Osvaldo Glieca

Random Music Theory Studies

Volume 1

(2007)

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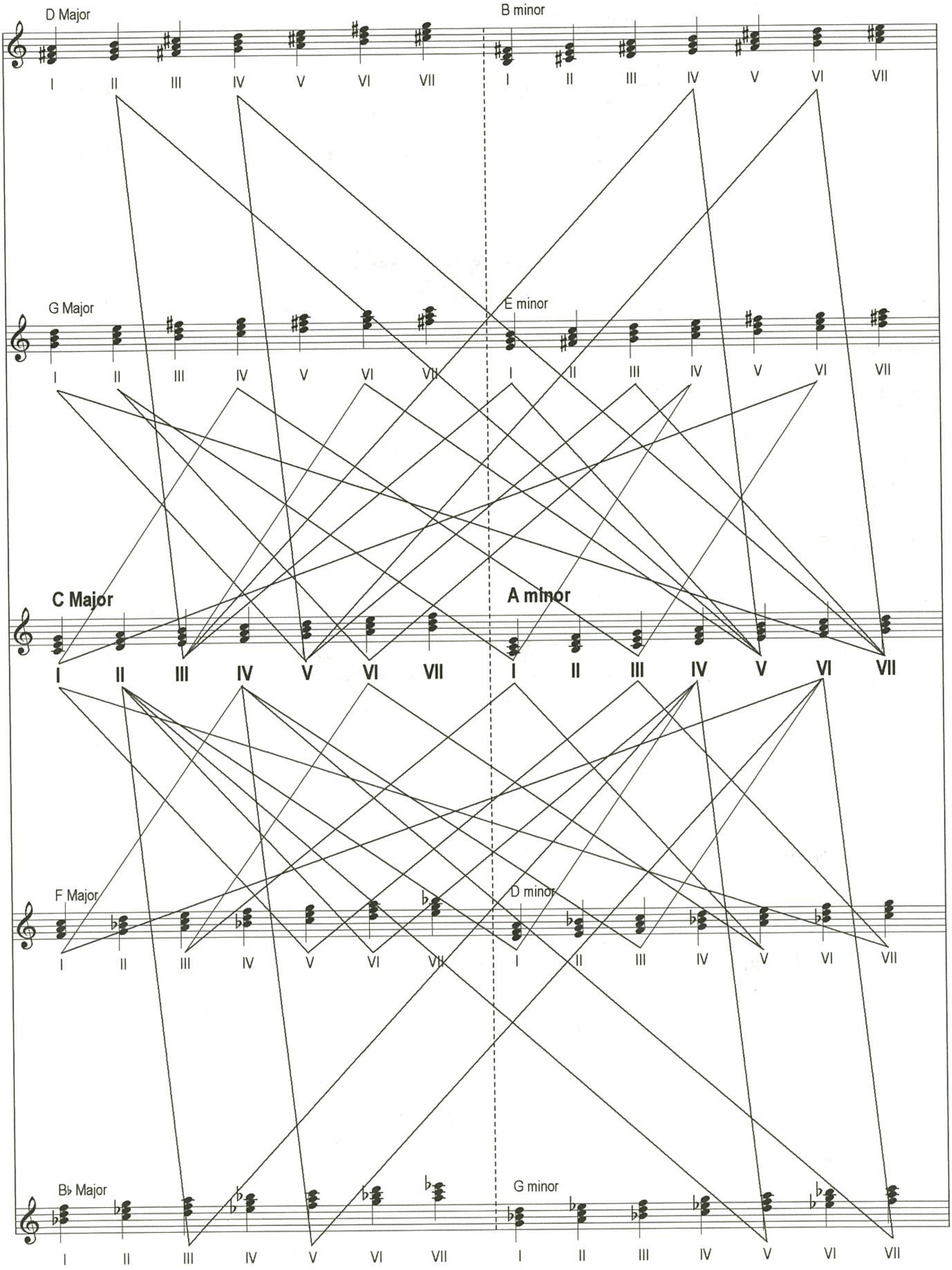
Modulation

Modulation is effected by means of a "pivot chord", i.e., a chord that is common to both the initial and the new key.
For example, the chord is I in the initial key of C Major, but also IV in G Major.
For an effective modulation, the initial as well as the new key should be established by a cadence.


D Major
I II III IV V VI VII
B minor
I II III IV V VI VII
G Major
I II III IV V VI VII
E minor
I II III IV V VI VII
C Major
I II III IV V VI VII
A minor
I II III IV V VI VII
F Major
I II III IV V VI VII
D minor
I II III IV V VI VII
B♭ Major
I II III IV V VI VII
G minor
I II III IV V VI VII

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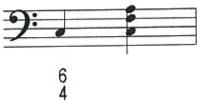
FIGURED BASS

Thoroughbass or basso continuo

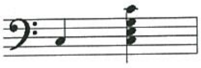
"Thorough", the old English spelling for "through", has the same meaning as the Italian *continuo*, that is, continuing throughout the piece.

A method of indicating an accompanying part by the bass notes only, together with figures designating the chief intervals to be played above the bass notes.
This stenographic system was universally used during the Baroque period (1600 - 1750).
The practice of continuo playing arose at a time when music was coming increasingly to be concieved in terms of harmonic progression, with a melody supported by an accompaniment.

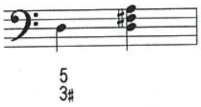
A bass note given with a figure calls for the corresponding interval above the note, in the key indicated by the signature.



