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### Chords Employed in Twentieth Century Composition

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H 781  
BIS

WORDS EMPLOYED IN  
SEVENTEENTH CENTURY COMPOSITION

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A Research Paper  
Presented To  
Mr. William Francis McBeth  
C.E.U. Music Faculty

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In Fulfillment  
of the Requirements of  
Special Studies H201

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by  
Camille Bishop  
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## Chords Formed By Intervals Of A Third

The traditional triad of the eighteenth and nineteenth centuries tends to sound trite in the surroundings of twentieth century dissonance. The composer faces the problem of imaginative use of the triad so as to add freshness to a composition. In modern composition, major and minor triads are usually used as points of relaxation before and after sections of tension.

Progressions of the eighteenth and nineteenth centuries were built around the I, IV, and V chords. All other chords were considered as incidental, serving to provide variety. The relationship of the roots of the I, IV, and V chords is based on the interval of a fifth which exists between them. Progressing by fifths was considered the strongest progression possible.

Relationships other than the fifth can be made to sound convincing. Second and third root relation cycles are examples. In the third relation the primary progressions are III-I and VI-I. In the second relationship the primary progressions are II-I and VII-I. The cycle in force is confirmed by passing and cadential devices. These relationships can be built on any scale form.

Harmonic motion may be created by shifting from one cycle to another. This allows complete freedom of root movement, making the whole twelve-tone compass of intervallic root progression available. Any chord of the progression may be considered as tonic of any scale. In music that has no scale or modality, there may be any sequence of chords and keys. Perfect fifths should be avoided as they tend to form a definite modality. Major or minor seconds and thirds are used more often, establishing no definite key.

The freedom of root movement that comes about when chords move independently of a scale relationship may produce progressions that are aimless and have little meaning. This may be overcome by giving each voice a definite purpose or by the use of a diatonic melody line which brings the chromaticism into clear focus.

"At any point, chordal material may be chosen by considering a prominent note in the strongest voice as the root, third or fifth of a major or minor triad. Any note had three major and three minor possibilities. Even an unadorned scale line produces potential chordal variety."<sup>1</sup> An underlying mode or scale may come about in music of chromatically shifting chords, but neither is a determining factor in the progression.

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<sup>1</sup>Vincent Persichetti, Twentieth Century Harmony (New York: W.W. Norton and Company, 1961), p. 72.

Another use of the triad is movement of the root and fifth of the chords in parallel fifths in fundamental position. This is made effective and interesting only by a great amount of contrary motion in the other voices. Use of the inverted chord at regular intervals will relieve the confining parallelism.

Triads containing augmented or diminished intervals can be awkward. Augmented or diminished thirds that may result from use of a synthetic scale sound as fourths or seconds. These chords are usually altered to one of the four basic chords (major, minor, augmented, or diminished). Augmented triads should be handled carefully so as not to sound like the music of many movies or television programs that has little depth. Unaccented situations are the best places for such chords.

Major and minor triads can be clouded by the addition of a diatonic second or fourth. These chords may progress traditionally or non-traditionally. Mixed with other fairly consonant forms, these clouded triads are often used in choral writing and are very easily sung. The sound is modern, yet handled without difficulty.

When the added second or fourth is placed in an upper octave, an incomplete seventh or ninth is heard and the chord loses strength. The chord remains strong when the second lies

below the root, but an inverted ninth with the seventh omitted is heard. Adding the fourth below the root deceives the ear into hearing two roots and gives one the feeling of hearing an incomplete polychord.

Major and minor chords lose their root feeling if many tones foreign to the basic scale are added. If the added notes are not separated from the triads, a cluster may result. Small clusters are easily handled by contrapuntal means and may even be used in choral writing. Both small and large clusters are often used for percussive purposes. "Clusters of any size may be employed as melodic doubling in a contrapuntal style."<sup>2</sup>

Triads may be clouded by including both major and minor thirds of both third intervals contained in a triad, separated by one or more octaves.

"In general, triads with various added tones are mixed together with other forms to avoid monotony. When they are employed, the style is usually quite consonant in terms of the twentieth century."<sup>3</sup>

Formerly treated as dissonances which were prepared and resolved, the seventh and ninths are now freed from restrictions, progressing with or without reference to harmonic

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<sup>2</sup> G. Welton Marquis, Twentieth Century Music Idioms (Englewood Cliffs, New Jersey: Prentice-Hall Inc., 1964) p. 237.

