressions
  - Most effective supporting tones are the 5th or 9th placed BELOW the bottom of the chord
    + The 5th is a strong and resonant interval
    + The 9th is a 5th below the 5th
    + The Bass plucking the 5th or 9th below the actual bass line casts a 'reflected sheen' over the harmony

MEDIUM

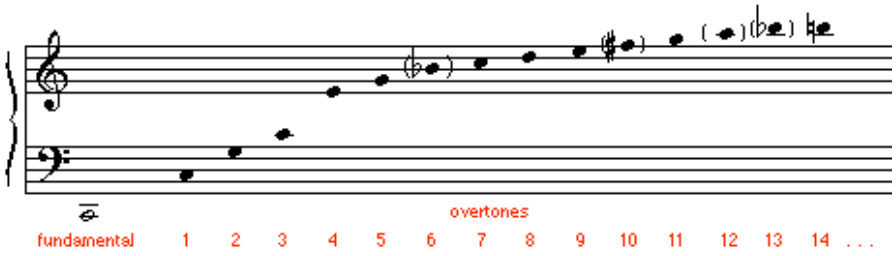
- The medium to which a musical idea is given has a direct bearing upon harmonic writing
  : As do intervallic texture, spacing, and dynamics
  : Awareness of timbre is essential to good harmonic craft
    - Quality of tone as DEFINED by medium plays a functional role in harmonic movement
    - Harmonic writing should be conceived for the medium EMPLOYED
- The effect of color will affect the harmonic perception
  : Orchestral color example:
    - May soften the extreme dissonance of 13th chords
    - Rob the triad of its soft consonance
    - Alter chordal direction

INTERVALS: SUMMARY

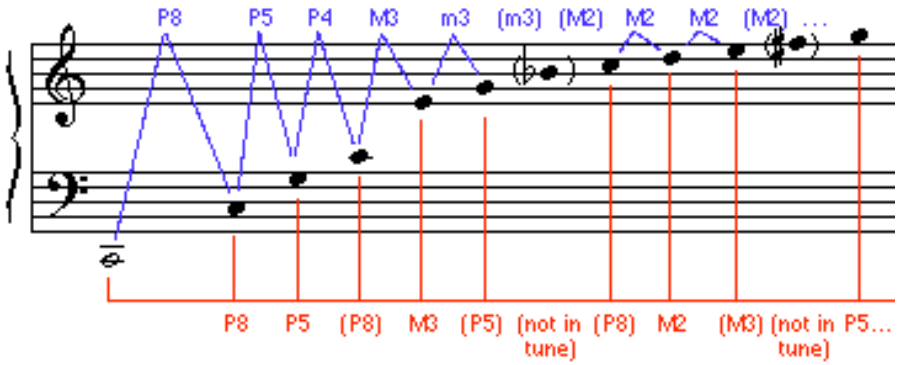
DEFINITIONS

- Resonant: Echoing or resounding; Tending to reinforce or prolong sounds
- Coupling: Doubling of a voice
- Characteristic Spacing: Follows overtone series of spacing

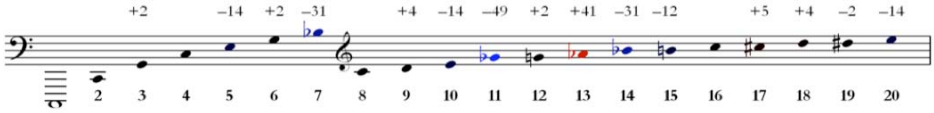
Overtone Series



Interval Distance



Deviation from Tempered Scale



MELODIC LINE

- Any Tone can succeed any other tone
- May be arranged to any pattern of Tension Interplay

CHORDAL OPERATIONS

- When intervals are inverted, their consonant-dissonant quality changes
- Spacing
  - : Affects strength and richness of quality
  - : Balance
  - : Tautness
- Interval characteristic within the chord controls harmonic tension
- Doubling can be natural to chord quality or done in other ways
- Resonant harmony is achieved by using overtones of overtones

ORCHESTRATION

- Awareness of timbre is essential to good harmonic craft
- The effect of color will affect the harmonic perception

2 – SCALE MATERIALS

MODES

- A Central Tone to which other tones are related can establish tonality
- The manner in which these other tones are placed around the central tone produces tonality
- 7 stand apart in 20th Century music because of the whole – half step order

1. Ionian

C		D		E	F		G		A		B	C
	W		W		H		W		W		W	H

2. Dorian

D		E	F		G		A		B	C		D
	W		H		W		W		W		H	

3. Phrygian

E	F		G		A		B	C		D		E
	H		W		W		W		H		W	

4. Lydian

F		G		A		B	C		D		E	F
	W		W		W		H		W		W	H

5. Mixolydian

G		A		B	C		D		E	F		G
	W		W		H		W		W		H	

6. Aeolian

A		B	C		D		E	F		G		A
	W		H		W		W		H		W	

7. Locrian

B	C		D		E	F		G		A		B
	H		W		W		H		W		W	

- Most of these 20th Century Modes bear names given during the Middle Ages – it is one of resemblance in construction, NOT usage

Familiar Major & Minor Scales

Ionian:	The familiar Major Scale
Aeolian:	The Natural Minor Scale

Major Modes

Lydian:	Major Scale w/4th step raised
Mixolydian:	Major Scale w/Leading Tone lowered

Minor Modes

Dorian:	Natural minor Scale w/6th step raised
Phrygian:	Natural minor Scale w/2nd step lowered

Ionian	CDEFGABC	Aeolian	ABCDEFGA
Lydian	CDEF#ABC	Dorian	ABCDEF#GA
Mixolydian	CDEFGABbC	Phrygian	ABbCDEFGA

- The distinctive flavor of the Lydian, Mixolydian, Dorian, & Phrygian modes is exploited by employing harmonic progressions in which the <u>characteristic scale</u> step occurs often
  - : This tone is the one keeping the mode from becoming a Major or natural minor scale
    - Lydian – raised 4th step
    - Mixolydian – lowered leading tone
    - Dorian – raised 6th step
    - Phrygian – lowered 2nd step
- A set of chords may be found within the diatonic limits of each mode
  - : As with the Major and Minor Scales (Ionian & Aeolian Modes) there is a definite relation between <u>primary & secondary</u> chord materials
    - Primary – a Tonic plus 2 dominant equivalents
    - The double dominants are those major & minor triads that include the characteristic scale step which produces the principle 'flavor' of the mode
  - : The diminished triad is a 'difficult' chord
    - Contains an Aug 4th
    - Tends to suggest the dominant 7th of the major key with the same number of sharps or flats as the mode in question

In Dorian (D – D) the chord built on the 6th step (B) produces a diminished Chord which contains a tritone –> same as the tritone in the V7 chord (G7) in Key of C			
iii° chord in Dorian (D – D)	F D } tritone B	F D } tritone B G	G7 dominant Chord in Key of C

MAJOR MODES

Lydian	D – D	(F#, C#, G#)	D Major Scale w/#4th

I	II	iii	iv°	V	vi	vii	VIII	
D	E	F#	G#	A	B	C#	D	
P	**P**	S	*Dim*	S	S	**P**		
A	B	C#	D	E	F#	**G#**		
F#	**G#**	A	B	C#	D	E		
D	E	F#	**G#**	A	B	C#		**(G# = #4th)**

Mixolydian	D – D	(F#)	D Major Scale w/b7

I	ii	iii°	IV	v	vi	VII	VIII	
D	E	F#	G	A	B	C	D	
P	S	*Dim*	S	**P**	S	**P**		
A	B	*C*	D	E	F3	G		
F#	G	A	B	*C*	D	E		
D	E	F#	G	A	B	*C*		**(C = b7th)**

MINOR MODES

Dorian	D – D	(No #, No b)	Natural Minor w/#6th

i	ii	III	IV	v	vi°	VII	viii	
D	E	F	G	A	B	C	D	
P	**P**	S	**P**	S	*Dim*	S		
A	*B*	C	D	E	F	G		
F	G	A	*B*	C	D	E		
D	E	F	G	A	*B*	C		**(B = #6th)**

Phrygian	D – D	(Bb, Eb)	Natural Minor w/b2nd

i	II	III	iv	v°	VI	vii	viii	
D	Eb	F	G	A	Bb	C	D	
P	**P**	S	S	*Dim*	S	**P**		
A	Bb	C	D	*Eb*	F	G		
F	G	A	Bb	C	D	*Eb*		
D	*Eb*	F	G	A	Bb	C		**(Eb = b2nd)**

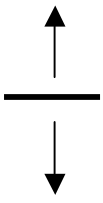
- Modal Chords by thirds – OTHER THAN TRIADS – need special attention
  - The tritone present in many 7^{th} and 9^{th} chords implies the dominant 7^{th} of the Major Scale
    + Can cause a loss of Modal tonic 'feel'
    + Can slip into Major Scale

Tritone implies a x7^{th} Chord

- Use of 7^{th} & 9^{th} chords in modes (excepting Ionian) are those involving NO tritone
- Locrian Mode NEEDS special attention (refer to section on Chromatic alterations)
  - Due to fact that tonic of the mode is a diminished chord
  - Infrequently used because of this diminished tonic
  - Hard to exploit (as with Major & Minor Modes) by using a characteristic tone to maintain 'flavor' of the mode

Chord Succession

- Not just a series of separate root points but a HARMONIC RELATIONSHIP
  : It is with in this harmonic relationship that chords move forward
  : Selection and distribution of primary and secondary chords within a given segment of music and the harmonic rhythm organization help give music its individual sound
- A single mode is not necessarily used throughout an entire section
  : Organized modes according to their TENSION relationship
    - Greatest number of flats that can be applied to produce the mode will produce the 'darkest' mode
    - Subtracting flats (and adding sharps) will move from 'dark' to 'brightest'
    - Constructed on the same tonic, locrian is 'darkest' – dorian is 'middle' point – lydian is 'brightest'
  : Provides the composer with a flexible set of modes
  : Enables definite control of these scale formations – WITH their inherent qualities



Darkest	C	Db	Eb	F	Gb	Ab	Bb	C	Locrian
	C	Db	Eb	F	G	Ab	Bb	C	Phrygian
	C	D	Eb	F	G	Ab	Bb	C	Aeolian
	C	D	Eb	F	G	A	Bb	C	Dorian
	C	D	E	F	G	A	Bb	C	Mixolydian
	C	D	E	F	G	A	B	C	Ionian
Brightest	C	D	E	F#	G	A	B	C	Lydian

- Maintaining Modality with Shifting Modes
  - Shifting modes are effective on a STATIONARY key center
    + Frequent reference melodically MUST be made to the tonic center to stay within Mode
    + Melodic circling – a chant like repetition of the tonic tone
    + Frequent cadences
  - Otherwise, under the force of the tritone, tonality will shift to Major

Chromatic alterations

- Both melodic & harmonic are devices natural to modal writing
  - Diminished triad frequent object of alteration
    + Tritone within chord has a restless tendency
    + Root lowered or dim 5^{th} raised to give it P5 stability & resonance
  - In Phrygian, diminished occurs on 5^{th} scale step and when altered forms an additional dominant equivalent
- Locrian diminished occurs on the tonic
  - But when altered because it is the tonic it will lessen the Locrian flavor
    + Therefore, the locrian tonic is often sounded with no 5^{th} – or with added note
  - Use of 1^{st} inversion subdues the tritone
  - Can also use a total unison with omission of both 3^{rd} and 5^{th}
  - Also can make use of chords on 1^{st} & 5^{th} steps with the tritone relationship considered a thematic consideration

Polymodality

- A pure modal passage is one in which a modal melody is harmonized with chords from the SAME MODE and on the SAME TONAL CENTER
- Polymodality involves 2 or MORE DIFFERENT modes SAME or DIFFERENT tonal center
- Can be melodic or harmonic
- When the SAME mode occurs simultaneously on DIFFERENT tonal centers the passage is POLYTONAL & MODAL but NOT POLYMODAL
- When DIFFERENT modes occur on DIFFERENT tonal centers at the SAME time the passage is both POLYMODAL AND POLYTONAL

Modulation/Modal Interchange

- When the SAME mode is moved from one tonal center TO another a MODULATION exists
- When modes CHANGE while the tonal center REMAINS a MODAL INTERCHANGE results

In 20^{th} Century Music, key signatures are seldom used – tonal centers & and modality shift rapidly – also, atonality is often present. Enharmonic spelling is determined by readability

SYNTHETIC SCALES

Formation

- The formation of the major scale through the overtone series is partly rationalized
- The major scale is only one of many scales contained in the basic 12 tone chromatic scale found in the upper region of the overtone series
- Free placement of scale steps results in original scale formations beyond the sphere of major & minor modes
- Most original scales are constructed by placing any number of major, minor, & aug 2nds IN ANY ORDER
  : The permutation possibilities are staggering
  : Better to let scales form as a result of the melodic or harmonic patterns

- The mathematical process has little creative connection with composition
- Assemble and then place into scale formations

Use

- Some original or synthetic scales are used more often than others
- The better known scales often coincide with folk scales

Sometimes named as:			
Super Locrian	Neapolitan Minor	Neapolitan Major	Oriental
Double Harmonic	Enigmatic	Hungarian Minor	Major Locrian
Lydian Minor	Overtone	Leading Whole Tone	Hungarian Major
Eight Tone Spanish	Symmetrical		

Construction

- Synthetic 7 tone, 1 Octave scale
  - : Made up of a pair of 4 note groups – TETRACHORDS
  - : Repeat the Tonic at the 8th step
  - : These tetrachords may be
    - Similar – the same Whole & Half Step sequence
    - Different – Different Whole & Half Step sequence

Similar:

Major Scale

Tetrachord 1				Tetrachord 2			
C	D	E	F	G	A	B	C
W	W	H	W	W	W	H	

Double Harmonic

Tetrachord 1				Tetrachord 2			
C	Db	E	F	G	Ab	B	C
H	A2	H	W	H	A2	H	

Different:

Harmonic Major

Tetrachord 1				Tetrachord 2			
C	D	Eb	F	G	Ab	B	C
W	H	W	W	H	A2	H	

Hungarian Major

Tetrachord 1				Tetrachord 2			
C	D#	E	F#	G	A	Bb	C
A2	H	W	H	W	H	W	

- The Modal construction principle that produced the 7 diatonic modes may be applied to any scale – creates multiple versions

Harmonic Considerations

- The Harmonic usefulness of new scales is determined by surveying their indigenous chordal materials
- Each synthetic scale contains a set of chords within its own intervallic makeup
- The primary chords are the tonic plus 2 triads that include the scale step (or steps) ***containing the most determinable characteristic colors of the scale***
  - : If a major scale tetrachord is present → the color tones are those outside the tetrachord
  - : If the scale contains no tetrachords → the primary chords (other than the tonic) are those triads that are enharmonic spellings of a major or minor triad
  - : If no enharmonically spelled major or minor triads → the characteristic tone (or tones) are found in the notes forming Augmented or Diminished intervals with the tonic
  - : The remaining triads are secondary formations that function within the gravitation of the primary chords
- A harmonic problem is created by the fact that most synthetic scales produce one or more triads with diminished or augmented thirds
  - : These are usually converted into one of the 4 basic triads (M,m,Dim,Aug)
  - : Altering the harmonic texture should not disturb the strict scale tones in the melodic writing
    - The burden of maintaining the flavor of the prevailing scale is placed upon the melody
    - The sooner the melodic voice includes all the tones of the scale, the greater the chance of projecting the synthetic scale as a unit

Contains Major Tetrachord

Leading Whole Tone Scale

				Major Tetrachord			
C	D	E	F#	G#	A#	B	C
	W	W	W	W	W	H	H
P	P	P					

Overtone

				Major Tetrachord			
C	D	E	F#	G	A	Bb	C
	W	W	W	H	W	H	H
P					P	P	

Neapolitan Major

					Major Tetrachord		
C	Db	Eb	F	G	A	B	C
	H	W	W	W	W	W	H
P	P	P					

No Tetrachords

Oriental

C	Db	E	F	Gb	A	Bb	C
	H	A2	H	H	A2	A2	W
Gb	A	Bb	C	Db	E	F	Gb
E	F	Gb	A	Bb	C	Db	E
C	Db	E	F	Gb	A	Bb	C
			M	M	m	m	
P				P		P	