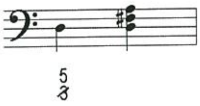
The intervals of the third, fifth, and octave, are not usually indicated by figures, it being understood that these were to be added where suitable.



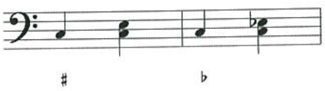
Chromatic alterations are indicated by a sharp or flat placed in front of a figure.



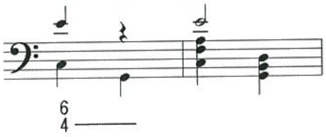
Sharping is frequently indicated by a diagonal stroke through the figure.



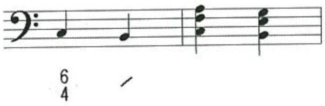
A sharp or flat without a figure indicates a major or minor third respectively.



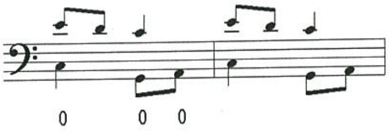
A horizontal dash following a figure or vertical group of figures indicates that the notes of the right hand are to be held, even if the bass changes.



A small diagonal dash indicates the repetition of the same figures above a changed bass note, (sequential repetition).



The figure "0" indicates tasto solo, that is,no accompaniment other than the bass note.



The above principles are but the rudiments of a very difficult art. A good thoroughbass accompaniment is considerably more than a mere translation of figures into musical notes.
At appropriate places, thematic material appearing in the part being accompanied ought to be incorporatred into the accomapniment, that is, as an imitative counterpoint.
In addition to the accompanying harpsichordist, a realisation of the thoroughbass part would call for a cello or viola da gamba, or bassoon, to reinforce the bass line.

VOICE LEADING

- 7 FEB 2007

The principles governing the melodic progression of the individual voices of a polyphonic composition. The term *voices* does not necessarily mean that the parts are to be sung, but it does suggest that each part (soprano, alto, tenor, and bass), should have a singable quality charactersitic of all good melodic music, whether written for the human voice or for instruments.

Most music of the eighteenth and nineteenth centuries is conceived in four-part harmony. Since triads contain but three tones (or factors), it is evident that another required to produce four-part harmony.

With traids in root position, the fourth tone is is usually a duplication of the root an octave or two higher. This procedure is called *doubling*. The 3rd or the 5th may on occasion be doubled.Avoid doubling the root of the leading tone triad.

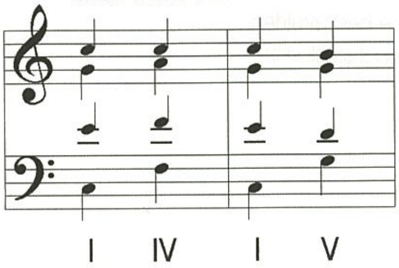
For triads in the first-inversion the tone that is doubled must contribute to the solidity of the key.
If the bass of the first-inversion chord is a tonal degree (I, IV, or V), then it is doubled.
If the bass is a modal degree (II, III, or VI), double either the root or 5th, whichever is tonal.

The commonest arrangement of a chord places the wide intervals at the bottom and the smaller intervals at the top. Good four-part writing usually avoids intervals greater than the octave, except between tenor and bass, where two octaves sounds satisfactory.

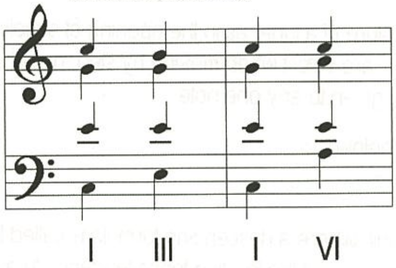
The first-inversion of a seventh chord is most effective when the seventh is in the soprano. The 5th of a seventh chord can be omitted without affecting its sonority.

When progressing from one chord to another the individual voices should move as short a distance as possible. Aim for the maximum smoothness of linear movement so that one chord seems to flow into the next.
For example;

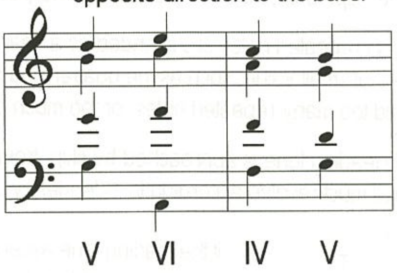
If two chords have a tone in common, this *common tone* is repeated in the same voice.



If two chords have two tones in common, these *common tones* are repeated in the same voice.



If two chords have no tones in common, the three upper voices move in opposite direction to the bass.

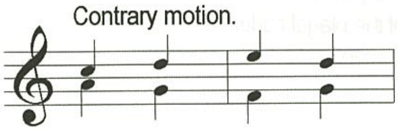


Attention must be given to the shape of each individual melodic line, and the ways in which the melodies move relative to each other. Each voice must have its own melodic shape and rhythmic vitality. A good melodic line moves mainly by step (conjunct movement), skips (disjunct movement), being being introduced judiciously for variety.

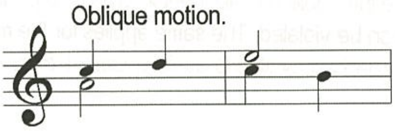
(See also the Rules of Melodic Motion overleaf.)

Relative to each other, two voices may move in three ways.
For example;

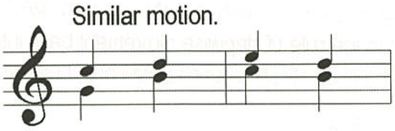
Contrary motion.



Oblique motion.



Similar motion.



In similar motion, if the two voices remain the same distance apart, they are said to be in *parallel* motion.