<sup>3</sup> Ibid., p. 239

rules. They fit very well in mildly dissonant passages.

It is possible to construct seven different seventh chords on a root, using major and minor thirds. Seventh chords with augmented or diminished thirds are misspellings of other chords. It is mathematically possible to build sixteen different ninth chords with major and minor thirds, but, actually, only twelve different chords are possible. The ninth chord is analyzed as two triads, the root of the top triad being the fifth of the bottom one. This causes the ninth chord to have polychordal implications.

Variety is achieved in doubling and inversion. Seventh and ninth chords may progress in as many different ways as traditional triads do. They function well within the cycle of fifths, thirds, or seconds. Dominant sevenths move well in the augmented fourth relationship also. A feeling of progression may be created by moving voices through the various forms of seventh and ninth chords formed on the same root.

When the color gradations of the twelve ninth chord formations is put in order from darkest to brightest, a composer may achieve a passage with textural control of the various chords. Ninth chords, handled well, add freshness to a harmonic progression.

Ninth chords provide quite a bit of color. Omission of the fifth adds richness to the chord, while omission of the

third or seventh gives the chord less color. When the root or fifth is doubled, the chord gains solidarity; doubling the third or seventh gives density of color, while doubling the ninth increases tension. The fourth inversion of the ninth is very useful in rough passages because of its hard texture.

Increasing the harmonic weight of the ninth makes it less mobile, but this problem is solved when the chord is touched by a voice moving from a triad or a seventh chord.

When ninth chords are included in passages containing nontertian harmonies the ninth should be constructed so that at least one interval resembles that of the nontertian chords.

Eleventh and thirteenth chords are very large and unwieldy, but useful. The eleventh is a combination of two triads a major or minor third apart, and the thirteenth is a combination of three triads that have two notes in common. The thirteenth will not invert; it will only form another eleventh or thirteenth chord.

Melodic ornamentation of sevenths, triads, or pedal tones often create eleventh and thirteenth sounds. These chords are broken and analyzed as those structures with the fewest notes.

There are two sharoly dissonant intervals present in eleventh and thirteenth chords. If one is omitted, the chord concerned is more easily worked with. The chords should be



arranged so as to produce a maximum amount of resonance, but if a chord is spread out too much, two separate triadic units may result. A polychord will form. If the interval of a fourth predominates in the arrangement, the chord will sound quartal.

Polychords and other compound chord structures work quite well in phrases where they are built around eleventh and thirteenth chords. The reason for this is that much of the intervallic make up of the eleventh and thirteenth is the same as that of certain scale patterns. This allows them to function as six or seven note tonic formations. The melody of the phrase is derived from the scale implied by the eleventh or thirteenth chord being used. Seventh and ninth chords also work well with elevenths and thirteenths in a phrase.

When thirds are added on the thirteenth chord without repetition of a chord tone, a fifteenth or seventeenth chord results. When larger chords than the seventeenth are built, there may be some duplication of tones. The size of the chord is determined by finding the distance between the root and the highest note. These chords are made easier to work with when two or three inner voices are left out. Separation of the chord into triadic units should be avoided to prevent formation of a polychord.

It is possible to build a twelve tone chord using intervals of a third. These chords are so complex that they must be handled with great care. The instrumentation used in playing this type chord should be planned carefully. Playing them in the upper register lightens the density of the chord. Also, playing consonant parts of the chord by separate orchestral choirs gives the chords a lighter texture.

Fifteenth and seventeenth chords are used for punctuation, for creating a quiet but sustained tension, and for short passages that follow unison writing. Parallel motion of the voices provides ease of movement. When contrary motion in some voice is used, intervallic distances change and these tertian chords tend to move to chords formed by fourths, seconds, polychords, heterogeneous compound chords, or minor chords.



## Polychords

When two or more conventional chords from differing harmonic areas are combined to function as one chord, a polychord is formed. These chords can be used in any type of composition.