Hungarian Minor

C	D	Eb	F#	G	Ab	B	C
	W	H	A2	H	H	A2	H
G	Ab	B	C	D	Eb	F#	G
Eb	F#	G	Ab	B	C	D	Eb
C	D	Eb	F#	G	Ab	B	C
				M	M		
P				P	P		

- Further harmonic possibilities may be tested by considering the mirrored version of the scale
  - : C D Eb F# G Ab B C // C B Ab G F# Eb D C
  - : The intervallic points between the original and mirrored version reveals hidden potentialities of the scale
    - Fresh material is suggested and brought into focus
    - Cadential patterns
    - Passing textures
    - Outer voice movement

Some Scales are reflectively identical w/inversion producing an exact duplicate in retrograde

Modulation/Interchange

- Melody and harmony of a passage involving a synthetic scale may stem
  - : From the same scale on a different tonic
  - : From different scales on the same tonic

Two Octave/MultiOctave Scale

- New Scales may be built with similar OR dissimilar tetrachords so that the Tonic is NOT repeated at the octave
- Can also be produced by combining two different one octave scales with common Tonics
- This tremendous span of intervallic color makes shifting of modal versions impractical
  - : Tone 9 – 15 are not necessarily duplicates of 2 – 8
- Principle chords of the two octave scale tend to be large, complex structures
  - : Clearly define the two octave compass
  - : These two octave scales serve as a unifying element in music of complex chordal formations
  - : The 15^{th} & 17^{th} of a chord by thirds are not necessarily duplicates of the root and 3^{rd}
  - : Two or more levels of intricate two octave formations appearing at the same time (polymodal//polytonal) are difficult to project
    - Best contained in music for a medium of a wide color palate

PENTATONIC & HEXATONIC SCALES

5 – Tone Pentatonic Scales

Diatonic

C D E G A C

Pelog

C Db Eb G Ab C

Hirajoshi

C D Eb G Ab C

Kumoi

C D Eb G A C

- Can be constructed modally as Modes 1 – 5 with modal construction technique

i.e. Diatonic

1st	C-C	C	D	E	G	A	C
2nd	D-D	D	E	G	A	C	D
3rd	E-E	E	G	A	C	D	E
4th	G-G	G	A	C	D	E	G
5th	A-A	A	C	D	E	G	A

- Diatonic Scales of 5 tones are harmonically limited in scope
  : Lack of semitones
    - The 5 tones sounded simultaneously form a static chord
  : Extremely difficult to achieve harmonic and melodic direction in a pure diatonic form
  : Pentatonic melody & scale
  : To prevent monotony
    - Changing modal versions of the pentatonic
    - Move from one Pentatonic to another
    - Lavish use of ornamental tones and pedal points
    - Frequent modal interchange or modulation
  : Pure pentatonic music (non – polymodal) is most effective when used for short spans of time
  : Pentatonic materials function well melodically OR harmonically BUT seldom BOTH
  : Pentatonic melodies often harmonized with foreign chords

6 – Tone or Hexatonic Scales

6 – Tone Symmetrical

C Db E F G# A C
H H H
3 Consecutive 1/2 steps

Prometheus

C D E F# A Bb C

Prometheus Neapolitan

C Db E F# A Bb C

Whole Tone

C D E F# G A# C

- Modal Construction Technique can be applied (except for the Whole Tone)
  : Produces six modes of each type of hexatonic scale
- Harmonic monotony is more easily avoided due to additional interval over pentatonic
  : Melodic material from these scales is usually harmonized with chords from other scales or chords in a non – scalar relationship
- The hexatonic scale (excepting the Whole Tone) has primarily a melodic function
  : A complete and fully independent line can evolve
  : Harmony can be drawn into the tonality of the melody
  : For most part is non – hexatonic and moves independently of any implications of the melody

- The consonant – dissonant tension caused by two separate forces creates its own fluctuating design and shape
- Melody and harmony are often in a polytonal relationship

The Whole Tone Hexatonic scale

- Offers a limited basis for extended musical expression
  - : When scale is mirrored, there is no change except in register
  - : A second whole tone scale lies 1/2 step above a first
    - Producing more will result not only in transposition but in duplication
  - : Modal construction technique of either of two scales results in exact transposition
  - : The equidistant intervallic make-up deprives the scale of the fundamental intervals (P4, P5, & LT)
  - : As a result, a real feeling of harmony MUST be established by harmony outside the Whole Tone category
    - Chords furnished by the Whole Tone Hexatonic scale are meager harmonic material
      - + The 6 triads of the scale are all augmented
      - + 4 triads are in effect inversions of the first two
      - + Only one type of 7^{th} and 9^{th}
      - + One category of chord by 2nds
- Whole Tone possibilities exist with devices to prolong the harmonic interest
  - : Contrary motion
  - : Alternating the two possible Whole Tone scales
  - : Sounding all 6 tones together harmonically
  - : Change density & spacing
  - : Using both possible Whole Tone scales simultaneously
- True value of the Whole Tone scale is the contrast it provides used in combination with other scales & techniques
  - : Whole tone melody harmonized with chords other than whole tone
  - : Diatonic melody created over whole tone harmony
  - : Whole tone chords changed to added – note chords when minor 2^{nds} are attached
  - : Whole tone passages alternated with non – whole tone passages
  - : Whole tone scale combined with another kind of scale

The Chromatic Scale

- Constructed by dividing the Octave into 12 half steps
  - : Used as an ornamentation of a diatonic scale
  - : Or as an independent scale (dodecuple) with 12 equally important steps
- This chromatic scale (dodecuple) may
  - : Impose a tonic feeling through fixed OR shifting centers
  - : May have NO tonality
- Modal versions in this equidistant chromatic scale are no more possible to construct than in the equidistant Whole Tone scale
- Chords

Dodecaphonic Scale considers ALL 12 notes equal and is the same as a chromatic scale except for this consideration

Chromatic Scale is a Diatonic scale with extra semitones added as color tones

: Chords of equidistant intervals or any combination of mixed intervals may be built from the scale
: May include any or all chromatic tones
: Or brought within the gravitation of a tonic center through the establishment of ANY plan of chordal relationships
- Chromatic harmony often contains miscellaneous intervallic building materials
- This complex harmony forms a compound type (see Persichetti Chap 8)

- Kinds of chromatic writing
: Chromatic figuration of non – chromatic harmony
- i.e Enharmonic equivalents (E Ab Fb) – (E G# E)
: Chromatic harmony with diatonic melodic writing
: Chromatic melody generated by chromatic harmony
: Mixed chordal structures formed by chromatic *motion* of parts
: Chromatic harmony generated by chromatic melodic writing
- Chords are formed by intervals from the horizontal motif

3 – CHORDS BY THIRDS

TRIADS – PREVIOUS PRACTICE

- Used by Composers of 20th Century Music in ways *not emphasized* in the 18th & 19th centuries
: Chords of the earlier period
- Revolve around tonal pillars of the Tonic, Dominant, & Subdominant
- Gravitation is created by the anticipation of harmonic arrival
- Dominant & Subdominant balance the Tonic on either side in intervals of a 5th
- V-I & IV-I relationship dominates all others
+ Remaining chords are secondary
+ Furnish variety once primary color is established
: It is motion *to and from* the primary material which gives Key its identity and music its balance
- Subdominant & Dominant harmony is used for cadential feeling
- Progression is 'unquestionably' established as being governed by a 5th relationship (Cycle of 5ths)
- Triadic materials with a scale may be set in motion by relationships *other* than that of the 5th

TRIADS – CONTEMPORARY PRACTICE

Movement by Cycle of 3rds or Cycle of 2nds

- Can be convincing to the ear when the cycle in force is confirmed by passing and cadential chordal movements
: This movement *parallels* the usual root progression in music based upon cycle of 5ths
: These 'cyclic' relationships may be constructed in any scale – synthetic or otherwise
- 5th Relationship
: In Major the primary chords are major
: In Aeolian they are minor
: In many Synthetic scales they are mixed

- 2nd & 3rd Relationship
  - : Chord quality will vary depending upon intervallic makeup of the scale used
  - : Secondary chords still create useful color tensions
- 3rd Relationship the Mediant & Submediant give balanced support to the Tonic from positions a 3rd above & below
  - : Primary chords are the I, iii, & vi with remaining chords secondary
  - : The I, iii, & vi dominate all others
- 2nd Relationship the Supertonic and Leading Tone chords help establish the Tonic center from positions a 2nd above & below
  - : Primary chords are the I, ii, & vii^{o} with remaining chords secondary
  - : The I, ii, & vii^{o} dominate all others
- When determining the procession of chords in a 3rd or 2nd relationship, one may proceed in *their* equivalent of the traditional 5th relation of roots
  - : This movement parallels the usual root progression in music based upon Cycle of 5ths
  - : Utilizes equivalent chords

Primary Chords

I	**ii**	**iii**	**IV**	**V**	**vi**	**vii^{o}**	**I**
Tonic	Supertonic	Mediant	Subdominant	Dominant	Submediant	Leading Tone	Tonic
C	D	E	F	G	A	B	C

5th Relationship

G	Dominant
C	Tonic
F	Subdominant

I, IV, V Primary
ii, iii, vi, vii^{o} Secondary

3rd Relationship

E	Mediant
C	Tonic
A	Submediant

I, iii, vi Primary
ii, IV, V, vii^{o} Secondary

2nd Relationship

D	Supertonic
C	Tonic
B	Leading Tone

I, ii, vii^{o} Primary
iii, IV, V, vi Secondary

Cycle of 5th Equivalents

5ths	I	V	ii	vi	iii	vii^{o}	IV	**Equivalents** ↓
3rds	I	iii	V	vii^{o}	ii	IV	vi	Write out root movement by 5th, 3rd, or 2nd
2nds	I	ii	iii	IV	V	vi	vii^{o}	

Result is equivalent chords to root movement by 5th

Examples 5th Chord progression with 3rd & 2nd Equivalents

5th	I-III-IV-vi-V-I	**OR**	vi-ii-V-I
3rd	I-ii-vi-vii^{o}-iii-I		vii^{o}-V-III-I
2nd	I-V-vii^{o}IV-ii-I		IV-iii-ii-I

Use Cycle of 5th Equivalents chart to determine corresponding 3rd & 2nd chords

Cyclic Relationships

- May be constructed in any scale – synthetic or otherwise
  : In 5th relationship
  : In Major primary chords are major
  : In Aeolian primary chords are minor
  : In many Synthetic scales they are mixed
- In 3rd & 2nd relationships they will vary depending upon the intervallic makeup of the scale used
- In Modes
  : The primary chords of a particular cyclic relationship may not coincide with the natural primary chord (chords) containing the modal 'flavor' tone
  : Emphasize the secondary chords which do contain the 'flavor' tone *is* possible

Phrygian = Natural Minor w/b2

D	Eb	F	G	A	Bb	C	D
A	Bb	C	D	Eb	F	G	A
F	G	A	Bb	C	D	Eb	F
D	Eb	F	G	A	Bb	C	Db
P	**P**			(dim)		**P**	

2nd Progression vii-i-II contain 'flavor' tone
3rd Progression VI-i-III do not

Harmonic Motion

- Motion to & from primary chords may change to a motion created by shifting from one cycle to another
- Process
  : Interchange of the three relationships
    - 2nd, 3rd, 5th
    - Affords complete freedom of root movement within a scale
  : By Inversion
    - Every intervallic root progression is possible
    - 2nd, 3rd, 5th are identical to those of 7th, 6th, 4th by inversion
  : Intervals between moving roots
    - Appear as Major, Minor, Perfect, & Augmented (depending on scale in use)
    - Provides the whole 12-Tone compass of intervallic root progression

By Inversion

6th:					Inverted			3rd:		
	G	E	C		E	C	E		G	B	D
	E	C	A		A	A	C		E	G	B
	C	A	F		C	E	G		C	E	G
					6	6	6			
						4	4			

Ornamental Tones

- Any chord of a harmonic progression can be considered the 'Tonic' of *any* scale (synthetic or otherwise)
- Ornamental tones can be derived from that inferred scale

Synthetic Scales

- Contain triads that have augmented or diminished 3rds
  - : Awkward because sound like 4th's or 2nd's
  - : Usually result in misspelling of chord
- These chords are often altered to one of the four basic triads
  - : Major, minor, diminished, augmented
  - : These triads have only major or minor 3^{rds} present

Chord Progression

Triads built upon any tone

- Chords my move as part of a cycle within a scale or independent of scale relationship
  - : In music that lacks definite scale or modality any triad may be followed by *any* other triad
  - : Any sequence of key centers may be used
- Root Movement
  - : Root movement of P5th has a strong tendency to establish a definite modality and tonality
    - Therefore, seldom used in a chromatically free triadic context
  - : Root movement of Major & minor 2^{nds} & 3^{rds} occur more often because they are less likely to define one particular scale
    - The root of one triad moving up or down to the root of another triad move often in intervals of 2nd and 3rd (rather than 5th or tritone)
    - Can be triad of any type but usually major or minor
  - : When triads progress chromatically a root movement of the aug 4th produces a chordal relationship that adds variety to the basic 2nd & 3rd relationship

Chord selection

- Wide selection of triads made available by chromatic progression often create harmonic & tonal restlessness
  - : If each voice has a purpose/design, any triad may progress freely & with harmonic meaning
  - : When chromatic triads wander harmonically & make vague phrase shapes a *diatonic melody* may bring the chromaticism into clear focus
- Chordal material may be chosen by considering a prominent note in the strongest voice as a chord tone (Root, 3rd, 5th) of a major or minor (or less often a diminished or augmented)
  - : Any note has 3 major & 3 minor possibilities
  - : Even an unadorned scale line produces potential variety

  - In music of such chromatic shifting, an underlying scale or mode is a possible result
  - Never a governing one – either as a prevailing mode or preconceived tonal framework
- Triads are frequently used in fundamental position
  : Voices containing Root & 5th (usually bottom two voices) move in parallel 5ths
  : Period inversion of the triads will relieve the binding parallelism

7TH & 9TH CHORDS – PREVIOUS PRACTICE

- Traditionally the 7th & 9th members of chords are considered dissonant tones
- These tones must be prepared and resolved

7TH & 9TH CHORDS – CONTEMPORARY PRACTICE

- Have been freed from some of their former restrictions
  : Become *stable* entities in themselves
  : Dissonant tones are not necessarily prepared or resolved
  : This is only required within certain formal conditions
- As independent 7th & 9th chords they have the facility of triads
- May progress within or outside any scale formation (original or traditional)

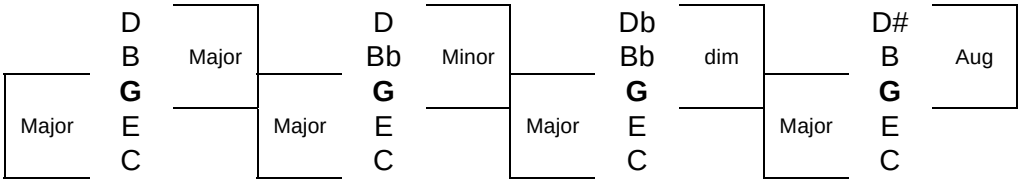
Texture

- Great variety in 7th chord texture can be had through doubling and inversion
  : May be inverted and spaced in any manner without destroying harmonic suppleness
- 1st inversion spaced in 5ths is particularly useful
  : Unique sound enables it to act as a key center chord

Chord Progression

- All types of harmonic progressions possible with triads are possible with 7th & 9th chords
  : Used as consonant formations they function well in relationships established by cycles of 5th, 3rd, & 2nd
  : The Augmented 4th root relationship provides fresh activity from chord to chord (particularly with the dominant 7th)
- A feeling of 'Progression' may be created by moving voices through various forms of different 7th & 9th formations on the same root
  : Mathematically possible to build 16 different 9th chords with major and minor thirds on the same root note
  : Due to enharmonic duplication of certain notes *only 12 are actually possible*
- The 9th chord is analyzed as consisting of two triads with the top triad anchored on the upper note of the bottom chord
  : This dual chording has polychordal implications
- Any note can be considered a root, 3rd, 5th, 7th, or 9th so any single tone can be harmonized with 60 different 9th chords

9th Chord Construction



12 9th Chord Possibilities

major	minor	dim	aug	major	minor	dim	major	minor	aug	minor	dim
major	major	major	major	minor	minor	minor	dim	dim	dim	aug	aug
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**

Built on stacked Triads

Ordered Dark to Bright

minor	major	dim	dim	aug	minor	minor	major	major	dim	aug	minor
dim	dim	minor	major	dim	minor	major	minor	major	aug	major	aug
1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**