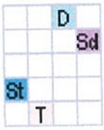
When two voices move upward in similar motion, the lower voice should not move to a position higher than just vacated by the upper voice, otherwise, the ear perceives a melodic progression between the two voices. The corresponding rule holds for descending similar movement.

The leading tone is unlike any other degree of the diatonic scale in its audible tendency to move upward to the tonic. If the leading tone is in the highest voice it should ascend by step onto the tonic, but if the leading tone is in an inner voice it may ascend or descend.

RULES FOR THE CONSTRUCTION OF MELODY

The basic principle for the formation of melody is that it has the possibility of vocal performance. Therefore, there should be no augmented, diminished or chromatic intervals, nor should there be any intervals larger than a fifth (except for the octave, and minor sixth only when it is in an ascending direction).

As a general rule, aim for a climax no more than three-quarters of the way through the melody.

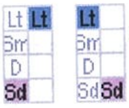


Use stepwise motion, skips being used for variety.

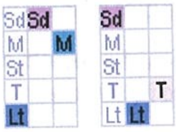
A skip is best preceded and followed by stepwise motion within its compass (that is, approached and quitted by step in directions opposite to the skip). After skip, it could be said that the melodic line needs to resolve according to its tendency, that is, to move by step in the direction opposite to the skip. In unavoidable circumstances, the skip may be preceded by step in the same direction.

The skip of an octave is acceptable only if it is preceded and followed by stepwise motion within its compass.

In the Major mode, the intervals are equal to 3 whole tones (an augmented fourth, otherwise known as a tritone), and are thus not permitted.



The inversion of this interval, the diminished 5th, is permitted provided it is followed by step back into its compass.



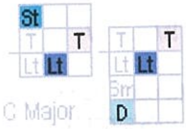
Concerning the minor mode, see page 22, Melody Writing.

Avoid more than three consecutive skips in the same direction. If such movement is unavoidable, the first and last notes should not be more than an octave apart.
However, skips following each other in the same direction are best avoided.

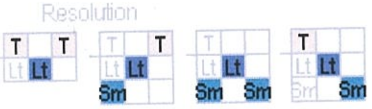
Skipwise movement back into a skip is only permitted if the skips constitute an arppeggio. Thus, such movement is only permitted if all the skips are built on the same scale degree

Unless repeated notes are intended as a characteristic feature of a tune, as in the opening of a melody, they are best avoided.
Notes of small value, such as the quaver and semiquaver, are safest when moving by step, or with the occasional small skip.
Avoid too many repeated notes, or too much prominence given to any one note.

If the leading tone is approached by skip, from above or below,
then it must resolve according to its tendency onto the tonic.

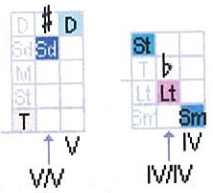


If the leading tone ascends to the tonic where a descending formula is called for, it may be considered acceptable because of the leading tones tendency to ascend, provided it is not followed by an ascending skip.

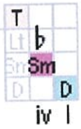


If the tone is approached by step, from above or below, then it can either resolve according to its tendency, or continue by step or skip like any other melodic tone.

Similarly, in the cadences V/V to V and IV/IV to IV, where the addition of accidentals creates a particular tendency of movement, so too the rule of stepwise movement back into the skip can be violated. The same applies for the minor form of the plagal cadence.
Such chromatically altered notes are, however, best approached by step to avoid augmented and diminished intervals.



In this instance, the distance between the leading tone and the tonic has been increasd from a semitone to a whole tone, and as such, the leading tone looses its tendency to resolve upwards and is thus free to move downwards.
Here, the leading tone is more properly referred to as the Subtonic.



A sharpend tone must resolve upwards, and a flattened tone downwards.

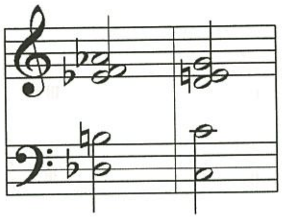
17 MAY 2007

CADENCE

The word "cadence" comes from the Italian word *cadenza*, meaning to fall or decline. The label is apt since, as in speech, the final pitch in music is very often approached in a descending contour. In many cultures, tumbling phrases epitomize this phrase-final fall. There is a tendency in Western music for phrases to exhibit arch-shaped contours, and listeners form expectations that the notes in the latter half of a phrase are likely to descend in pitch. In music, cadences are not restricted to the final moments of a work, but also occur at the ends of individual phrases. Cadences can differ in their degree of closure. Like different punctuation marks (commas, semicolons, periods), some cadences sound more final than others.

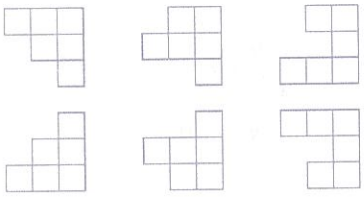
Music theorists have long observed that cadences tend to be organized in a stereotypic fashion. It is not simply the final note of the cadence that is predictable; the final note is often approached in a characteristic or formulaic manner.

Such stereotypic cadential patterns are ubiquitous throughout music, both Western and non-Western. The stereotypes of musical closure can be readily observed and have been described in detail by music theorists.