The chord sections which make up a polychord are known as chordal units. These units must be carefully spaced to assure polytonal clarity. Any rearranging of the tones involved will cloud or destroy the polyharmonic effect.

Resonance in all polychords is determined by spacing. Where two or three chordal units are gathered together, there will be resonance that is determined by the position of the bottom chord and the ability of its tones to produce overtones. Overtone series that result from a fundamental tone can produce polyharmony. A polychord built on the second inversion of the bottom chord is the most resonant. This is because the perfect fourth created by the six-four chord is closer intervallically to the perfect fifth of the overtone series than is the major third of the triad in close position.

When the fundamental bottom triad is spread apart, it is possible to build a sonorous structure, using any position of the upper triad. The position of the upper triad, however, depends on the outer voice relationships. The

resonance of the upper triad depends on how near it is placed to the overtones of the third and fifth of the bottom triad. Small intervals should be placed in the top triad and wide intervals should be placed in the bottom triad.

Spacing of the polychord determines the density. When the chord units are placed far apart, the tonal vibration is at its greatest point. Using contrasting instruments for each unit in orchestration of the polychord will make each unit very clear and will bring out the contrast caused by the polychord. Doubling consonant intervals gives the chord strength. "A tone common to both units helps to blend the component parts."<sup>4</sup>

An effective relationship of the bottom and top voices is very important. The consonance or dissonance of the outer voices affect the whole structure.

Close spacing of polychords and monochrome scoring cause cloudiness, but this is very useful in varying tension. The closer the dissonances are placed to each other, the greater the amount of tension becomes. In this situation care must be taken to clearly define the separate chordal units by contrasting instrumentation or they will run together and polyharmony will cease.

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<sup>4</sup>Persichetti, op. cit., p. 139.

When the upper unit forms a chord by thirds, with the bottom chord, the ear will hear it as not being a polychord if the structure is isolated. However, if the chord is placed in a context with polyharmony, the ear will hear it as a polychord.

When the polychord is transposed upward it loses body and resonance but acquires a brilliant quality. The sound changes drastically when the chord is transposed to a lower register.

Polychords formed by major triads are consonant and very resonant. A very useful list of the major major polychords can be made by building the upper units on the notes of a cycle of perfect fifths which begins with the bass note of the second inversion of the bottom chord. If the bottom chord were a C chord, G would be the note that the top triad would be built on. As the sequence progresses, the chords decrease in consonance and increase in dissonance.

Polychords may be made up of any type triad, major, minor, augmented, or diminished. These may be used in any combination. A minor chord over a major is fuller than a major over a minor. In polychords containing at least one augmented or diminished chord, the most easily handled chords are the major(bottom chord)-diminished(top), major-augmented, minor-augmented, and minor-diminished. When the bottom chord is augmented or

diminished, the voices should be spread to prevent crowding in the lower register. The resonant possibilities presented are the augmented-major, augmented-minor, augmented-augmented, augmented-diminished, diminished-major, diminished-minor, diminished-augmented, and diminished-diminished.

A scale cannot be used to establish tonality. A prevailing melodic line or harmonic gravitation to a predominant chord, which should be resonant, will establish a tonal center.

Long passages of nothing but polychords are tiring and should be broken up. Unison or two voice writing are good interruptions that freshen the texture of the composition. Leaving out notes in either triadic unit will lighten the chord and make it supple. Polychords are best used as "architectural harmonic pillars."<sup>5</sup>

There are four types of polychords with three or more triadic units. They are: (a) the top chord built on the third and fifth of the bottom chord, (b) the top chord built on overtones of the third and fifth of the bottom chord, (c) the top chord built on overtones of the overtones of the third and fifth of the bottom chord, (d) the top triad built on overtones of the root, third, or fifth of a triad other than the bottom triad.

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<sup>5</sup>Persichetti, op. cit., p. 149.

Polychords constructed from three or more triadic units are used very briefly in climactic sections or fast but quiet sections. Their units should be kept separate for clarity. This makes them difficult to handle, and, even if clarity is maintained, an experienced ear may hear the polychords as traditional chords with one root.

Polychords made up of seventh chords are useful in chordal groups that strengthen a single line. They are also used as sforzando chords. When the units in this type polychord have a note or notes in common, a homogeneous sound is created.