Interchangeable Interchangeable

Dark ◄——————————————► Bright

Chordal Operations

- One of the 3rds that make up a 9th chord may be (rarely) smaller than a minor 3rd
  - : Synthetic scale is one possibility
  - : Creates a diminished 3rd or if inverted an augmented 6th
  - : Requires resolution
- 9th chord members may be omitted
  - : 5th omitted for richness
  - : 7th omitted for color
- 9th chord doubling
  - : Root or 5th doubled for solidarity
  - : 3rd or 7th doubled for density of color
  - : 9th doubled for increased tension
- With 9th below root, the chord is less agile
- Inversions
  - : 4th inversion (9th in bass) is a hard texture effective in rough hewn passages
  - : Minor dominant 9th in the 4th inversion is often found with its 7th omitted in parallel harmony
    - Sometimes misspelled as a diminished octave to facilitate reading

Usage

- Successions of 9th chords of varying intervallic textures are effective in sequential patterns
- Increased harmonic weight of the 9th chord often presents the problem of immobility

: Can be solved by 'touching' the 9th in movement from a triad or 7th chord
- When 9th chords are used with chords by 4ths (or other non-3rd categories) the members of the 9th chord are spaced so that at least one interval of the 9th chord resembles the building material of the non-tertiary harmony
: C E G B D = G C B E D (spaced in 4ths)

ELEVENTHS & THIRTEENTHS

- Large chords form only a small portion of the harmonic palate
: The 11th/13th add density but reduce suppleness
: Cumbersome in harmonic progressions but useful in general harmonic scheme

Construction

- The formation as a combination of 3 triads with tones in common at two points
- The 13th is non-invertible as any attempted inversion will produce another 11th/13th
: C E G B D F A –> inverted –> G B D F A C E [C13th –> G13th]
- 11th/13th chords are often created by pedal tones or melodic ornamentation of triads & 7th chords
: Not an 11th/13th chord in this circumstance but rather a smaller chord with ornamentation

Use

- Omission of some members of the 11th/13th chord makes possible a certain freedom of harmonic movement
: Usually contain two sharp dissonant intervals
: Omission of one of the tones that form a sharp dissonant interval lessens the dissonant content
: This also makes relative supple harmonic movement possible
- Chord members are best arranged in resonant intervallic relationship
: If the arrangement produces two *separate* triadic units (i.e. triad in Lft Hand) a polychord results
: If 4ths predominate, the chord sounds not as a 11th/13th but as a chord in 4ths
- Intervalic makeup of 11th/13th chords often coincide with various scale formations
: Chords become 6 – 7 note tonic formations around which polychords and compound structures may function
: Guided by the melodic line derived from the scale implied
: Seldom found in extensive part writing
- 11th/13th chords combine well with 7th & 9th chords

FIFTEENTHS & SEVENTEENTHS

- An expanded tonal system beyond 7 chord tones resulted in 3rds added as 15th/17th without duplicating chord members
: The size of the chord is determined by the distance between the root and the highest *new tone* above
- Should be thinned by omitting two or three inner tones
: Separated triadic units should be avoided unless a polychordal structure is desired

: Complete 15th/17th chords are effective in parallel harmony or harmonic punctuations

TWELVE NOTE CHORDS

- Mixed 3rds may be super-imposed until all 12 tones are present
- 12 Tone chord containing 12 different member tones are so complex and thick that special attention must be give to register & instrument
  : Thick texture lightens when chord is placed in Upper register
  : Or when consonant portions of the chord are played by separate orchestral choirs

21st & 23rd chord nomenclature is seldom used but referred to as 12 Note Chords

- Extremely limited species of harmony
  : Operates in a confined area with few harmonic functions
  : Used for
    - Punctuation
    - Quiet & sustained tension
    - Short progressions that answer a unison or two part writing
- 12 note chords by 3rds
  : Span a wide register and their members are normally spaced in 3rds
  : Parallel movement of *all* voices provides temporary suppleness
  : Contrary motion changes distance between voices
    - Produces chords formed by 4ths & 2nds
    - Polychordal, compound chord, or mirror chord

4 – CHORDS BY FOURTH

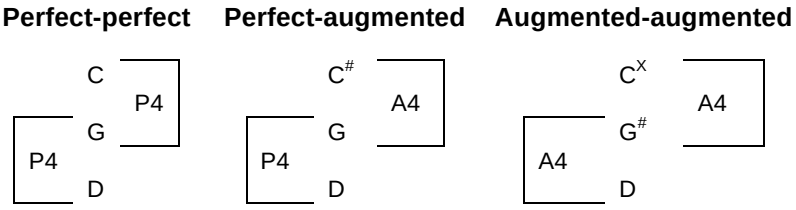
QUARTAL HARMONY

- Stems from the ornamentation of the triad and from techniques of medieval polyphony
- Built by superimposing intervals of the 4th
  : In other spacing's most of the chord members must be placed a 4th apart to preserve the distinctive quartal sound
  : Without this spacing, quartal structures may sound like 11th, 13th, or added note chords
- Characteristics
  : 3, 4, or 5 note chords by Perfect 4th have a pentatonic flavor
    - The 5 note chord contains all the notes of the pentatonic scale
    - Scale –> C D E G A [C] // In 4ths –> E A D G C
  : Chords in 4ths are ambiguous
    - Like all chords built on equidistant intervals (dim & Aug Triads) any member can function as the root
    - Places the burden of key verification upon the voice with the most active melodic line

3 NOTE CHORDS BY 4THS

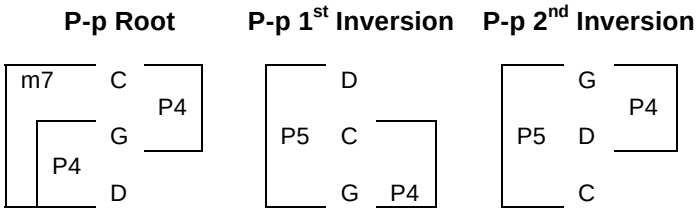
- Three kinds of intervallic arrangement of 3 note chords are possible
  : Perfect-perfect

: Perfect-augmented
: Augmented-Augmented
- This is impractical
- 1st & 3rd notes are enharmonically identical



Perfect-perfect

- Two inversions are possible (R/1st/2nd)
  : Inverting Perfect-perfect 3 note chords helps prevent the harmonic monotony of uniform intervals
  : Either inversion can be used as a fundamental structure due to the presence of a strong Perfect 5th

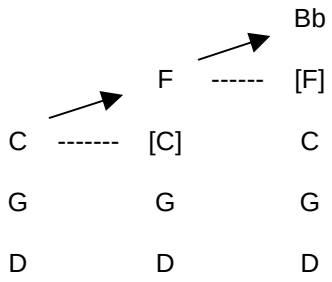


  - If the resonant P5th interval is allowed to dominate the texture
    + The 2nd created in inversion)inverted m7th) often sounds like a note added to a simple chordal formation
    + Positions featuring the P5th give quartal harmony a variety of color
- Open Spacing increases harmonic expressiveness
  : Any note in a Perfect Quartal chord may be doubled
    - Doubling outer parts enriches harmonic color
    - Doubling inner parts strengthens any moving voice
- A succession of Perfect 4ths chords does not fall within the intervallic makeup of any one scale
  : If chords are to be made to fit a scale pattern, miscellaneous 4ths must be used
- Chords built by Perfect 4th are chromatically more supple than chords with Perfect *and* Augmented 4ths
- The scale tone used as building roots for P4th chords will be duplicated at different tonal levels
  : Indicates a polytonal potential

- Perfect-perfect chord is seldom used as a dissonant structure
  : Any member of chord is free to skip
  : Absence of a sharp interval
  : Equality of the Perfect 4^{ths}
  : Mildness of the minor 7th

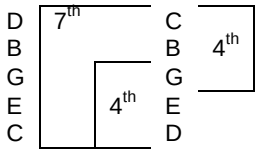
Chords Containing Aug 4th (P-a & inversion A-p)

- Upper note of the tritone resolves best to the nearest not of the prevailing melodic or scale formation
  : If the neighboring tones of the scale lie equal distance away, either direction can be taken
- Any *chord Tone* in *any type* of 3 or 4 note quartal chord may skip a 4th or 7th if the other tones remain stationary
- Results in a larger (4 or 5 note) version of the *same* chord



Quartal Movement

- Any type of 3 note chord by 4^{ths} can progress diatonically, chromatically, or by skip to any other quartal chord *if* one voice moves with strong melodic purpose
  : Clarity is difficult to achieve with quartal chords in low registers
  : Flow more easily in upper voices (w/w's or female voice)
- Pedal point lessens any dissonant tones needed for resolution
- When a florid voice is added to 3 note quartal chords, greater harmonic freedom is possible
- Quartal chords may be approached and left by triads
  : When the upper most voice is prepared
  : When suspensions are not resolved
  : When 6th or 9th is added to a cadential tertian tonic
- When both tertian & quartal chords appear in progression it is advisable to employ devices that bring out the flavor of the Perfect 4th interval
- Quartal chords may be approached or left by 9th chords when the 4th inversion of the 9th chord is used with the root in the top voice
  : With root in the top voice the prominent 7th spanning two 4^{ths} acts as a binder for the two chordal categories



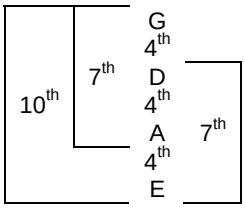
- By 7th chords when the 3rd & 5th of parallel 7th chords are replaced by the 4th
- By 13th chords when arranged so that 4ths predominate
  : C13 = C E G Bb D F A (in thirds)
  : C13 = C E A D G F Bb (ordered in 4ths)
- In final cadences the quartal chord is more powerful in its inverted form
  : Quartal members move so freely that cadences made solely of quartal chords may have any bass tone
  : Quartal chords are used as 'dominants' in cadences of any harmonic idiom
    - Any mixture of chords may be used if the interval of the 4th is predominant in the harmony

FOUR NOTE CHORDS BY 4THS

- A quartal structure more resonant than 3 note quartal chords

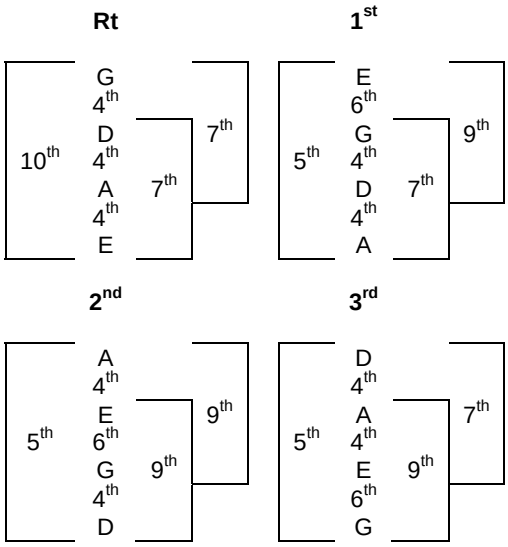
Construction

- New tone forms a consonant interval (10th) with the bass tone



- The additional tone adds color and variety to quartal harmony

- Extremely useful in their 3 inverted forms because of the variety of intervals they contain



Characteristics

- Moving through inversions of *same* chord will produce real harmonic movement without root change
- Move easily to chords with 3rds when two voices move conjunctly while others remain stationary
- When Aug 4th is present, the tritone moves easily if placed at the top of the chord
- Compound construction (3rds & 4ths) brings fresh color to quartal harmony
  - : 3rd may be added above or below a 3 note quartal structure
    - If the added 3rd is major, the chord sounds consonant
    - If the added 3rd is minor, the chord sounds *less* consonant
  - : Effective when used as a cadential tonic
  - : When used passing chords both types (major & minor added 3rd) are equally useful
  - : 3rd above *and* below the 3 note quartal structure may appear with it simultaneously as a 5 note chord
    - Lush sounding
    - Functions well in progressions containing tertian or polychordal structures
  - : Chromatic introduction of a chord by 4ths may cause a sudden shift of tonality or scale
  - : Chords in 4ths may be arranged in 5ths as easily as a chord in 3rds can be arranged in 6ths
    - When 5ths dominate a quartal chord, the 4ths become restless
    - Advisable to resolve the 4th to a 3rd of a compound quartal chord before returning to the pure 4th chord

MULTI-NOTE CHORDS BY FOURTHS

- Chords of superimposed perfect 4^{ths} are consonant to and including the 5 note chord
- The 6 note chord results in a categorical change in tension
  : Contains a sharp dissonant interval (b9)
    - E A D G C F has a b9 interval between E & F
  : These 6 note chords belong to the 3-4-5 note chords containing an Aug 4th
  : Good to exploit the relationship of a dissonant group with a consonant group
- 13th chord and multi-note quartal chords often contain the same notes
  : Similarity is theoretical – not aural
    - If 3^{rds} over run a 6 or 7 note quartal structure, the ear hears a 13th chord
    - If 6 or 7 note chord is over run by 4^{ths}, the ear hears a quartal structure
    - If 3^{rds} & 4^{ths} are equal in number the chord may be used as a pivotal structure
      + As tertian
      + As quartal
      + As both

TWELVE NOTE CHORDS BY FOURTHS

- 12 different notes may be place a 4th apart before one is replicated

E	A	D	G	C	G	Bb	Eb	Ab	Db	Gb	Cb	E
1	2	3	4	5	6	7	8	9	10	11	12	

- As the number of chord members increases the linear potential decreases
  : To prevent harmonic suffocation use
    - A touch of parallel movement
    - An interrupting unison
    - Suddenly enriched dominant
- Voicing
  : If muddy sounds are not wanted
    - Place the larger intervals in the bottom
    - Omit a member
  : Voices may be clustered and the distinctive quality of quartal harmony preserved by the isolation of orchestral timbre

5 – ADDED-NOTE CHORDS

DEFINITION

- A basic harmonic formation whose textural quality has been modified by the imposition of tones *not* found in the original chord
  : The tones added form one (or more) major or minor 2^{nds} with *any* member of a chord by 3^{rds} or 4^{ths}
  : Added notes are usually placed a 2nd above or below any member to avoid creating a 7th, 9th, compound chord, etc.
- Added tone/tones *are* modifying elements attached to a chord of clear directional powers

: As color modifications they change the texture rather than the function of the basic structure
: Traditional examples are to be found in the cadential 6/5 and French Augmented 6th chords

AUGMENTED 6TH CHORDS

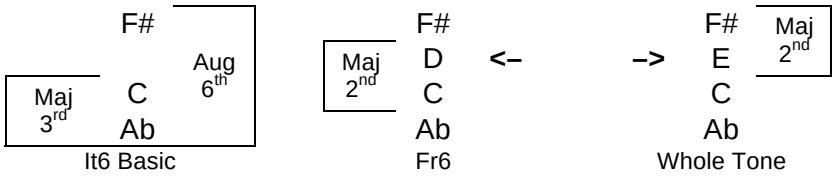
- Aug 6th is a likely chord to add notes because its directional pull is sufficiently strong as to be unimpaired by the addition of color tones
- French Augmented 6th is a prime example
  : A major 2nd is added above the middle tone of the basic Italian Aug 6th Chord
  : The attached note alters neither function nor formal meaning but creates a fringe color
    - The augmented 6th interval gives the Italian 6th chord its motivating power
    - The interval a 3rd from the bottom gives it its fundamental flavor

Italian 6th	**French 6th**
C	C
F#	F#
C	D
Ab	Ab
#6	#6
	4
	3

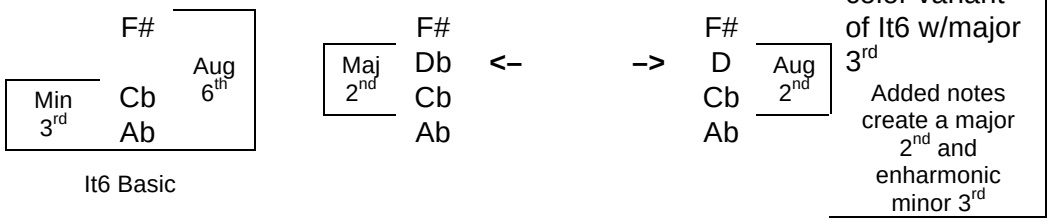
20th Century Added-Note technique

- Five Basic Augmented 6th Chords to which 2nds may be attached
  : Aug 6th interval w/major 3rd
  : Aug 6th interval w/minor 3rd
  : Aug 6th interval w/augmented octave w/major 3rd
  : Aug 6th interval w/doubly augmented octave w/major 3rd
  : Aug 6th interval w/augmented 3rd