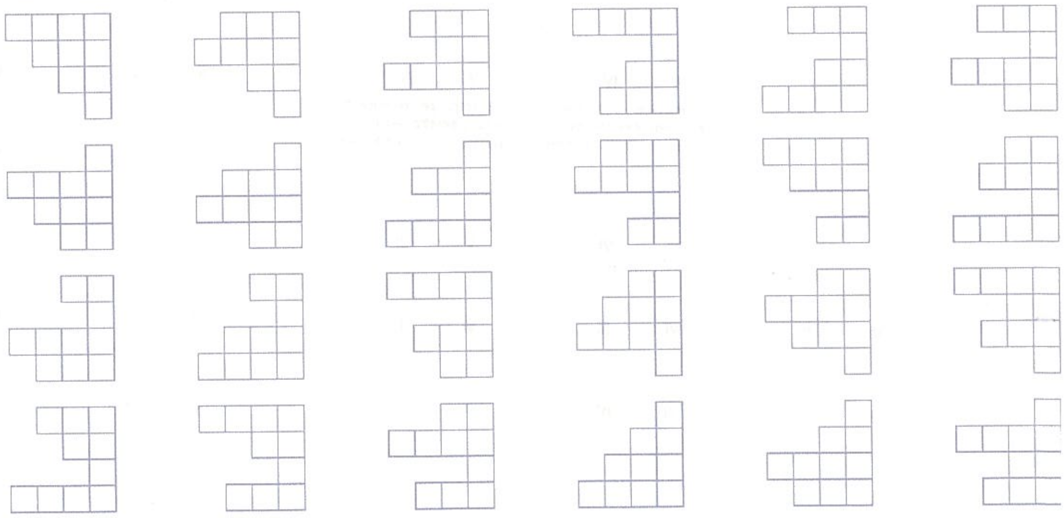


The example above shows a common twentieth-century jazz cadence ending on the tonic chord with an added major seventh and ninth. The tonic chord is approached here by a "tritone-substitution" chord, a chord based on the Neapolitan seventh rather than a dominant seventh.

Patterns of voice entry in a three voice texture



Patterns of voice entry in a four voice texture



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Common root progressions in the Major mode

The following are based on obsevations of usage by composers in common practice.
They are not proposed as a set of strict rules to be rigidly adhered to.

Usually followed by	Sometimes followed by	Less often followed by
Example; I is usually followed by IV I IV I V	I VI	I II I III
II V This root progression defines the tonality without the need for any other chords, even the tonic.	II IV II VI	II I II III
III VI	III IV	III I III II III V
IV V This root progression defines the tonality without the need for any other chords, even the tonic.	IV I IV II	IV III IV VI
V I This root progression strongly suggests the tonality. The addition of a third chord, either II or III will define the tonality.	V IV This root progression defines the tonality without the need for any other chords, even the tonic. V VI	V II This root progression defines the tonality without the need for any other chords, even the tonic. V III
VI II VI V This root progression strongly suggests the tonality. The addition of a third chord, either II or III will define the tonality.	VI III VI IV	VI I
VII I VII III	VII VI	VII II VII IV VII V

Common root progressions in the Minor mode

Usually followed by	Sometimes followed by	Less often followed by
I IV I V Major I VII	I VI	I II I III
II V	II IV II VI	II I II III
III VI Major Major III VII	III IV	III I III II III V
IV V	IV I IV II	IV III IV VI
V I	V IV V VI	V II V III
VI II VI V	VI III VI IV	VI I
Major VII III Diminished VII I	VII VI	VII IV

SETTING WORDS TO MUSIC

- 4 JUL 2007

ACT I, Scene I
Enter ALOYSIUS [*the teacher*] *and* SCIPION [*manservant to Aloysius*].

126 Music Hall As with all the songs I write, I never tackle a word or note of the verse until I have the refrain exactly to my liking. To find a refrain that will go with a swing is the secret of success in popular song writing for the general public. It must have a melody in which *something sticks out*, so to speak.
244 Fellowes Beautiful language has a very definite value and share in making for the success of any piece of vocal music. The popularity may at least in part be explained by his fine choice in words.

167 Reese Just as there is a privileged syllable in every word, so there is in every phrase a word that dominates the others. The emphasis on this word is called the *phraseological* accent.

83 Fellowes A feature of the verse anthem is the use of what might be called fragmented sections for a group of solo voices, which imitate each other, either by overlapping or in close succession.
63 Fellowes The first, third and fifth verses are assigned to a solo voice, followed in each instance by a verse for full choir. The composition opens with a short phrase for organ alone, and the solo voice is accompanied by an independent organ part. (concerto movements)

108 Music and the Reformation in England. Zarlino's Advice on Setting Words to Music (16th Feb 2005)
Short syllables require notes of short time value, and similarly, long syllables require long notes.
206 Hopkins If you wish to sustain a sound, vowels are more useful than consonants. Singing enables a syllable to be extended in a way that would be unacceptable in normal speech.
No more than one syllable should be set to a single note.
Syllables should not be set to note values shorter than the quaver.
55 Fellowes Repeat verbal phrases at a point of climax.
If repetition of the text is unavoidable, care should be taken to ensure that it makes sense. It is best, however, if repetition is avoided.

If a melisma is to be used it should start on the penultimate syllable of the last word, the last syllable being reserved for the last note. The prolongation of the penultimate syllable excites an expectation which gives emphasis to the final syllable when it is finally reached.
65 Fellowes Short melismatic passages on a single syllable.
252 Baroque Masters Be careful to put runs (melismas), on an accented syllable and generally choose a long vowel.
97 Donington Long syllables should bear the ornamentation. The final syllable of a phrase should be left plain. The penultimate syllable is a particularly good point for an extensive ornamentation.

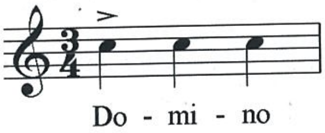
Don't leap to a high pitched note on an accented syllable or word.
Bright words demand a high pitch; dark words low pitches. Strong syllables should coincide with strong beats (downbeats).