Chords other than tertian sonorities can be combined with triads to form a different and useful type of polychord. In such combinations the triad should be placed on the bottom to allow freedom of movement. When triads are placed on top, they form a darker, less resonant chord which may have occasional use.



## Non-Tertial Harmonies

"When the traditional system of tonality seemed to have been extended to its limits, certain composers attempted to erect alternate systems in which chords may be built on intervals other than thirds."<sup>6</sup> One of the earliest signs of this experimentation was the four note chord constructed from the whole tone scale.

Chords which are constructed on the interval of a fourth are not as resonant as tertian harmonies. Because the voices have no direct relationship with the root, there is no clearly defined root. Because of their characteristic neutral sound, they should not be used in long passages, but should be mixed with other types of chords for harmonic color.

In three note chords by fourths, there are three possibilities of intervallic arrangement: perfect-perfect, perfect-augmented, and augmented-perfect.

When the chord is inverted in either of its two inversions, the interval of a perfect fifth is formed. This will create the impression of an incomplete triad (third left out). When a distinctive fourth chord quality is desired, the interval of a fifth directly above the bass should be avoided: but positions featuring the perfect fifth give quartal harmony

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<sup>6</sup>Marquis, op. cit., p. 248.

variety and color. Open spacing of fourth chords increases harmonic expressiveness.<sup>3</sup>

There are no set rules for doubling, but doubling outer voices adds color and doubling inner voices gives strength to any moving voice.

Chords built on perfect fourths are chromatic because they do not follow the structure of any one scale. This quality makes them easier to handle than chords built on perfect and augmented fourths.

The perfect fourth chord is not dissonant because there is no sharp interval, there is an equality in the intervals, and the minor seventh created is a very mild interval. This creates a texture that is very consonant in a quartal context.<sup>3</sup>

When a fourth chord contains the interval of the augmented fourth, the upper note of the tritone should resolve to the nearest note of the predominant melody or scale pattern of the composition. If two tones of the melody or scale pattern lie at equal distances from the upper note, either direction may be taken.

A three note chord by fourths of any type may move in any direction, diatonically, chromatically, or by skip, to any other fourth chord if one voice moves with a strong melodic purpose. If all other voices remain stationary, one voice may skip a fourth or seventh, causing a larger version of the same

chord. Greater harmonic freedom is made possible by keeping voices in upper register, using a pedal point to lessen the need for resolution of a dissonance, or adding a floric voice to the chord.

Quartal chord members move freely, making the formation of quartal cadences easy. The final chord in the cadence is strongest if it is inverted. The next to last chord may have any bass note desired. In cadences made up of other chord forms, the chord by fourths can be used as dominants. When the interval of a fourth prevails in the harmony of a composition, any mixture of chords may be used.

The four note chord by fourths is a more useful chord than the three note chord by fourths. It has three inversions, giving it four forms. Real harmonic movement is created by moving through the forms of just one chord. The four note chord is also more more resonant than the three note chord.

The voices of the four note chord by fourths move easily. When progressing to a tertian harmony two voices of the quartal chord move conjunctly and the other voices remain stationary. When the augmented fourth is involved, the tritone moves easily if it is put at the top of the chord.

A major or minor third added above or below a three note chord by fourths gives the chord color and richness. This is

very useful in a cadential or passing situation. Adding a third above and below to form a five note chord is useful in passages containing polychords and chords by thirds.

Chords by fourths can be arranged to contain fifths. If fifths dominate a quartal chord, the fourths may become hard to handle. They should resolve to the third of a compound quartal structure before moving to a chord of fourths.

It is possible to construct a twelve note chord by fourths before repeating a tone. Up to five notes, the chord is consonant, but as the number of tones increases to six and up, the chord becomes more dissonant. Movement of the large unwieldy chords is difficult. Parallel motion, a unison interruption, or an enriched dominant harmony will aid in giving variety and motion. Placing larger intervals at the bottom of the chord and omitting a chord member will aid in clarity. When voices are clustered, the quartal distinction may be kept by variance of orchestral timbre.

When the many possibilities of harmonic structure are employed simultaneously, the highest degree of effectiveness in composition is reached.

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