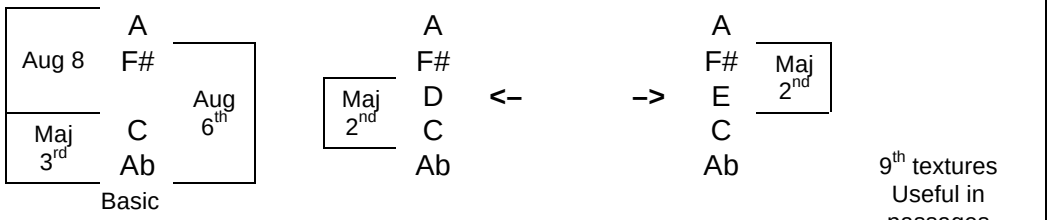
Aug 6th Interval w/major 3rd



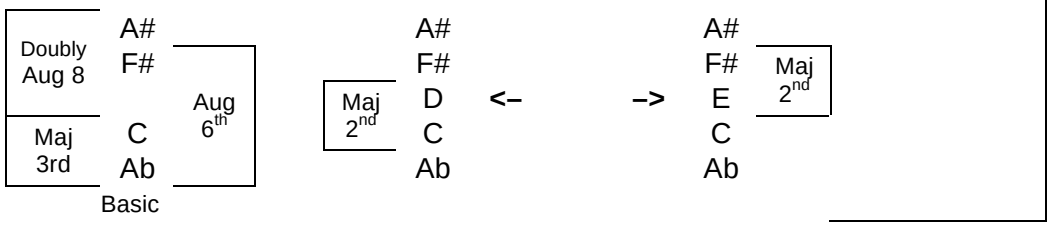
Aug 6th Interval w/minor 3rd



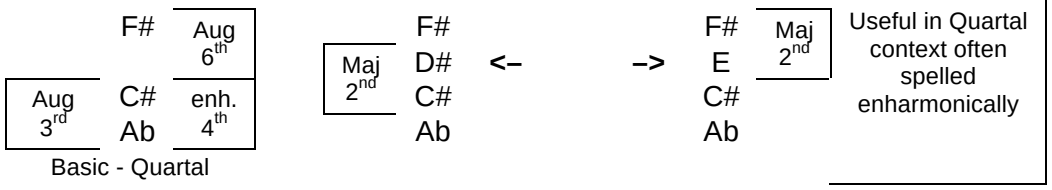
Aug 6th Interval w/augmented octave



Aug 6th Interval w/doubly augmented octave



Aug 6th Interval w/aug 3rd



Added-Note Chord Characteristics

- Movement
  : Any chord containing the interval of the Aug 6th the voices spanning the interval have a tendency to
    - Expand (contrary motion)

- Descend chromatically (parallel motion)
- Move with one voice stationary (oblique motion)

- Two or more added notes
  : Several major/minor 2nds can be added simultaneously to any form of the Aug 6th chord
    - Does not change function
    - Retains a strong tendency to move onward regardless of number of added notes
  : Resolve most naturally to Added-Note chords of another variety because of the secundal texture

OTHER ADDED-NOTE CHORDS

- Can add Maj/min 2nds to most chords by 3rds & 4ths
- Added notes are *not* ornamental tones sounding with a chord
  : Are true color members that rival the 3rd in color potential
  : Add spice and increase harmonic density
- Two general textures are possible
  : Mild type with no sharp dissonances
  : Sharp type with at least one sharp dissonance
- Movement
  : Added note chords of the mild type
    - Often stop harmonic flow by a tendency to form a cadence
    - When used extensively, cause a progression to become paralyzed
    - Maintain flow by mixing freely mild & sharp type
  : Progressive motion of added-note chords is governed by the basic harmony which added notes are attached
  : Cadences, sequences, and traditional harmonic formulas help protect chords from debilitating effect of crowding 2nds

Triads with added note

- Characteristics
  : Maj/min triad
    - Note may be added above or below *any* member
    - Lower the added note is placed in the chord the less resonant the formation
    - Adding a note above a maj 3rd diffuses the color of this note
    - Minor 3rd is somewhat less affected
  : Diminished triad
    - Will always be a sharp textured chord
    - Regardless of what note is applied
    - Regardless of where note is applied
  : Augmented triad
    - With maj 2nd added the texture is still whole-tone
    - Minor 2nd additions are more useful
    - Makes possible intervallic variety
  : 7th & 9th chords
    - Additions are frequently min 2nds
    - Maj 2nd addition sometimes results in a duplication of a chord member

- In some cases, a triad or 7th chord with an added note may resemble a 9th chord
  + Context can determine the true identity
- Added note 7th & 9th chords (even sharply dissonant added-tones) do not compete with the 7th or 9th for dissonant tone movement
  + Added tones are not strong contenders for resolution
  + Cling to inverted as well as fundamental chords
- Added note may be doubled at will
  + Doubling the added note in outer voices is effective when it occurs in successive octaves in melodic coupling
  + Over all coupling sounds well when used in an entire body of added note harmony

Chords by 4ths with added note

- Characteristics
  : Can be regarded as triads with added note *or* incomplete 7th & 9th chords
    - Will sound like added-note chord by 4ths in a passage dominated by 4th chords
    - Will sound like added-note chord by 3rds in passage dominated by chords by 3rds
  : 2nds can be added in following order for sonority

Mild Texture:	Maj 2nd below the 7th
	Maj 2nd above the 4th
no sharp dissonances	Maj 2nd below the 4th
	Maj 2nd above the 'root'
Sharp Texture:	min 2nd above the 7th
	min 2nd below the 7th
at least one sharp dissonance	min 2nd above the 4th
	min 2nd below the 4th
	min 2nd above the 'root'

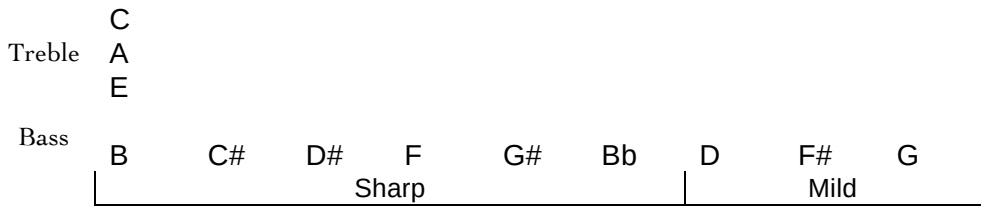
  : The lower the 2nd is placed in the chord, the less resonant the formation
  : Chromatic 2nd addition to the chord by 4ths creates a sharp texture
    - Blends well with textures of aug 4th chords *without* added note
    - Whether maj or min 2nd are added, chord will always be of sharp texture because of maj 7th interval
      + D G C C# as min 2nd added-note
      + D G B C# as maj 2nd added-note
  : Any chords with and without added notes sound well side by side – both belong to category of sharp textures
- Movement
  : Added note chords of the mild type
    - Often stop harmonic flow by tendency to form a cadence
    - When used extensively, cause progressions to become paralyzed
    - Maintain flow by freely mixing mild & sharp type
  : Progressive motion of added note chords is governed by the basic harmony to which added notes are attached
    - Cadences, sequences, and traditional harmonic formulas help protect the basic chords from debilitating effect of crowding 2nds

- Context
  - : Effective as added note chords only when a clear and definite progression is implied by the basic chords – or previously established by chords without added notes
  - : Notes may be attached to complex basic chords if structures are first clearly stated without the color tones
    - - If notes are added to a complex basic chord without textural preparation a chord of a larger basic formation – not added note chord – is heard
    - - A large compound chord and a complex added note chord are often identical
      - + Unless a firm harmonic progression is felt under the complex added note structure a compound harmonic texture will prevail
      - + Added note chords are often secundal in appearance with added note chord and chord by 2^{nds} sometimes identical
      - + Context in general musical section is what makes determination
- Spacing (outside original octave range)
  - : Wider spacing produces greater freedom of harmonic movement
  - : Clearer focusing of the dissonant added tones
  - : Special category is that of the triad in close position with a note added below
    - - Triad – major, minor, diminished, augmented – is placed in the upper voices
    - - A major or minor 2^{nd} above or below any member is added as a *bottom* voice

Possibilities

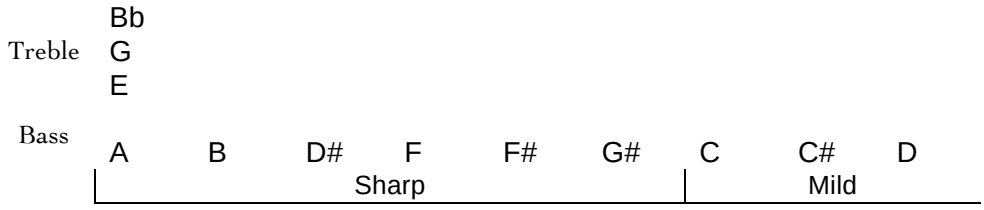
Major Triad

Minor Triad



Aug Triad

Dim Triad



Some of these structures resemble traditional chords by 3^{rds} – they *do not* function as such in context of added note harmony

- Progression in this type of added note harmony is often governed by an upper melodic line
  - : Each note of a melody – except ornamental tones – may be considered a member of a major/minor/dim/aug triad
  - : A bass line is then constructed from notes a second from any triadic member
    - Chosen to form the kind of outer voice relationship that best suits the desired texture and phrase shapes

- Most effective when used in harmonic progressions consisting solely of the same type of added note structures
- Primary and secondary relationships are not relevant as melody is the governing factor
- Textural consistency is insured by chordal spacing
- Freedom of linear movement is made possible by the wide selection of bass notes possible

6 – CHORDS BY SECONDS

- Three categories of intervallic materials from which chords can be built
  : Tertian – thirds & sixths
  : Quartal – fourths & fifths
  : Secundal – seconds & sevenths
    - The addition of 2nds to chords by 3rds or 4ths or the filling in of the mixed intervals of compound chords for color does not produce chords by 2nds – these are added-note chords
    - Out of context such chords may be called by either name

THREE NOTE CHORDS BY 2NDS – A UNIQUE FLAVOR

Construction

- Both major and minor seconds may be used in the construction (the aug 2nd is tertian as an enharmonic min 3rd)
- 4 Intervallic types of 3 note chords by seconds

G#	G	G	Gb
Ma 2nd	mi 2nd	Ma 2nd	mi 2nd
F#	F#	F	F
Ma 2nd	Ma 2nd	mi 2nd	mi 2nd
E	E	E	E
MA-MA	MA-Mi	Mi-MA	Mi-Mi

Consonant → **Dissonant**

- Two inversions of each are possible

G#	E	F#
F#	G#	E
E	F#	G#
Fundamental	**1st Inversion**	**2nd Inversion**

- Chords in 2nds may be arranged in 7ths as chords by 3rds are arranged in 6ths and chords by 4ths are arranged in 5ths
- When chords in 2nds are used in close position they "cramp" easily
  : Become percussive in the lower register
  : Spacing in 7ths and 9ths gives linear freedom and room for activity of the parts
- In Major, Minor, or the 5 other modal scales, only the 1st three types of three note secundal chords are found naturally

: MA-MA, MA-Mi, Mi-MA
: Mi-Mi is derived from chromatic or synthetic scales

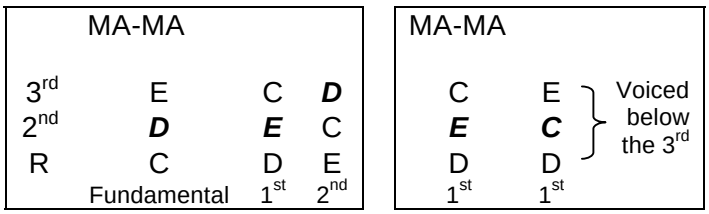
Doubling

- For solidarity the bass note is doubled (R or 2nd or 3rd)
- For mildness of texture the most consonant note over the bass is doubled
- For sharpness of texture the most dissonant note over the bass is doubled

Voice Leading

- A dissonant tone is a restless tone that often asks for resolution
- In Fundamental position *and* 2nd inversion of any intervallic type, the dissonant tone is the 2nd of the chord
- In First inversion the dissonant tone is the 3rd of the chord
  : Except in Mi-MA 1st inversion where the root is most dissonant
  : In 1st inversion of the MA-MA the root becomes the dissonant tone if voiced *below* the 3rd
- If the dissonant tone is a member of a sharp dissonant interval (Ma/Mi 2nd) one of the members that forms the sharp interval is best approached and left conjunctly or by repetition

Dissonant Tones



Multi-note Chords by 2nds

- A single chord by 2nds can be expanded to encompass an entire scale
  : Chromatic, diatonic, or original
  : May or may not be a cluster depending on context
- Thickened harmony best combined with polychordal or compound harmony before it hardens

CLUSTERS

Characteristics

- Passage dominated by chords by 2nds
- Arranged in predominantly un-inverted form so that most of voices are a 2nd apart
  : These are not true chords by 2nds
  : Generally consistent spacing
  : Mainly lack of defined inner voice movement
- Most scale formations (or parts) may be clustered

- : Chromatic scale least useful one when clustered as becomes tiresome quickly
- : May be formed from one complete scale of any type or from two (or more) contrasting scales

- May accumulate through the additive use of chords by 3rds, 4ths, polychords, or smaller clusters

Voice Leading

- Accomplished solely by considering the 2 part contrapuntal frame formed by the outer voices
- Changing in progression the intervallic makeup and number of chord members gives
  - : Textural interest
  - : Momentum
- Clusters progress harmonically
  - : By expanding and contracting
  - : Changing the intervallic construction
  - : Omitting chord members
  - : Shifting voice colors
- When clusters move in parallel motion the progression is purely melodic
- Changing parallel to similar motion in some voices adds textural interest
- Using occasional octaves in two outer voices parts accentuates color

Scoring

- Subtleties of cluster part writing difficult to compose or notate for piano
  - : Played with palms or arms
  - : Often notated with one note head spanning the entire height of the cluster
- Chamber combinations and orchestra can more fully utilize clusters and better accommodate notation
- Large clusters are powerful in dramatic punctuation
- Smaller clusters are more agile and generally easier to handle
- Consonant – dissonant quality of cluster harmony may oppose or parallel the quality of the counterpoint of the outer voices
- Consonant or dissonant clusters (diatonic/chromatic) may be used in all possible combinations with consonant or dissonant outer voices
- A cluster is not always introduced by sounding all its tones simultaneously
  - : Clusters may be broken (arpeggios by 2nds) but will sound like clusters *only* if cluster harmony has been previously established
    - Will sound like scales if the broken clusters are not clearly part of a cluster context
    - When sounded consecutively they are effective if each note is held until the last enters
    - Contributes variety
    - May unfold from
      - + Top to bottom
      - + Bottom to top
      - + Center outward
  - : Consonant or dissonant aspect of a cluster's character may be accented by the way its members enter

    - Or accentuation by sounding consonant or dissonant intervals of the cluster beforehand
- Ornamental tones increase harmonic circulation in passages of clusters
- Translating traditional harmony into cluster harmony by arbitrarily filling in the space is calculative and usually without musical impetus
- Clusters more effectively stem from the secundal harmony that generates them (because of common 2^{nd} interval)
- Clusters are used with chords by 2^{nds} and occasionally in conjunction with or in contrast to other types of harmony
- When used with chords by 3^{rds}, or 4^{ths} they can participate in progressions of functional root relationships

Polyclusters

- Two or more clusters derived from one scale or different scales may be used simultaneously as a *polycluster*
    - The roots of the various cluster units of a polycluster may form a chord by 2^{nds}, triad, or a chord by 4^{ths}
        - Space *must* be left between the cluster units to allow them to sound distinctly
        - The larger the cluster the larger the space
- The number of contrapuntal voices involved in polycluster harmony is automatically doubled if the cluster size fluctuates
    - Each cluster is then outlined by two independent voices
    - Varying the outer voices by contrary, oblique, or parallel movement will produce clusters of changing sizes
        - As clusters increase in size, harmonic tension increases
        - As clusters decrease in size, instrumental color can be concentrated (overlapped & doubled voices)

7 – POLYCHORDS

Definition

- A Polychord is the simultaneous combination of two or more chords from different harmonic areas
    - Segments of the polychord are referred to as chordal units
    - Beginnings traceable to double and triple pedal point
        - Hint at bitonality
        - Caused by the relationship of the passing chords to the pedal chord (lie in the passing harmony)