190 Huron A composer of vocal music should pay close attention to creating vocal melodies that preserve the prosody of the language. This facilitates singing as well as comprehension of the vocal text.
Mico. Prosody?
188 Huron The stereotypic patterns of syllable durations that are found in any spoken language. If a speaker speaks using an unorthodox temporal pattern, the speech will not simply sound unnatural, it will also be difficult for listeners to understand. Listeners expect the temporal patterns of speech to conform to conventional speech patterns.

306 Baroque Masters The melodic line of a song should be comfortable to sing, avoiding extremes of the vocal register and virtuoso ornamentation, it should accord with the sense of the text, and it should fit all the verses.

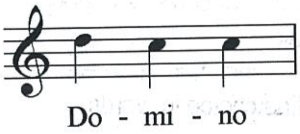
Three Types of Accent

Dynamic Accent



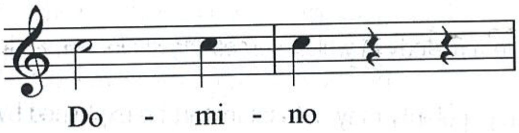
The accent is physically louder than its surroundings.

Tonic Accent



The accent is pitched higher than its surroundings.

Agogic Accent



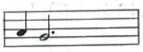
The accent is of a longer duration than its surroundings.

Ornamentation

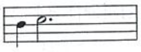
During the Baroque period ornaments were added according to definite rules. The appoggiatura, trill, and turn were regarded as essential *agréments* in that their use was obligatory in certain portions of a given musical phrase, depending upon the conduct of the melody and other parts, and the tempo and expression.

Appoggiaturae

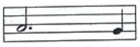
An appoggiatura is a rhythmically strong dissonant note that usually resolves downwards, although chromatically raised and leading tone appoggiaturae resolve upwards. Appoggiaturae can be either short or long so it is essential that their duration is notated. They are essentially harmonic in function.



The short appoggiatura.



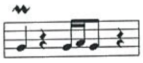
The leading tone appoggiatura.



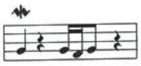
The long appoggiatura.

Mordents

Mordents are the alternation of the written note and the one immediately above or below. The terms upper and lower mordent are preferable to simply mordent and inverted mordent. Mordents are essentially rhythmic in function and are suited for use in the bass and the inner voices of chords.



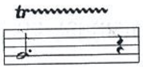
The upper mordent.



The lower mordent.

Trills

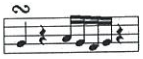
A trill is an ornamental resolution of a dissonance (due to either an appoggiatura or suspension), usually on the penultimate strong beat of a phrase. The modern trill, beginning on the main note, is the alternation of the written note and the diatonic second above and is essentially a virtuoso effect accentuating the main note whilst adding colour and brilliance to the performance. Trills can be used in conjunction with either a prefix or a suffix.



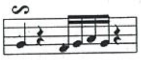
The trill.

Turns

Turns are esentially melodic in function. They begin on a dissonance, either the upper or lower auxilliary (neighbour) note.



The turn.



The inverted turn.

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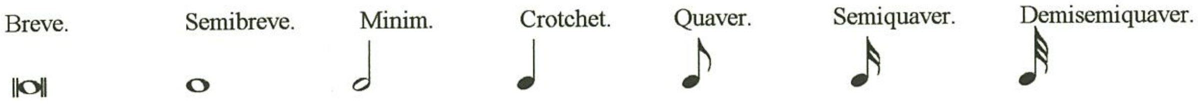
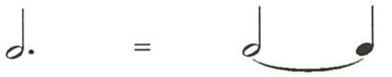
Note Values

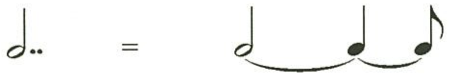


Dotted Notes

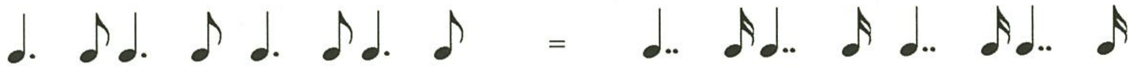
A dot placed after a note adds to it one-half of its value. Thus, a dotted minim equals three crotchets.



Two dots placed after a note add to it one-half plus one-fourth of its value.



Compositions written in the "French style" call for a more pronounced rhythm than is indicated by the notation, so that a dotted note should be performed almost as a double-dotted value. Such a rendition, if used with taste and moderation, helps to bring out the pompous quality of the *stile Française*.

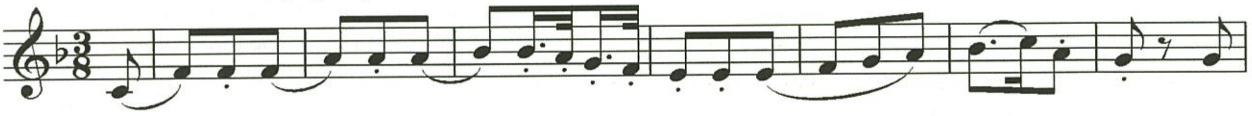


Anacrusis or Upbeat

One or several initial notes of a melody that occur before the first bar line.
An anacrusis has a strong driving quality and propels the music forward with a vigorous tendency towards the nearest downbeat.

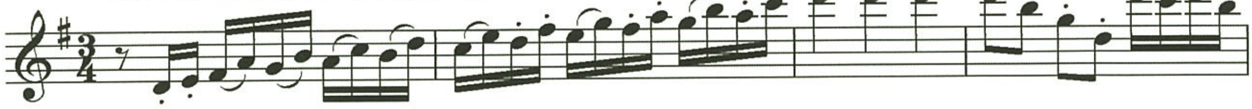
The anacrusis may consist of simply one or two notes.

L. v. Beethoven, *Symphony No. 1*



Or, the anacrusis may be quite extensive.

W. A. Mozart, *Flute Concerto, K. 313*



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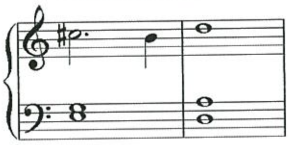
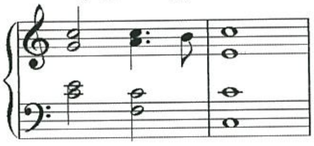
Four Cadences

Landini cadence

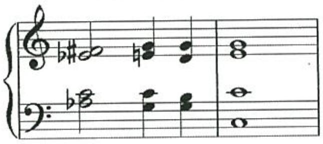


A common pre-Renaissance way of terminating phrases. Named after the fourteenth-century Italian composer, Francesco Landini (1325-1397).

Gypsy, or Magyar cadence

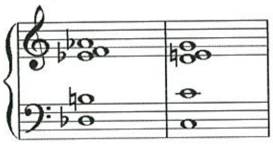


Authentic cadence



This example employs an augmented sixth chord, here a German sixth, and a cadential six-four before the penultimate chord on the dominant.

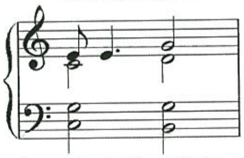
Jazz cadence



A common twentieth-century jazz cadence with added major seventh and ninth. Here, the tonic chord is approached by a tritone substitution chord, a chord based on the Neapolitan seventh rather than a dominant seventh.

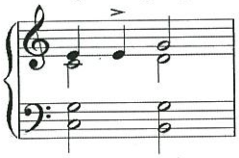
Four Types of Syncopation

Onset syncopation



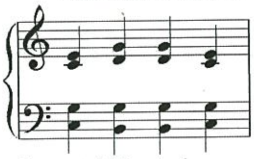
An event coinciding with the onset of the second beat is absent.

Dynamic syncopation



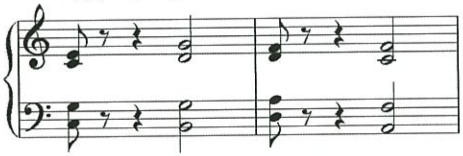
An unexpected dynamic accent occuring on a relatively weak beat.

Harmonic syncopation



Unexpected failure to change harmony on the third beat.

Agogic syncopation



An unexpected durational contrast where longer durations coincide with weaker beats.

Setting Words to Music

A composer of vocal music must pay close attention to creating melodies that preserve the prosody of the language. This facilitates singing as well as comprehension of the vocal text. Try speaking the following sentence aloud:

The quick brown fox jumped over the lazy dogs.

Most English speakers will enunciate the words *quick*, *brown*, and *fox* rather slowly and distinctly; by contrast, the words *over the lazy* will tend to flow in quick succession. If you were to reverse the duration pattern so that *quick brown fox* is spoken quickly and *over the lazy* is spoken slowly, the sentence would sound bizarre. Such stereotypic patterns of syllable durations are found in any spoken language. If a speaker speaks using an unorthodox temporal pattern, the speech will not simply sound unnatural, but it will also be difficult for listeners to understand.

Melody

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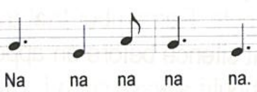
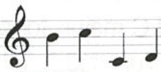
When composing you have to consider not only the musical, but also the unmusical public. You must remember that for every ten connoisseurs there are a hundred ignoramuses; so don't neglect the so-called *popular style*. There should be enough regularity in the use of established compositional conventions to orient the listener in the music, but also enough novelty to preserve the listeners interest. Composing, then, is about the manipulation of interest, affect, and attention.

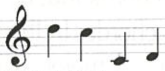
It has often been suggested that the *primeval appeal* of some pop music may derive from its prominent rhythmic pulse, like that of a human heartbeat, something that must have been a predominant feature of the prenatal environment.

The earliest compositional attempts of children less then three years old usually result in one-tone litanies and in melodies of two tones a minor third apart, the lower tone of which is stressed and frequently repeated. An observation about very early song is that there may exist a *universal chant* that is produced by children of all cultures. This is characterised by the presence of the descending minor third, and children when teasing others frequently use them.



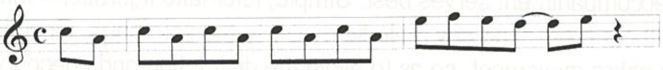
When writing a melody, the possibility of vocal performance should always be taken into consideration. Therefore, no intervals larger than the fifth are to be used, except for the octave and the minor sixth, the latter, which should be employed only in an upward direction. Although a melody intended for vocal performance will often differ materially from one written for an instrument, if the limitations of the human voice are kept in mind it will be smooth and natural. Therefore, the compass of any single voice being limited, registers too high or too low are generally avoided; melodies tend to meander around a central pitch range. Use a judicious mixture of step-wise and skip-wise movement, trying not to take more than three consecutive skips in the same direction. If you must take a many as three, the first and last notes should not be more than an octave apart. Finally, skips that are not preceded and followed by notes within their compass should be avoided.