Characteristics

- Poly harmony is seldom polytonal
    - Polytonality is only present when the chordal units that make up the structure adhere to separate keys
        - Polychords that are not polytonal are considerably more flexible and versatile
        - The harmonic areas of both chordal units shift often
- Clear grouping of the chordal units is a requisite of polyharmony
- Re-arranging the tones of these units can destroy the polychordal organization

TWO TRIADIC UNITS

Resonance

- Overtones resulting from a fundamental tone and from those overtones themselves may produce polyharmony
  - : The resonance of a polychord is determined by the intervallic structure of the *bottom* chordal unit *and* the power of its separate tones to generate overtones
    - 2^{nd} inversion of the major triad as a bottom unit is the most resonant chordal unit upon which polyharmony can be erected
    - Internal spacing is closest to that of the harmonic series
      - + The major 3^{rd} of the fundamental triad (in close position) is not as close to the size of the perfect 5^{th} of the overtone series
      - + The $P4^{th}$ of the 6/4 chord is closer
- When tones of the bottom triad are spread apart, the fundamental position is most sonorous
- Any position or inversion of the upper triad may be used depending upon the outer voice relationship desired
  - : The upper triad depends upon its proximity to the overtones of the 3^{rd} and 5^{th} of the *lower* triad for resonance

- Density of the poly chordal structure is determined by spacing
  - : Placing chordal units well apart allows for maximum tonal vibration
  - : Contrasting instrumentation of the chordal units clearly defines contrasting harmonic zones
  - : Doubling the consonant intervals gives strength
  - : A tone common to the units help blend the component parts
- The relationship of the bottom and top tones of the polychord is important
  - : Consonant outer-voice resonance spreads its effectiveness throughout the formation
  - : Dissonant outer-voices do the same
- A Polychord gains resonance if smaller intervals are placed in the upper register and wider intervals are placed in the lower register
  - : Close spacing and monochrome scoring produce cloudiness
    - Result is a valuable addition to the overall fluctuating tension of harmony
  - : The closer the dissonant tones are placed to each other the higher the degree of tension
    - Unless clearly defined as part of a chordal unit the different harmonic areas will run into each other and poly harmony will cease to exist
    - Added-note chords can be projected poly chordally by strong contrasting instrumentation
    - If the upper chordal unit in a polychord forms a chord by 3^{rds} with the bottom unit
      - + The ear identifies such a structure out of context as a non-polychord
      - + In *context* with surrounding poly harmony such a chord is unmistakably part of the polychord category
  - : If the lowest note of the polychord is placed below the bass clef's Low F
    - The harmony becomes muddy unless an open position chord is used
    - The muddy polychord is nevertheless a valuable structure under appropriate dramatic considerations
  - : As a polychord is transposed upward

- Loses body and resonance
- Drastic complexion change takes place

Construction

- Can be made up of any kind of triad
- Major-minor
  - : Major triad construction is the most consonant and resonant
  - : Becomes less so as minor, augmented, diminished triads are added as the upper triad
- Minor-Major
  - : Minor over minor triad is richer than a Major over minor structure
  - : In Minor-Major the minor (upper) triad receives additional support from tones of the lower (Major) triad (other than the bottom note)

SUMMARY OF POLYCHORD CONSTRUCTION

A complete inventory of major-major/minor – minor-major/minor poly chords may be built by building the upper major triads on the notes of a cycle of $P5^{ths}$ that begins with the bass note of the bottom 6/4 chordal unit

This places the chords in a natural sequence from consonance to dissonance

Consonant ⟷ Dissonant

Major-Major

The last 6 chords are noticeably less resonant (#11 is almost a dull thud)

	1	2	3	4	5	6	7	8	9	10	11	*12*
Upper Unit Major	D	A	E	B	F#	C#	G#	Eb	Bb	F	C	*G*
	B	F#	C#	G#	D#	A#	E#	C	G	D	A	*E*
	G	**D**	**A**	**E**	**B**	**F#**	**C#**	**Ab**	**Eb**	**Bb**	**F**	*C*
							Less Resonant					
Lower Unit Major	E											
	C											
	G											
	6/4											

Major-Minor

*4-5-6-9 & 12 most useful due to their resonant character

	1	2	3	4	5	6	7	8	9	10	11	*12*
Upper Unit Minor	D	A	E	B	F#	C#	G#	D#	A#	F	C	*G*
	Bb	F	C	G	D	A	E	B	F#	Db	Ab	*E*
	G	D	A	E	B	F#	C#	G#	D#	Bb	F	*C*
				*	*	*			*			*
Lower Unit Major	E											
	C											
	G											
	6/4											

Minor-Major

*1-5-10 wider use due to more resonance

	1	2	3	4	5	6	7	8	9	10	11	*12*
Upper Unit Major	D	A	E	B	F#	C#	G#	Eb	Bb	F	C	*G*
	B	F#	C#	G#	D#	A#	E#	C	G	D	A	*E*
	G	D	A	E	B	F#	C#	Ab	Eb	Bb	F	*C*
	*				*					*		
Lower Unit Minor	Eb											
	C											
	G											
	6/4											

Minor-Minor *1-5-9 are resonant and most frequently used

	1	2	3	4	5	6	7	8	9	10	11	*12*
Upper Unit Minor	D	A	E	B	F#	C#	G#	D#	A#	F	C	*G*
	Bb	F	C	G	D	A	E	B	F#	Db	Ab	*Eb*
	G	D	A	E	B	F#	C#	G#	D#	Bb	F	*C*
	*				*				*			
Lower Unit Minor	Eb											
	C											
	G											
	6/4											

CHROMATIC POLYCHORDS

- Contain at least one diminished or augmented chord
- Top unit = diminished or augmented chord most supple are
  - : Major-augmented, minor-augmented
  - : Major-diminished. Minor-diminished
- When bottom chordal unit is diminished or augmented best to spread the voices of the lower unit to avoid crowding
- Most resonant polychords are
  - : Augmented-major, augmented-minor, augmented-diminished, augmented-augmented
  - : Diminished-major, diminished-minor, diminished-augmented, diminished-diminished

Direction

- Determined by linear movement
- Counterpoint of chords (counterchords) is derived from a two part linear frame of single tone lines
- Two kinds of counter chordal technique serve as a working basis for poly harmonic writing
  - : Two part counter point used as the *outer* voices of poly harmony
    - Can use inversion to harmonize lines
    - Top and bottom notes are considered exclusively
  - : Two part counter point used as the roots of the triads of *both* units making up the poly harmony
    - Roots move freely between inner and outer voices
    - Can use inversions with any voice considered as root
- Any note of any melodic line can become the root, 3rd, 5th of a major, minor, diminished, or augmented triad
  - : Can work from upper or lower triad
  - : Greater number of possible combinations provides a wide choice of textures within which the harmonic texture can fluctuate

Tonality

- Poly harmonic progressions touch so many key areas that tonality cannot be secured through the harmonic personality of a prevailing scale
- Tonality is established by the tonal *implications* of a predominating melodic line or harmonic gravitation to a dominant chord
  : Resonant polychords play the tonic role most convincingly
  : Wealth of invention must be saved for the cadence if a firm tonal center is desired

Resonance

- Prolonged passages of pure polychord can result in tiring mass resonance
  : Richness and thickness stifle inner voices
  : Modification of the lines by ornamentation freshens the texture
  : Unison and two voice interruptions revitalize the poly chordal texture
  : Omission of notes of either chordal unit lightens the texture contributing to harmonic flexibility
- Polychords used as architectural harmonic pillars provide refreshing dynamic contrasts with other types of harmony

THREE OR MORE TRIADIC UNITS

Construction

- Chordal units in polyharmony are often built upon different overtones of the same series
- 4 types of polychords with 3 or more units
  : Those built upon 3^{rd} or 5^{th} of the bottom triad (rarely the root)
  : Those whose upper units are built on overtones (at any octave level) of the 3^{rd} or 5^{th} of the bottom triad
  : Those whose upper units are built on *overtones of the overtones* of the 3^{rd} or 5^{th} of the bottom triad
  : Those whose upper units are built on overtones of the Root, 3^{rd}, or 5^{th} of triads other than the bottom triad (3 unit polychord)

Spacing

- Multi-unit polyharmony is so massive and complex that notes of the bottom triad must often be spread apart
  : Some units should be overlapped
    - Effectively removing one voice
    - May result in a two unit chord
  : Others should have space between units widened
    - Doubling and coupling enlarge a polychord without adding to its complexity

Use

- Multiunit polychords – usually not polytonal – are used for brief periods of time
  : Climatic section
  : Fast but quiet section

NON-TRIADIC UNITS

Use

- Polychords consisting of 7th chords
  - : Seldom used in extended passages
  - : Are used in brief chordal groups that intensify a single line or two part statement
  - : As a sforzando chord

Construction

- Some polychords whose individual units are 7th chords contain one or more notes in common
  - : Makes for a homogeneous sound
- Some have no notes in common
- With polychords built by other than 3rds
  - : Textural clarity becomes more of a problem
  - : Chords by 4ths are in effect enlarged versions of 3 note chords by 4ths
  - : If all units are secundal, a polycluster results
- If quartal and secundal units are used with those by 3rds in a polychord of mixed chordal units (a *Multi-unit polychord of mixed construction*)
  - : Chords by seconds function sonorously as the upper most unit
  - : Combining chords by 4ths (P 4th or Aug 4th) with triads
    - Place the triads *below* for linear freedom
    - Place the triads *above* for a less resonant but useful and subtle chord of darker texture
- Other combinations are possible

Other Possibilities

Eb Db Cb	2nds
F Eb Db	2nds
A C F	Maj Triad

E C# E#	Inc. 7th
A F# D	Maj Triad
G C F	5ths

Bb F B	Aug 4th
G D B	Maj Triad
G E B	Mi Triad

D# B G# E	7th Chord
Ab F C	Mi Triad
A C# F	Aug Triad

G# E A	Inc. 7th
D F C	Inc. 7th
A C F#	Dim Triad

8 – COMPOUND HARMONY & MIRROR HARMONY

COMPOUND CONSTRUCTION

- Simultaneous combination of mixed intervals *not* arranged in polychordal units (combinations of 3^{rds}, 4^{ths}, or 2^{nds})
  - : Does *not* include the chords of miscellaneous intervals formed by inverting tertian, quartal, or secundal structure
    - These chords retain their inherent root feeling
- Occasionally difficult to decide whether certain chords are compound or added-note chords
  - : Determined by context
    - If strong tendency to progress in a tonal sphere = added-note chord (containing notes that modify the basic structure of tonal functional powers
    - If otherwise = compound chord
- Any combination of varied intervals is possible
  - : The larger heterogeneous selections are often effective through sheer energy and tonal intensity
  - : Compound structure results in a resounding body of tones particularly effective in orchestra, band, and 4 hand piano
- Intervals may be arranged in any combination of tensions
  - : Maybe distributed so as to produce any desired shape
  - : Assembled to create various consonant or dissonant areas
    - May create a consonant or dissonant bottom, middle, or top
- Some compound chords are characterized by an inner *graphic* plan rather than an arrangement of intervals tensions
  - : Important aspect is the logic of its inner construction rather than the motivating force of intervallic tension
    - Some chords of this type contain all 12 chromatic tones and 11 symmetrically inverted intervals (Ma7 –> m2)
    - Others are arranged in alternating odd/even numbered intervals (counted in semitones
  - : Many other graphic interval arrangements are possible
    - Image of the overtone series
    - Pyramidal (intervals diminishing from bottom upward)
      + May contain all twelve intervals but *not* necessarily twelve different tones
- Because of the complexity of intervallic makeup in compound harmony, each chord member must be manipulated precisely
  - : Slightest miscalculation can upset the intended balance
  - : When care is given aurally to interval and medium color – a homogeneous and intelligible sonority may evolve

Movement

- The poly interval texture of compound chords enable harmonic areas of the chord to shift easily in any direction

- Progresses well when the chordal materials function under a definite scheme of intervallic tension
  : Emphasize soft consonant & mild dissonant on top
  : Open consonant & sharp dissonant on bottom
  : Emphasize upper sharp dissonance and lower open consonance
    - If upper tone of sharp dissonant interval is placed high and anchored a 5^{th} or 10^{th} below – tension and brilliance are added
    - Smaller compound chords of 5 or 6 discretely placed tones have an elastic quality due to the fluidity of the smaller number of varied intervals
- Harmonic motion is created by the fluctuating density contained within the highest and lowest voices
  : By the shifting degrees of intervallic tension
- Changing speeds with which the density and consonant/dissonant factors move creates harmonic rhythm

Characteristics

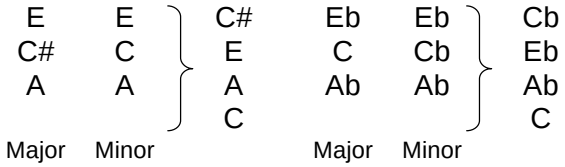
- Compound chords do not readily subordinate to tonal regulation of root movement or key
  : Have little or no root significance
  : Usually handles simply as a mass of sound
  : No scale to dominate the harmony
  : Few harmonic values that result from relationships within tonality
- Any compound structure may be established as a central chord by the relative tension set up by surrounding chords
  : May serve as the harmonic center to which adjacent chords gravitate
- Chords are often large and complex
  : Effective when used as declamations, arrival points, and opening & closing statements
  : Form naturally percussive chords when smaller intervals are low in the structure
- The inflexibility of large formations often limits their harmonic activity to percussive accentuations, sustained backgrounds, and cadences
  : For percussive accentuation two textural levels of different kinds may be created
    - Percussive chord may be compound and other may be tertian, quartal, or secundal
  : As background texture, may move with no harmonic hold on a voice or voices in a solo foreground
  : In a cadential treatment, the compound chord of arrival is usually preceded by a structure of greater chordal density
    - Chords leading to final chords of cadence are not necessarily compound

Categories

- One of the most frequently used compound chord is the 3 note chord by 4^{ths} with the addition of a 3^{rd} (major or minor)
  : Effective when used as a cadential tonic with added Maj 3^{rd} interval
  : Both major and minor addition when used as a passing chord
  : A 3^{rd} above and below the quartal structure may appear with it simultaneously as a 5 note chord
    - Lush in sound

- Functions particularly well in progressions containing tertian or polychordal structure

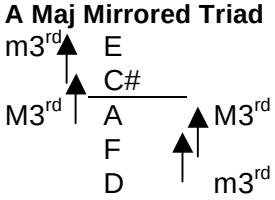
- A special category of compound chords stems from the triad with an added 2nd in the bass
  : This is a hybrid category – added-note chord and polychord
  : When written in open position a unique type of fused compound harmony is produced
  : Types
    - Possible to fuse two triads so that a single chord of mixed intervals results
    - Has a distinct polychordal flavor
    - Formed by fusing two different kinds of triads so that *two* of the six notes are duplicated
    - The duplicated notes are in the middle voices and common to *both* triads



There are only 6 compound chords of this variety
  + | mi-Ma | Ma-mi | Ma-aug | dim-mi | mi-dim | dim-Ma |
  + Other fused combinations of triads form 7th or triadic harmony
  : These fused chords are completely interchangeable
  : Free to move to and from each other in any order
    - The 6 possible fused compound chords are the Primary chords
    - Their Secondary chords are *not* compound
      + These include those 7th, 9th, and 11th chords in root position or inversion that contain a sharp dissonant interval

MIRROR HARMONY

- Constructed by adding below the original formation strictly inverted intervals in symmetrical reflection
  : Any chordal structure (tertian, quartal, secundal, polychordal, or compound)
  : In effect, one half of a mirror chord is an exact and simultaneous inversion of the other half
  : Building tones (center tones constructing the mirrored intervallic structure) never function as a root
    - It is the entire chordal bulk that emerges as a chord in its own right
    - Usually assume the character of the bottom chord



- Has a textural complexion unlike any other chordal formation
  - : The reflective inversion opposes the natural acoustical properties of sound (overtones are naturally generated from the bottom, not the middle as here)
- In mirror harmony, fundamental chords by 3rds, 4ths, and 2nds generate larger formations of the same category
  - : Mirroring inverted chords produces polychords
  - : Mirroring polychords and compound chords produces more complex versions of the same kind of structure
- Four types of mirror chord writing
  - : A stationary building tone to generate reflection
  - : A moving building tone to generate reflection
  - : Building tones themselves becoming reflective by moving in contrary motion
  - : Building tones used freely
- Any mirror chord may be doubly mirrored
  - : These complex structures are used primarily with large un-mirrored compound chords
  - : Enharmonic changes are made when spelling becomes unwieldy