Permitted

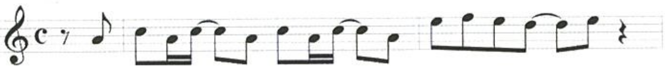

Not permitted

Note that large intervals tend to ascend, while small intervals descend, and that the subdominant degree of the scale is the least likely tone on which to begin a major-key melody.

A melody, then, usually begins with a triadic motif or simply the repeated alternation of two tones. Any new tones generally venture to appear toward the end of the phrase and only when the alternation has been well established.



Repetition in music is used to cement patterns into the listeners' memory. It is remarkable that a melody is never so good the first time, as on the second time of hearing; music is often composed in strains that are to be played twice over. We must presuppose that the first hearing is but preparatory, and the next iteration is the better for it. Continued repetition, however, ultimately leads to boredom or habituation, so the incorporation of recognisable variation of the basic material helps forestall these potentially negative experiences.



The triadic opening is usually followed by a graceful, lyrical figure. It is also very common for musical patterns to veer off in a new direction near ratios of the golden mean. Ending the first phrase by a fermata is a good way to make an opening proclaim that it is providing the basic material to which we must pay attention for the rest of the movement.

The highest note of a melody, its climax, should appear no more than three-quarters of the way through. Among the features characteristic of climaxes, three have long been identified by music theorists; high pitch, loud dynamic level, and relatively dissonant sonorities. One could also include changes in timbre, vibrato, accelerating event sequences (stretto), and ascending melodic lines. A lengthy dissonant passage is likely to lead listeners to expect further dissonant sonorities. If the music shifts toward a more consonant texture, then the resulting contrast will tend to evoke a pleasing effect that can be greater than experiencing the consonant passage alone. Conversely, *secco* or *senza vibrato* passages typically convey a low level of affect, calmness, control, innocence, or project a feeling of emotional dislocation.

The melodic line of a song should be comfortable to sing, avoiding extremes of the vocal register and virtuoso ornamentation, it should accord with the sense of the text, and it should fit all the verses. Any ornamentation that is to be used should be done so on long syllables; the penultimate syllable of a phrase is a particularly good point at which to introduce ornamentation, but the final syllable should always be left plain.

A trill performs two functions. One is melodic and rhythmic decoration; the other is harmonic modification and intensification.

A mordent, starting as it does on a consonance, has no harmonic consequence. The chief purpose of the mordent is to enhance the melody by its rhythmic incisiveness.

Melodic pathos, a quality that evokes pity or sadness, is achieved mainly by short sighs in the form of appoggiaturae, yearning leaps, and expressive rests. Remember that the shorter the appoggiatura, the more brilliant and the less significant for the harmony. A very slight silence before an appoggiatura tends to enhance its brilliance, or expressiveness. Additionally, an appoggiatura should always sound a little louder than the note of resolution, and should be gently slurred onto it. An ascending appoggiatura is seldom employed without the note of resolution bearing a lower mordent.

Tragedy can be evoked using predominantly minor chords played with rich sonorities in the bass register. Suspense can be evoked using a diminished seventh chord with rapid tremolo. Introducing a loud chromatic chord on a weak beat can evoke surprise. Syncopation, the entry of a note, or sometimes a full chord a beat before it is expected suggests emotional excitement.

In Western music, perhaps the quintessential example of a schematic violation is the deceptive cadence. The deceptive cadence thwarts the expectation for the more probable dominant-to-tonic progression. More surprising than the deceptive cadence *are chromatic mediant* progressions. Chromatic mediant chords are major and minor chords based on the third and sixth scale degrees; they are chords that do not conform to the key (hence the designation "chromatic"). In any given key, there are six chromatic mediant chords. In the key of C major, for example, the chromatic mediant chords include the triads E major, E-flat major, E-flat minor, A major, A-flat major, and A-flat minor. In the key of C minor, the chromatic mediant chords include the triads E major, E minor, E-flat minor, A major, A minor, and A-flat minor. Chromatic mediant progressions are rare, and consequently surprising. These sorts of progressions are commonly used in film music where they are associated with moments of high emotion.

Any accompaniment should seldom double the melody, nor should it go above it, except when accompanying a part that lies low. Imitations and counter melodies can be most attractive. Counter-melodies ought to be related to the principle theme. The introduction of unrelated of unrelated material is seldom appropriate and commonly disastrous. In the majority of cases, a simple accompaniment serves best. Simple, idiomatic figurations will bring out the most from the accompanying instrument without presenting any melodic rivalry to the solo parts. Once some little figure has been devised it may be carried through an entire movement, so as to avoid the distracting and uneconomical effect of continually bringing in fresh material.