Scales

Again, this is a mirrored sequence of intervals

- Some scales are naturally reflective
  - : Two separate scales move identically, interval for interval when placed in contrary motion
- The entire diatonic system is symmetrically invertible
  - : Appear in a reverse order of color gradation
  - : Dorian mirrored produces the same scale

	M2		m2		M2		M2		M2		m2		M2	
D		E		F		G		A		B		C		D
D		C		B		A		G		F		E		D
	M2		m2		M2		M2		M2		m3		M2	

- Any Scale may be reflected
  - : Reflective scales imply mirror harmony
  - : Reflective scales whose tonics are located at different pitch levels also produce mirror chords
    - The flavor of each chord of reflective harmony becomes more pronounced as the space between the building tones widens
- When strict mirror writing is desired, ornamental tones are kept in reflective relationship
- Greater freedom in harmony can be obtained through only partial reflection
  - : Outer voices mirrored while inner voices move freely
- Mirror writing may stem from thematic sources
  - : Initial melody constructed so that part of melody is the inversion of another part
  - : Simultaneous use of the original melody and its inversion breeds mirrored vertical structures
  - : These are generated by thematic elements of the work

For Keyboard

- Reflective keyboard writing produces unique mirror harmony
  : Equalizes the movement of the hands creating a simultaneous and uniform keyboard technique
  : When musically appropriate – reflective keyboard technique supplies a fresh sound
- Simultaneous inversion beginning at any one of the twelve pivotal points produces strict mirroring
  : Regardless of what type of harmony is used
  : Fingering in both hands will – without exception – be identical

9 – HARMONIC DIRECTION

PROGRESSION

- When a succession of chords establish a definite direction it has formal function and is considered a progression
- Goal of a progression can be reached or abandoned with tonality fixed or forsaken

Direction and Movement

- Able to guide harmony in any direction
  : Whether established by root movement, contrapuntal lines, or beds of sound
  : Two directional forces
    - Actions of the Root
    - Location of the Bass
  : The Root (not necessarily in the Bass) may
    - Fall as sounding bass rises
    - Rise as sounding bass falls
    - Agree in any direction

Note:

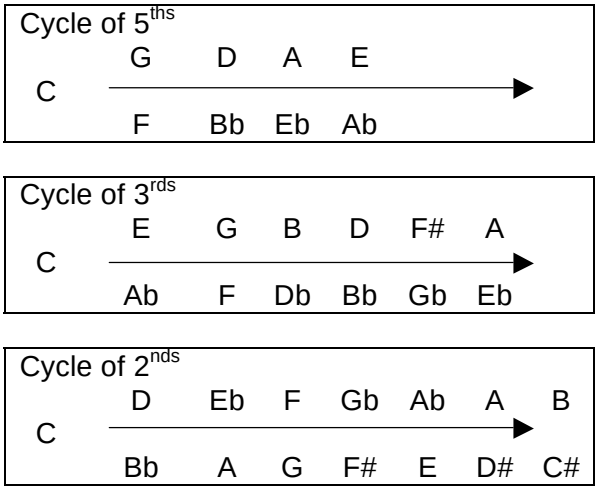
Register placement of entire tonal mass DOES affect the direction of sound

- Melodic and harmonic lines of tension may be placed in variable relationships with the root movement
  : Harmony with a strong downward pull can resist a register climb
    - Root direction of I – V, I – III, and I – II is up regardless of the inversion or placement of voices
    - Root direction of I – IV, I – VI, and I – VII is down
    - The un-invertible tritone is indefinite as to direction
  : Chordal relationships may be established within or without a prevailing scale formation and the tension created by moving from one to another
  : Chordal movement in which the intervals between the roots are chromatically free is not governed by a scale but by horizontal movement of voices
- In tonal music of 20th Century the root distance between important chords of a phrase or cadence is usually determined by the cycle upon which the music is constructed
  : Cyclical 5th
    - Governed by a series of Perfect 5ths which may encompass the 12 tones
    - The Perfect 5ths between roots have strength
  : Cyclical 3rd
    - Chromatic compass is created by alternating major and minor 3rds
    - The 3rds between roots have softness

: Cyclical 2nd
  - Chromatic compass is created by alternating major and minor 2nds
  - The 2nds between roots have a blandness

: The Tritone
  - The tritone between roots have an ambiguity

- Harmonic writing than may be based upon the 5th, 3rd, and 2nd relationship of chords (simple or complex)
  : Upon the tensions created by moving from one kind of relationship to another
  : Upon the horizontal movement of voices



- Harmonic movement may be created by generous chromaticism in all the voices and the emphasis placed upon a total melodic motion obliterating intervallic construction of chords
  : Augmented triad, Diminished 7th chord, chords by P 4th or Maj 2nd, the roots are indefinite and vanish quickly
  : These versatile chords link one kind of texture to another while acting as binding chords in a synthesis of harmonic contexts
- A melodic line (whether inner or outer voice) often act as directional guide for harmonic progression
  : When a complex melody is the motivating force, the success of motivic development depends upon the ability of the *ear* to retain melodic elements
    - Predominate intervals and durations must be aurally retainable
    - The elements that have special significance for the formal plan should be made melodic and harmonic characteristics
    - Melodies imply tonal inflection, harmonic punctuation, and rhythmic movement
    - Any of these elements may be featured
- Other factors in creating harmonic progression
  : Textural influence of intervals characteristic of specific types of harmony
  : The effect of frequently occurring melodic motifs upon harmonic changes
  : The behavior of the tritone in both horizontal and vertical situations
  : Placement of chords in a presiding or vanishing tonal center
  : The recovery of harmonic equilibrium after swift changes of compositional devices
- A vital thematic passages should be tested on various tonal levels for brilliance
  : Transposition sheds varying lights upon thematic material

: Slightest shift in register can change the meaning of a musical idea

- When writing music without a given line attention should be focused upon the outer voices
  : If undecided about upper voice motion, work a few notes in the bass (and vice versa)
  : If parts begin to move too fast, slow down most of the parts with longer notes and move the remaining part or parts by employing a fragment of the theme

Special kinds of chordal movement

- A succession consisting of an interchange of two or three chords may be used for "atmospheric" passages
  : Where neither definite tonality nor forward harmonic motion is desired
  : For music with folk roots
- Any chord can return to the chord that immediately precedes it
  : Succeeding chords may return to an original formation
  : An entire passage of chords may be stated backwards until the original chord reappears
  : Retrogressive progressions bring new meaning to the original harmonic statement
  : Unexpected chords at resolution points add freshness to harmonic flow
  : Harmonic elision (omission) bring about new relationships
    - By omitting a chord that is expected because of a previously established passage or strong sequential or traditional succession
    - If a passage is thematically significant and is easily retained aurally chords may be omitted or shuffled in a dismembered progression

CHORD CONNECTION

- Two inseparable factors are involved with harmonic progression
  : What chord follows what chord
  : How they are connected
- Music can be primarily harmonic, melodic, or rhythmic
  : Seldom pure harmony or counterpoint as these are deeply involved with each other
    - When melodies sound together, chords are formed
    - When chords follow each other, melodic motion is involved
  : Separate chord tones of any progression have melodic tendencies

Motion

- Outer voices govern harmonic direction
- Inner voices secure the relationship of the chords
- Characteristics
  : For unruffled harmonic motion, inner voices are moved as little as possible
  : Parallel intervals lessen the individuality of the voices
  : Contrary and oblique motion give the voices independence
  : The inherent urge of independent voices to maintain identifiable lines can be strong enough to overpower harmonic impulse

Includes:

Leaping voices
Straying dissonances
Escaping common tones
Modulatory twists
Chromatic daring

- Danger of progressions of becoming overly smooth and

ingenuity is required to keep them fresh

Harmonic Devices

- Inverting or transposing the interval containing the common tones expands the register
- Moving a voice to a higher or lower note than the one just left gives a passage harmonic lift or drop
- Animate a voice by deflecting its melodic line with one or more of the melody notes being shifted up or down an octave
- Register of an entire harmonic mass may be shifted suddenly to another octave
- Range and suppleness of instruments may contribute to linear flexibility
- Melodic rises and dips may be reinforced by successive octaves, fifths, and parallel harmony
- Hidden fifths and octaves give coupled two part harmony textural strength
- 3rd less harmony gives a freedom of movement
- Number of voices in successive chords may be increased or decreased for variety in density
- A climatic harmonic point may be left vacant by rests
- Voices may take turns sounding the tune giving thematic implications to the harmony
- Each voice may move chromatically to daringly complex chords
  - : Each voice may move by half step with any combination of dissonances having meaning and direction
  - : Voices containing the sharpest dissonant interval should be well separated

DISSONANCE

- Any combination of simultaneously sounding tones is relatively constant if there is a more dissonant combination in the surrounding areas
- A chord is dissonant only in relation to an over-all harmonic scheme – at times the consonant chord is the restless one
  - : An abundance of dissonance can result in the feeling of consonant texture as harmonic tension relaxes in chords of the same value
  - : The juxtaposition of chords of different values creates strong harmonic tension
- Increasing/decreasing consonance or dissonance contributes to the shape of phrases, secure cadential progressions, and articulates sectional writing
  - : It is in the composer's "ear" that determines interval consonance/dissonance
  - : Dissonance exists only where there is a norm of consonance implied or stated
    - Consonant/dissonant relationship may be reversed by starting and ending with a dissonant chord as the norm
    - Consonance may then resolve to dissonance
- Extremely dissonant chords are kept in check by sequential patterns, overbearing melodic lines, and characteristic melodic intervals
  - : A dissonant chord might represent a tonality and generate ideas that suggest the form and content of a larger work
- A dissonant chord has special uses outside a dissonant context
  - : Sometime ends a phrase and is then used to begin the next phrase (transposed or not)
  - : Is repeated so dynamically and intensely that the need for resolution is eradicated

Motion

- In harmonic progression, each note makes its position in the chord felt as well as it's position in it's own melodic line
  - : This linear force generates the harmony, contrapuntal motion, and formal design
  - : Dissonant melodic and chordal clashes occur with less aural concern in harmony stemming from horizontal thinking

Multivoice counterpoint
Ornamental chords
Reflection of some of the chords

- Dissonant harmonic combination often produces a diatonic melody
  - : Must not be confused with artificial combinations of diatonic melody and dissonant harmony
- When a chord is dissonant by context, it usually is resolved by the movement of voices containing the most dissonant tones
  - : For smoothness of progression, the dissonant tone resolves to the nearest note of the prevailing scheme
  - : The dissonant tone can resist its natural tendency to move to the nearest note by following a scale wise motion in the opposite direction
- If the adjacent scale tones are the same distance from the dissonant tone, movement in either direction is natural
- For passive non-commitment, it remains stationary or leaps an octave at the chord change
- A dissonant tone may evaporate by slipping to another member of the same chord
- A dissonant may freeze in parallel harmony and not resolve until the end of the passage
- The dissonant tone may slip freely with melodic purpose
  - : In high-tension mixed chordal formations
  - : When strong melodic motifs overshadow the power of the dissonant tone to resolve
    - Momentum of sequential design moves dissonant tones without resolution
    - For a sudden tension lift, the dissonant tone may resolve in another voice

Doubling and Texture

- The quality of the dissonant tone can be softened by coupling it with consonant intervals
  - : Doubling the dissonant tone raises the harmonic tension
  - : Such doubling in a simple chord enables that chord to function easily with complex formations
  - : To soften doubled dissonant tones the voices involving the dissonance move in contrary motion or one of the doubled tones may move before the other resolves
- Spacing concerns in 3 and 4 part harmony is often one of securing maximum sound
- In harmony of more than 4 parts, doubling and spacing considerations are directed to securing variety of texture
  - : Various colors and weights are obtainable through omission and doubling of both dissonant and consonant chord members
  - : Density and concentration of tonal sound varies under different dramatic conditions

In an orchestral arrival of dissonant material upon a consonant climax, extensive doubling of all members of the consonant chord may be necessary to avoid loss of sound

PARALLEL HARMONY

- When all voices in a succession of chords move in the same direction parallel harmony occurs
- Term includes
  : Strict parallel motion in which all the chords are identical in construction
  : Similar motion in which the chords change as the voices move freely but in the same direction

Found in 18th Century 6/3 successions and 19th century Dim 7th chord successions

- The direction and intervallic transposition may vary and be either real or tonal
  : Real parallel harmony
    - Exact transposition
    - Has a tendency to sever connections with any one key
    - May be used as a means of entering and leaving tonality
    - Functions freely in modulatory transitions
    - In thematic statements where tonality is meant to be obscure
  : Tonal parallel harmony
    - Intervallic changes determined by the scale in force
    - Tends to preserve modality
- Parallel harmony (or chordal melody) is an expanded textural equivalent of a melodic line
  : Direction is governed primarily by melodic considerations
  : Intervallic construction determined by the kind of texture demanded by the dramatic form
  : 4^{ths} & 5^{ths} are as liquid as 3^{rds} & 6^{ths}
  : Intervals of the 2^{nd} & 7^{th} find horizontal freedom
- Momentary parallel harmony
  : Is effective when used to accentuate a rise or fall in a melodic line
  : Is effective to slip into a fresh key area

Techniques

- Extended similar motion tires quickly even though complex chords are employed
- Devices to renew harmonic freshness
  : Contrary motion in one voice against the current parallel succession
  : Tonal parallel motion converted to real parallel motion
  : Motion of voices changed to similar motion
  : Roots of parallel chords moved in opposite direction to the moving mass
  : Changing direction and register
  : Note dropped while the parallel harmony is continued
  : Attention diverted by ornamentation and imitation
  : Octave change in one voice
  : Instrumentation change
  : Different instruments used on different notes
  : All notes raised or dropped successively until the chord is duplicated as some other step
- Parallel harmony may be relieved
  : By inserting fragments of non-parallel harmony

: By using two sets of parallel chords in contrary motion (the result may or may not be reflective)

- Chordal formations that dominate a succession of parallel chords may be broken melodically with a new set of parallel chords
  : Placed under the melodic note of the broken chord
  : Results in oblique harmony

SUCCESSIVE PERFECT FIFTHS

- Unless used imaginatively, successive perfect 5^{ths} become tiresome
- The intervallic uniformity of any combination of notes moving in parallel motion challenges inventiveness and facility
- Characteristics
  : Emotionally immense, vague, and distant *or* bare and dominating
  : Make independence of parts difficult to achieve
- An important harmonic ingredient in contemporary composition
  : Found in two part writing prying loose oblique motion
  : In coupled two-part writing
  : In parallel harmony
  : At end of one sequential pattern and beginning of the next
  : At phrase joints

Function & Technique

- Can be used without dominating the general texture
  : Conjunct 5^{ths} may be placed in the lower octave while other parts employ contrary or oblique motion
  : 5^{ths} in upper parts become prominent but attention may be diverted using rhythmically agile accompanying parts
- Chromatic 5^{ths} may be used more freely if at least one voice moves contrary to the 5^{ths}
  : Inserting other intervals between some of the 5^{ths} can avoid some monotony
- Contrary outer parts may be used with 5^{ths} in the inner parts
- 5^{ths} in the upper parts are softened by placing the 3^{rd} of the 5^{th} in a lower voice
- Skipping are subdued when they leap to members of the same chord
- Florid inner voices help divert the attention from the 5^{ths} in the outer parts

CADENTIAL DEVICES

- A cadence is an organization of melody and harmony – in time – having a connection of rest
  : Created harmonically through a pattern of chords
  : Created melodically through the direction of each voice
  : Both are positive forces *only* when verified rhythmically
- Cadential breathing places may occur at ends of phrases, section, or end of piece
- Under certain formal conditions the final cadence may find that a new prominent subject in a different key has made a bid for a new tonality
  : Causes a cadence of two or more simultaneous keys
- The two final roots will set the quality of the cadential feeling
  : The first chord in a two chord cadence progresses “perfectly” to a tonic whose root lies the interval of the existing cyclical relationship below its own

Relationships

5th	3rd	2nd	
V – I	III – I	II – I	
IV – I	VI – I	VII – I	Plagal Equivalents

- Any cadence will acquire a passive quality if a dissonant tone remains stationary
  : Tension and relaxation of consonance and dissonance help mold cadential shapes
- A succession of chords can produce positive cadential finality only when the underlying rhythm confirms them
  : Rhythmic placement of the final chord affects the strength of the cadence
  : When last chord falls on a weak beat repeated notes, ties, or melodic ornamentation are used to regain balance
- In chromatic cadences common tones are avoided in order to strengthen the final tonic
- Purpose of temporary cadences is to rest briefly on a harmonic slant
  : Creates the need for harmonic, rhythmic, and melodic continuance
  : Deceptive cadences are usually of this type
    - Imply motion from one chord to another whose root relation to the first forms an interval not characteristic of the prevailing chordal cycle
      + |C |G Am|
    - In a 3rd relationship root movement is up 5
      + In a 5th relationship, the chord of the weaker impulse moves to a chord whose root lies a second above its own root
      + |Eb |Bm F#|
    - In a 2nd relationship root movement is up 3
      + |Ab |C Em|
  : Also obtained through movement to a chord outside the established modal or key realm or chromatic root movement
- Other cadences are created by the obliteration of all voices but one or obliteration of all voices save a percussion note of indefinite pitch
- When final tonic establishes a positive tonality notes may be added freely
  : If under tones are added, the tonic meaning is not distorted
- The final chord may be identical with the opening chord regardless of tonal relationships
- Cadences may include any type of harmony – tertian, quartal, added-note, secundal, polychordal, compound, mirror, pandiatonic, or twelve-note

10 – TIMING AND DYNAMICS

HARMONIC RHYTHM

- Three forces important to harmonic progression
  : Linear motion and the outline of the outer voices
  : The pull of harmonic or tonal centers and the relationship of chords
  : The time duration of stressed and unstressed chords
- Coupled with these are:
  : Graded tensions of texture
  : Pitch
  : Rhythm created by phrasing, bowing, and tonguing indications

- Harmony is always felt in its relation to rhythmic structure
  : Not until chords evolve in a rhythmic form does harmony become wholly articulate
  : Harmonic rhythm is the underlying rhythm that plays a large part in controlling and stabilizing musical flow
    - If harmonic changes are quick, there is an undercurrent of restlessness
    - If widely spaced there is breath

Tempo

- Can be a determining factor is harmonic rhythm
  : Quick tempo can make chord changes sound like ornamental chords
  : Simple chords moving at a high speed may create complex sounds
- Harmonic rhythm does not move when chords are repeated

Meter

- A measure of rhythm, it has no rhythm of its own
  : Only appears to have rhythm when rhythmic pulse coincides with metric points
  : The strong and weak beats occur wherever the musical line places them
- Characteristics
  : Simple rhythms may be combined under one time signature
  : If patterns of shifted accents remain relatively consistent, the asymmetrical divisions are often indicated by compound time signatures or dotted lines
    - These composite meters generate asymmetrical phrases
    - Two patterns of varying note values coinciding at occasional points will flow without a feeling of chaos
  : Poly-rhythmic
    - Two or more rhythmic phrases of unequal length
    - In two voices
    - May each be repeated until the return of the original combination
  : Poly-meter
    - When pulse is irregular
    - Consistently subdivided
    - Different time signatures are used simultaneously in different voices
      + With time span of each measure the same across time signatures
        » 5/4 5 beat measure = 72 bpm
        » 3/4 3 beat measure = 72 bpm
        » 4/4 4 beat measure = 72 bpm
      + With time span of same note is the same across time signatures
        » 2/4 & 4/4 with quarter note = 72 bpm
        » Bar line will fall at different places
  : Change of meter is a common means of achieving rhythmic variety
    - The fluid bar line adjusts easily accommodates fractional measures
    - Rhythmic freedom of the bar line may result from the demands of vocal texts (prose-rhythm)

Rhythmic Pulse and Syncopation

- Musical stress is created by pitch, intensity, color, or duration
- Rhythmic pulse is most clearly defined when the related melodic, contrapuntal, and harmonic functions are emphasized
  - : Syncopation implies a dislocation of an established pulse – but does not necessarily oppose the meter
  - : If the established pulse is not in accord with the meter, the syncopated accents might parallel the meter
- Any rhythmic figure may be lengthened by a note, rest, or dot
- Melodic and harmonic lines may be syncopated in opposing ways
  - : Melodic line syncopated against harmonic pulse
  - : Both harmonic and melodic lines heard in comparison with a contrasting pulse of preceding measures
  - : Changes of time signature may be made so that the syncopation falls after the bar line
  - : Dissonant chord syncopation urge the succeeding harmonic rhythm to move faster
  - : Consonant chord syncopation tends to slow succeeding harmonic rhythm down

he more factors contributing to an accent, the more complete the accent

Rhythmic Forces

- May sprout from the percussive line of instruments or vocal sounds of indeterminate pitches
- Melodic and harmonic rhythms may coincide or oppose the percussion line in various ways
- When one or more voices of changing notes adhere to *a single rhythmic pattern*, *Isorhythm* exits
  - : Different voices may follow individual isorhythmic patterns
  - : May vary in length – can be a long pattern often beyond immediate aural perception
  - : Pitch levels are free and used with the repeated rhythmic pattern
- When rhythm is free with *a repeated melodic pattern* *isomelos* exits
- In a combination of isorhythmic and isomelos, the melodic and rhythmic pattern may start together but one of the patterns may begin the repetition before the other

PERCUSSIVE USE OF HARMONY

- Accents may be produced by any material that calls attention to itself through stress, duration, pitch level, tone quality, relative harmonic values, or repetition
  - : The tonal equivalent of percussive rhythms (instruments of indeterminate pitch) is the melodic repeated note
    - Often stimulates repeated chord activity
    - Rhythm of chordal repetition may act as a tonal stimulant in slow harmonic rhythm
  - : Rhythm both accentual and durational can for a span of time serve as a chief compositional element

Characteristics

- A chord can in answer to a drum figure function percussively
  : An isolated chord may command attention when substituting for a bass drum stroke
- If a chord is a sudden large compound chord or a low cluster, a harmonic sforzando may be produced
- Introduction of a chord outside the key realm or a sudden increase in the number of parts may also produce a harmonic accent
- Small intervals placed at the bottom of chords may produce harmonic percussiveness
- Miscellaneous instruments sounding their lower notes accentuate the percussiveness of chords as the pitch projection is dampened

PANDIATONIC WRITING

- A specific kind of static harmony in which an entire scale is used to form the members of an implied secundal static chord
  : Vertical structures are combinations of any number of tones from the prevailing scale
  : Placed in variable spacing's
  : The horizontal chord succession has *no* tonal direction
    - Scale tones are manipulated as basic chordal material
    - Done without creating harmonic motions outside the underlying static and unaltered scale
  : The harmony has no characteristic functions
    - Counterpoint is rhythmically active
    - Chord spacing is erratic

Construction

- Melodic, contrapuntal, and vertical configurations may be underpinned by persistent intervals
  : 5^{th} &10^{th} from the bass are more fluent than the thick 3^{rd} or stubborn 4^{th}
  : 4^{ths} tend to dominate in the upper part of the chord
  : 2^{nds} & 7^{ths} harness the texture for early cadential arrivals
- One mode is seldom used for and entire pandiatonic section (particularly so with modes of no #'s or b's)
  : In 3 part harmony, each succeeding chord often contains three fresh notes
    - Brings all scale tones to aural consciousness in 7 tone static harmony
    - If ornamental tones are used, fresh notes are used as members of the following chord
- Any scale may be used for pandiatonicism
- All the intervallic characteristics of any scale – synthetic or otherwise – can be projected pandiatonically at once

Characteristics of Static Harmony

- A lack of harmonic rhythm (*one chord*) creates static harmony
- Produces a feeling of breath or relaxation
- Useful when attention is focused upon a rhythmic motif or is used in repeated chords announcing the rhythm of an accompanied melody to follow

DYNAMICS AND RESTS

Dynamics

- Dynamics are an essential element in composition
  - : Harmonic progression is affected by the degree of dynamic nuance in which it is conceived
  - : Have a rhythm that is projected by levels piano –> sforzando and subito directions of accentuation
  - : Reinforce the natural rhythm when they coincide with it
- Rhythm of melody, harmony and dynamic nuance generate musical forces that can be juxtaposed (in many ways) to create a variety of climactic conditions

The Rest

- The Rest is a potent creative factor
  - : Helps to lighten texture
  - : Project motivic figures
- Characteristics
  - : In multi-voice florid writing voices rest periodically so that individual imitative parts are not obscured
  - : Rests preceding fresh entrances add interest to long melodic lines
  - : When transparency in texture is sought, voices are widely spaced and rest often
  - : Can increase harmonic momentum
    - Interruption of a high-tension chord by silence produces an undercurrent of harmonic expectation
    - In diminuendo, temporary silences imply unwritten harmonic innuendo
  - : Rests have rhythmic power
    - In established patterns of accents a silent pulse has more strength than a sounded one
    - Before a climactic chord, adds power to the arrival

11 – EMBELLISHMENT AND TRANSFORMATION

ORNAMENTAL FIGURATION

- Vertical structures form a harmonic skeleton upon which melodic figuration my rest
- May be derived from a scale built upon the root of the chord with each root embellished as though it were a tonic
- Ornamental patterns my be derived from contrasting key centers creating temporary polytonality
- Non-harmonic tones may be grouped chord-wise and used as ornamental chords (i.e passing chords & auxiliary chords)
- May remain unresolved causing a change of harmonic texture
- Simple chords may be embellished in such a way that one chord penetrates another creating polychordal sounds where they meet

Harmonic Embellishments

- Repeated chord tones
- Broken chord tones
- Creates no intervallic resistance to the harmony
- Characteristics
  - : When ornamental figuration is created by chords that are broken in two or more voices, individual parts gain freedom
  - : May increase the space between chord changes and relax harmonic rhythms
  - : Members of a broken chord sounded by a single voice may imply meaningful harmonic progression

Non-harmonic Embellishments

- Inherently restless because of their intervallic counteraction to the chord
- My be either accented or unaccented
  - : Accented when they occur with the change of harmony
  - : Regardless of their place in the measure
- Four general kinds of non-harmonic tones
  - : Passing and auxiliary tones which are approached and left without skip
  - : Changing tones which are approached conjunctly and left by a skip
  - : Appoggiaturas which are approached by a skip and left conjunctly
  - : Hybrid group which includes those non-harmonic tones that are formed by the rhythmic misplacement of chord tones
    - In suspensions, the movement is delayed
    - In anticipations the movement is hastened
- Characteristics
  - : Possible to skip to and from a non-harmonic tone if that tone becomes a member of the following chord
  - : Before resolving, the non-harmonic tone itself may be ornamented by and combined with other ornamental tones
  - : Relatively simple harmony or held chords my be spiced by dissonant and free ornamentation

EXTENSION AND IMITATION

- Motivic cells are the concern of the composer when extending harmonic material
- Choice of material and way of transformation are elements giving musical work its personal history

Devices

- Repetition
  - : One of most important
  - : Emerges as sequence, imitation, variation, ostinato, and other guises
  - : Literal repetition requires a strong sense of timing and discriminating taste to not hinder musical flow
- Imitation

: A form of repetition in which the motivic elements move from voice to voice
  - A linear process
  - Valuable in achieving meaningful part-writing and harmonic suppleness
: May be literal or any of the forms of extension variation
: Successful use depends largely upon the needs of the expressive climate in which they operate

- Motivic metamorphosis
  : The transformational character of compositional elements
  : Sequences
    - Ascending sequence adds dynamic tension
    - Descending sequence relax dynamic movement
    - Sequences whether melodic, harmonic, rhythmic, or in combination soften extremely dissonant passages
- Motivic variation
  : Techniques
    - Retrogression
    - Retrograde inversion
    - Rhythmic transformation
  : While original identity is often obscured, a unified musical expression may unfold
- There are many other idea extensions
  : Intervallic expansion or contraction
  : Change in order
  : Inversion
  : Removal of notes to create hidden tone-relationships
  : Filling out of thematic material with ornaments producing additional segments for further extension
  : Omission by dismemberment of part of an idea and held for later expansion
  : Repetition of tones and shifting their octave placement adding new color and meaning

CHROMATIC ALTERATION

- The primary effect of chordal alteration
  : Is a change of harmonic color without a change of chordal function
  : Dissonance may be intensified or lessened by the alteration
- An alteration does not exist unless a scale area is defined or unless a characteristic chord is used as a harmonic norm
  : The altered formation *must be foreign* to the scale presently in effect

Characteristics

- Altered chords in the Oriental scale have ‘unaltered’ major freshness
- Chromatic lowering as an alteration causes a drop in textural tension
- Chromatic raising gives a succession tonal lift
- When used in excess they lose touch with the unaltered harmonic norm and fail to function as altered structures
- Simultaneous sounding of altered and unaltered tones has a pungent flavor
- In a major-minor compound harmony this sound is firmly fixed

Application

- Common alterations are those derived from the closest related keys
  : Keys based on cycle of 5^{ths}
    - Major key = Major 5th above and below the tonic
    - Minor key = Relative and tonic minors
      + Minor keys may use accidentals from two tonal strands
        » Keys related to relative majors
        » Keys related to parallel majors
  : Keys based on cycle of 3^{rds}
    - From keys a major or minor 3rd above and below the tonic
  : Synthetic Scales
    - Derived from areas reached by modulation
- Cross relations
  : Exist when a tone in one voice of a chord is altered in another voice of the following chord
    - Tension is greater in simple harmony and barely in highly chromatic harmony
    - Harmony utilizing all 12 tones with equal frequency *no* such relationship is felt
  : Between a chord tone and a non-harmonic tone it is less noticeable

PEDAL POINT AND OSTINATO

Pedal Point

- A tone sustained, repeated, or ornamented while other voices move through a succession of chords (some of which may be foreign to the pedal
- If three or more tones are held (triple pedal point), a pedal chord evolves
  : Polytonality is often suggested by triple pedal point
- Characteristics
  : Tonic pedals have repose, non-tonic pedals have restlessness
  : Final pedals
    - Used to enforce a tonality
    - Allow time for figuration to conclude its ornamental design
  : When placed a 5th or 9th below the main body of harmony sheen and resonance are added

Ostinato

- A well defined melodic segment insistently repeated
- The tonal simplicity helps to clarify the texture of polytonal writing
- Melodically obstinate in a upper voice obtrusive in a middle voice
- When ostinatos occur simultaneously harmonic tension rises

UNISON WRITING

- Implies the sounding of a line by various media at the same pitch or at different octaves
- Much used in 20th Century composition
- Characteristics
  : Significant formal and coloristic contrast
  : Chief value in a harmonic scheme is its textural context

: Success depends on formal timing
  - Opening or interrupting calls
  - Fanfare flourishes
  - Pastoral interludes
  - Veiled lines place an octave apart
  - Antiphonal answers
  - Added string power
  - Outlining harmonic activity with broken chords
: Effective
  - when stating a theme without it harmonic fabric
  - contrasting a single line with a chordal mass
  - adding strength to a loud and full passage
: Other use
  - Subsiding sound
  - Rushing octaves gathering for a climax
  - Introduce a new tonal area by outlining the fresh scale
  - Project rhythmic variants in a recitative style

12 – KEY CENTERS

TONALITY

- The tonal meaning of an isolated chord is indefinite
  : When surrounded by other chords its meaning may be
    - Restricted to a single tonality
    - To two or more wavering tonalities
    - Or if it has atonal intentions that fact can be made obvious
- Tonality does not exist as an absolute
- It is implied through harmonic articulation
- Through the tension and relaxation of chords around tone or chord base
- A particular style or period is not always limited to a predilection for a single kind of tonality (i.e. 20th Century music)

Characteristics

- In a strong tonal context
  : All elements of progression are subordinate to the pull of the tonal center
  : The drive towards cadential realization
- Traditional tonality
  : Depends upon scale and chord relationships for organization
  : Usually 3 basic chords are needed to produce a feeling of tonality
    - Built a scale step above the tonic
    - Built a scale step below the tonic
    - The tonic itself
  : Harmony with tritone gravitation is helpful in establishing the center
- Tonality may be established by using tones of a scale as chordal roots in varying degrees of support for the tonic
  : Submediant & dominant

: Submediant & mediant
: Leading tone and supertonic
: Scale steps embracing the tritone
: The remaining secondary scale roots decorate the three tonal pillars

- Other key (tonic) forces
  : An extremely dissonant chord refusing to become consonant
  : A succession of simple chords resisting complex harmonic forces
  : From two culminating tonalities merging finally as a dominating polychord
  : A group of important tones recurring at decisive points
  : From atonal music searching for a key at cadential points
  : Key consciousness vanishing temporarily only to make stronger an emerging key's return

Application

- The search for tonality or key center feeling may become a creative force in music
  : May be generated from a unifying harmonic idea from which musical growth extends
    - An initial major-minor compound chord may promote polychordal writing that instigates a struggle between major and minor structures
  : A work may be built tonally upon initial harmony that falls cadentially
    - With refuge in a group of tones removed from the tonal implications of the of the first harmonic fall
  : A succession of chords at an opening may suggest the tonal shape of the entire work
  : An insistent chord may establish a center by resisting pressures from various tonalities
- Tonality may be established through contradictory tonal elements or through a streamed line drive to the tonic
- In equidistant rootless harmony, any note may be made the tonal center through melodic insistence, spacing, or instrumentation
- Music may hold its tonality loosely with elements of tonality inherent from the onset
  : Many degrees of key-center gravity or of keylessness in the general area of tonality or atonality
  : In the continuum of tonality –>atonality the point where one ends and the other begins is indefinite
    - Melodic lines in a tonal framework can become so free that a point approaches where key feeling is lost
- Partial atonality is useful in vague introductions and transition passages and when preparing for a returning tonal thematic idea

MODULATION

- A process of changing the tonal center
- The ambiguity of any chord is such that it can be related to any of the twelve tonal centers – an important factor when modulating

Application

- If a definite key change is desired
  : Both keys should be firmly established bay a least three center affirming chords

- A pivotal chord is one that is common to both keys
  : Diatonic when belonging to both scale formations
  : Chromatic when it belongs to neither or only one
    - Chromatic modulation is attained by shifting an entire chord a half step in sudden parallel harmony
  : Not always clear just which formation is the pivot chord
- Modulating to a permanent key
  : Chords other than the tonic may be aimed for to give time to settle into the new key
  : A premature cadence is avoided by jumping to a distant key and then working toward the desired key
- Abrupt modulations make the arriving tonic felt as a distant chord
- To establish a firm new key an extended harmonic progression is necessary
  : All chromatic tones are in a domain of a new key resulting in all keys having 12 tones in common
- Modulation may be realized though the semitone or other intervals
  : A fresh change is felt using a modulatory interval other than the characteristic interval of the prevailing root progression
  : The third relationship is effective in passages of second relationship harmony
  : The second relationship is effective in passages of third relationship harmony
- Modulation from a single tonality to a polytonality may be attained
  : By moving double strands of transient modulation in contrary motion of keys
    - Coupled tonic makes a good starting point
- Modulation from one polytonal area to another
  : Each key zone usually moves to the new zone by independent modulatory means
  : Must have (however) textural design and intelligible tension fluctuation

Characteristics

- Key changes have special lift when modulation is accompanied by an octave leap
- Continuous quickly shifting keys produce a sense of displaced tonality rather than modulation
- Key feeling may be gradually loosened or tightened
- The gravity of a tonal center is decreased by moving a new voice through that give an important chord new roots
- A distant tonality may be established
  : By the reinforcement of the new center by auxiliary chords
  : By the pneumatic action of violent repetitions of the new tonic – with color and spacing change
- Transient modulation is an important means of securing variety in relatively consonant passages
  : Less effective in very dissonant passages
  : Chromatic harmony does not need the color of transitory modulation
    - In this context modulation is used to move from one section to another rather than within a progression itself
- distant tonal centers reached in countless way if not held in check will cause harmonic growth to be replaced by superficial variety

POLYTONALITY

- A writing procedure in which two or more keys are combined simultaneously
  : If only two key combined referred as bitonality
  : Polytonality though generally implies the use of more than one tonal plane at the same time
  : A specific kind of tonal organization
  : A means of moving groups of voices within confined harmonic register areas
  : Often tonal
    - When each group of voices with a chordal unit functions within the confines of a stable scale zone polytonality occurs

Characteristics

- Scales that form the different tonic centers may be intervallically or identical, traditional, or synthetic
  : Polytonality is effective only when each tonal plane is kept within a clear scale formation
    - Shifting modality through chromatic alteration clouds the texture or simply produces miscellaneous polychords
    - For clarity in projecting different keys, one key is introduced and as the next key is added the preceding key becomes less obvious
- Vertical Factor
  : If tonal planes are arbitrarily combined the harmonic result will be haphazard
    - Music must be conceived in a polytonal context
    - Not cloaked in accidental texture
  : Each melodic line should retain its own individuality
    - The harmonic total must have direction of flow, tension design, and textural consistency
    - Each tonal plane has its own organizational center
  : A single over-all tonic structure is usually felt from the bass – from this basic polychordal tonic stems the polychordal texture

Application

- Scale steps spanning the tritone should be brought into play as soon as possible
- Closely spaced polytonal areas become muddy
  : Keys should be kept far enough apart to allow room for voice activity
  : Cramped polytonality is possible but lacks versatility
- Independent lines should not be placed a random without an understanding of polytonal construction
- Fundamental quality of polytonal texture is determined by the key relationship set up by the tonics
  : Major-key combinations
    - Polytonal order of tension from consonant to dissonant is secured by combining two keys a P5th, M9th, M6th, M3rd, and M7th apart (up the cycle of 5^{ths})
    - High point of resonance in the order is at the center
    - Those keys not closely related according to the circle of 5^{ths} will more easily set apart the tonal spheres

- Tritone as a basis for key coalition forms a prime polytonal relationship as it is the most resonant of the dissonant combinations of keys

POLYTONAL COMBINATIONS OF MAJOR KEYS

Consonant					Dissonant						
C	G	D	A	E	B	Gb	Db	Ab	Eb	Bb	(F)
F	Tritone										

: Minor at bottom major or minor at top
  - Fewer consonant combination of keys is possible

- When combining more than two keys, the consonant-dissonant order of resonance is P5th, M9th, M6th, M3rd, etc.
- When the intervals between the keys are not the same, the larger interval is between the bottom keys
- When combining three or more keys, the uppermost key is governed by the resonant relationship to the bottom (not inner) key
- The resonance of polytonality depends upon the resonance of the over all tonic formation as determined by its intervallic tension
- Passing secondary textures are maneuvered around the most resonant polychords that form the structural pillars
  : Often thick and troublesome but made workable by
    - The omission of chord members
    - Doubling of stronger intervals
    - Ornamental coloring
    - Unison and two part interpolations
    - Ostinatos
- Chordal polytonality is established by two or more tonal planes of harmonic writing
- Horizontal polytonality is established by imitative writing
  : Real canons at intervals other than the octave can imply polytonality
  : Two or more lines may produce transparent polytonality
- Block chords against a single contrasting key line create supple polytonal patterns
- Shifting pedals ease the polytonal texture
- Polymodality is a well balanced polytonality secured through mirror scales

ATONALITY

- Term loosely applied to music in which a definite key feeling has been weakened or lost or where no key gravitation ever existed
  : An organization of sound without key establishment by chordal root relationships
  : But tone combinations or areas may form an atonal equivalent of tonality
- Relations between tones occur without reference to a diatonic scale formation
  : Movement to and from characteristic intervallic formations but the central force is usually melody
  : Not a governing harmonic base
- A syntax that favors dissonant formations
- Organization is based upon shifting intervallic tension or and order of tones

Characteristics

- Movement is often linear but may produce vertical combinations
  : Compound harmony of mixed intervals
  : Free from the power of an overbearing tonic
- When motion of voices creates a constant and total dissonance beds of sound are created upon which prominent melodic lines may lie
- If chromatic chordal mixtures accumulate, formal coherence is achieved by repetition, variation, or mutation of the chromatic sound groups
  : Harmonic factors are dependent upon melodic relationships
  : These vertical structures are often manipulated as a contributing element
- Various elements in atonal music are tightly knit by extreme motivic concentration
  : Reference is constantly made to previous material
- Little regular rhythmic stamping and no continuous chain rhythms
  : The rhythmic patterns are asymmetrical
  : Meters irregular and often complicated
- With the controlling principle of scalar tonality abandoned
  : Chordal root organization of the twelve tones ceases to exist
  : Form and unity are created by melodic and rhythmic development

Twelve-tone technique

- A basic order of tones (all 12 or fewer) used as a unifying basis for a work
- All formal devices evolve from the basic shape
- Primarily a contrapuntal practice
- Essentially a polyphonic conception
  : Some points in common with the pre-tonal music of the Middle Ages
  : Most naturally approached as counterpoint

SERIAL HARMONY

- Definition
  : When harmony is regulated by a horizontal unifying idea
    - Texture may be serial
    - Creates a harmony of extraordinary compactness through variations of the motif relationship
  : Can be Twelve-tone (or not)
  : Chordal formations have little or no function in a scalar tonal sense
  : Harmonic obligations arise from a chromaticism is harmonic areas from
    - A characteristic series
    - Or portion of a series of tones
  : Logical melodic thinking gives the individual parts their direction
  : Ear of the composer gives the quality of chordal movement

Characteristics

- Some directions in serial composition point away from the specialized craft of strict ‘atonal’ writing where
  : All elements are generated from a single germ cell

: To a flexible creative process that includes the musical resources of both tonal and atonal composition

- Techniques & materials of atonal music are often amalgamated with those of many types of tonal idioms
  : Chord materials governed by root progressions
  : Intervallic texture tensions
  : Use of Serial devices
- At any point a melodic group of notes may control harmonic texture
- Any succession of any number of tones (not necessarily all different) may
  : Be used in two or more voices at once forming a harmony from horizontal movement
  : Divided between voices forming a harmony from vertical telescoping

Application

- Any combination of tones may be set up as a tonality
  : In an extended passage
  : A section of free serial music
- A succession of three or more notes from the selected melodic set or row of tones may be used as a center chord
  : A transposition of the center chord erected upon its uppermost note may form a cadential chord above the center
  : A mirror of the center chord may form another primary chord below
  : Changing the octave pitch of one or more tones produces inversions
  : Inversion of the center chord may yield a new set of primary chords
  : All other combinations of tones may form secondary harmony
- When a melodic set includes one or more identical notes doubling of the chord members produces colorful serial doubling
  : Parallel harmony may be used momentarily at points where doubling occurs
- Serial harmonic progression
  : Order of chords is often changed to increase the gravitational tendency of the chordal formations to move to the center chord
  : Transposition of the melodic set causes modulatory shifting of the harmonic areas
- When a chord from on form – original, retrograde, inversion, or retrograde inversion in any transposition – of the melodic set in identical to a chord of another form of the set
  : It may be used as a pivot formation when entering new 'tonal' areas
  : Closely related harmonic areas are those that may be found by constructing an inversion or retrograde inversion of the melodic set starting a $P5^{th}$ above or below the original set
- Strong cadences
  : May be formed by the primary chords
  : Or by ornamental movement of the parts directed toward the center chord
- Chordal ornamentation
  : By nonharmonic tones
  : By harmonic tones
  : By serial tones that result from the simultaneous use of two or more forms of the set
- Contrasting thematic material
  : May be built upon a new but related melodic set
  : Original material may be converted to another by selecting the top notes of a series of telescoped chords

New 9-note melodic set

D	**F#**	**G**	**D#**	**F#**	**D#**	**C#**	**A**	**B**
1	2	3	4	5	6	7	8	9
D	F#	G	D#	F#	D#	C#	A	B
A	B	A	A	D	B	A	D	B
Eb	C#	D#	C#	Eb	C#	G	D#	C#

- Twelve-tone field
  : When a melodic set employs twelve *different* notes successive chords encompass the entire twelve-tone field
  : A strong center (or harmonic area) may result from the completion or fulfillment of the twelve-tone set
- Serial music of any type
  : Must be aurally created through
    - Melodic
    - Harmonic
    - Contrapuntal
    - Rhythmic
    - Formal elements
  : NOT by manipulative procedures
- Serial technique does not insure communication or effective sound organization any more than any other technique

13 – HARMONIC SYNTHESIS

- The amalgamation of divergent conceptions of tonal formations is part of our harmonic language
  : Harmonic writing is often a composite process
    - The norm of dissonance
    - Choice of a single harmonic idiom or coalition of one with another
    - Fusion of tonalities
    - Singleness of sound organization or the juxtaposition of tonal and atonal aspects
- The acceptance of one procedure does not necessarily exclude others

COMBINING TEXTURES

Characteristics

- Harmonic texture
  : Vertical combinations produces polychordal and compound formations
  : Successive combinations entail movement
    - From one kind of texture to another
    - Functioning of heterogeneous harmonic materials side by side
- Textural problems arises from the manipulation of the transitional material that lead from one type of harmony to another
  : The characteristic interval of one kind of harmony is contained in any other and may be brought to the surface by intervallic inversion

: An interval may be featured that when inverted produces the characteristic interval of the new harmony
  - 4^{th} is given prominent position in chords by 3^{rds} to allow chords by 4^{ths} to enter
    + 5^{th} contained in the triad is inverted to allow chords by 4^{ths}
    + In 7^{th} chords, the inverted 5^{th} from the root or 3^{rd} may be used to introduce quartal harmony
  - Inverted 7^{th} chord may be arranged so that the interval of the 2^{nd} is emphasized
    + Preparing way for secundal harmony
    + In 9^{th} chords, interval of the 7^{th} from the root or 3^{rd} is inverted to suggest the secundal texture of clusters or added-note chords

Application

- When moving from one type of harmony to another it is best the characteristic interval of the new harmony is best introduced well in advance
- Doubling of a colorful tone
  : Strongly suggests octave or unison writing
  : Which (in turn) makes way for foreign harmonic resources
- Unison
  : Can become a subtle device for moving from one kind of texture to another
  : The harmonic ambiguity or sudden unison allows for the entrance of any texture
- Ornamental tone
  : Also provides textural means for entering any harmonic region
  : Appoggiatura and suspension are particularly effective in preparing the intervallic texture
- Broken chords
  : Have melodic freedom
  : Which permits fluctuation of chords of varying construction
- Accenting melodic tones that outline the characteristic intervallic formation of the new area
  : Creates a tonal bond between contrasting harmonic materials
  : Type of chordal formation may be changed by subtracting from a melodic motif tones that leave only the tones of the new texture
- The equidistant chord
  : Has neither root nor power to resist homogenous chordal formations
  : Can by chromatic motion weave one harmonic fabric into another
    - Rough tritone relationship or prominent hidden 5^{ths} divert attention form harmonic transformation
    - Sequential patterns can drive varied chords over many harmonic barriers
- Clusters
  : Gradual subtraction of cluster members leaving chords that suggest the kind of harmony to follow
  : Gradual adding of cluster members is equally effective
- Polychords
  : Approached through
    - Coupled triads
    - Chromatic conversion of chords
  : Evaporation of one triad provides motion to triadic harmony

: Harmonic units of a tonal polychordal succession may meet at a point where each progresses in a separate and consistent key zone
  - Becomes polytonal
  - Atonality may be entered
    + When individual lines are given freedom of chromatic movement
    + Implied harmony becomes indefinite
    + Feeling of key disappears

THEME AND FORM IDEAS

- A melodic kernel of two or more tones may form the nucleus from which the subject matter of an entire work is shaped and harmonically derived
- Compositional process
  : Meaningless unless statements are identifiable
    - For continuity
    - For coherence
  : Effected through aural retention of motifs
  : Essential that a sense of tempo, dynamics, and medium be part of thematic conception
- Creative momentum
  : Might stem from a single scale formation, series of chord tones, etc
  : By the creative tension caused by pattern shapes, fast moving voices, etc
  : Careful inventory of melodic, rhythmic, and harmonic aspects of thematic ideas must be taken
    - These elements are often used independent of each other
    - Not until full thematic intelligibility is realized do hidden meanings of the theme surface
      + Thematic ideas may be purposefully enigmatic and vague, positive and complete in themselves – or musically neutral
      + BUT should be *positively vague*, NOT *vaguely positive*
    - Thematic meaningfulness can arise only from thematic unity and purpose
- Form & Style
  : Form is the outward equivalent of instinct, taste, and style and
    - It is the manner in which kinds of materials are presented
    - Form & style are inseparably related
  : To deviate from the predictability must at the same time create a feeling of inevitability of form

Any tone can succeed any other tone, and any tone can sound simultaneously with any other tone or tones, and any group of tones can be followed by any other group of tones