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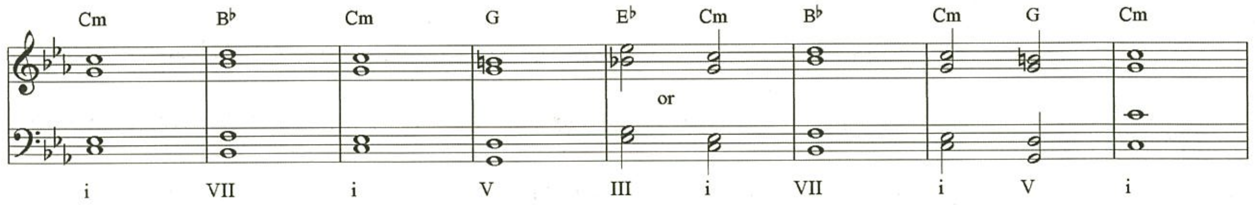
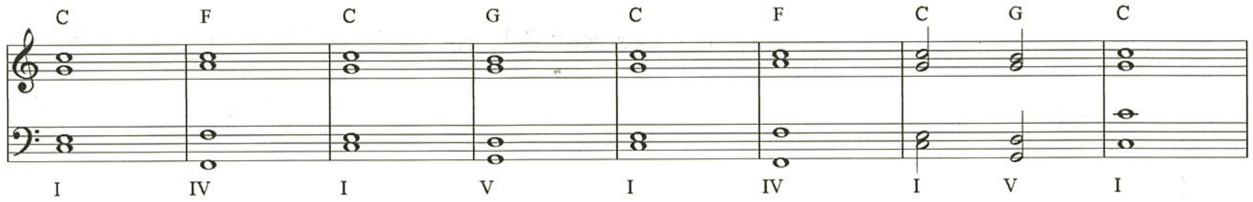
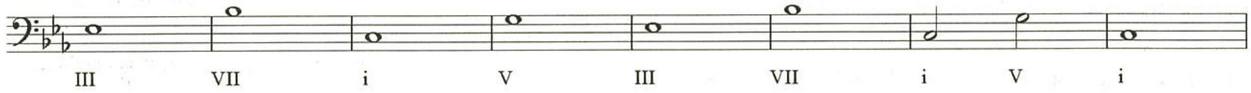
Passamezzo antico


Cm
B♭
Cm
G
E♭
Cm
B♭
Cm
G
Cm
or
i
VII
i
V
III
i
VII
i
V
i

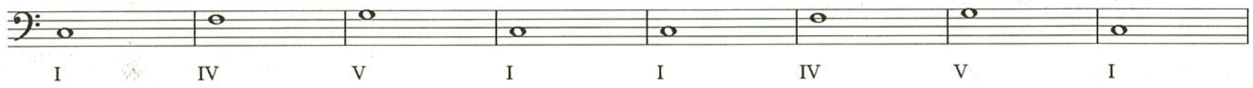
Passamezzo moderno


C
F
C
G
C
F
C
G
C
I
IV
I
V
I
IV
I
V
I

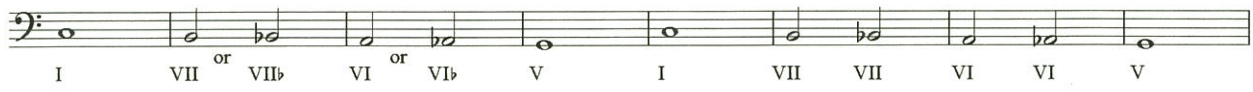
Romanesca


III
VII
i
V
III
VII
i
V
i

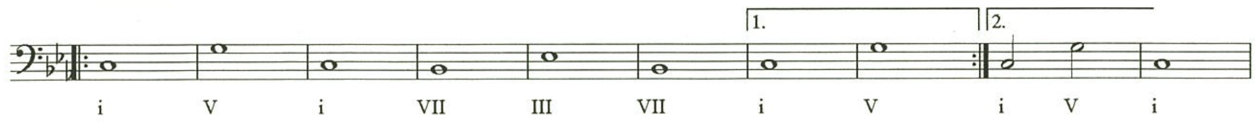
Bergamasca


I
IV
V
I
I
IV
V
I

Chaconne and passacaglia


I
VII
or
VII♭
VI
or
VI♭
V
I
VII
VII
VI
VI
V

Folia


1.
2.
i
V
i
VII
III
VII
i
V
i
V
i

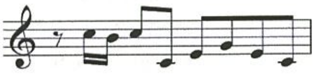
The Perception of Music

- 2 AUG 2007

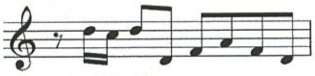
Investigation of the perception of music by medical scientists is in its infancy, but the information so far uncovered is fascinating. The *higher neural functions*, those that involve symbolism and intellection, are located within the cerebral cortex, a layer of grey matter that covers the surface of the brain. Its outer surface is fissured irregularly, its appearance being likened to that of a walnut. The cerebral cortex is divided by a central fissure into left and right hemispheres. In a right-handed individual, the left hemisphere is usually the dominant one, and conscious activity and speech are based in it. The right hemisphere, while not primarily involved in verbal activity, has numerous important activities; calculation and aspects of musical perception being two of them. The area associated with musical perception is located in the posterior portion of the right temporal lobe.

The human neocortex, the most recently evolved part of the cerebral cortex, is a very refined organ of expectation. A fundamental job of the neocortex is anticipating what may happen next. One of the ways we entertain ourselves is by exercising this faculty in play. Expectation is a prediction based on current and past experiences, and our apprehension of music depends upon these two faculties, sense perception and memory, for we must perceive the sound that is present, and remember that which is past. In no other way could we follow the phenomenon of music.

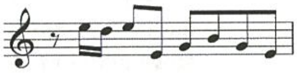
The perceptual system is geared to perceive transitions in real time. In other words, the brain constantly anticipates the future. Many traditional compositional practices are aimed at securing and maintaining the listener's interest through expectation. Consider the following musical motive;



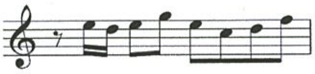
If this were to be followed by this motif,



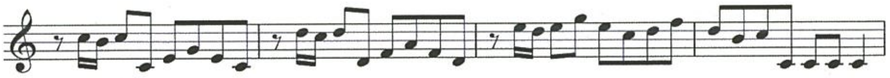
you would become aware that the motive is being sequenced by rising a diatonic step, and you may expect that it will be repeated in the same manner. If so, your expectations would be met by extending the sequence thus;



There is now a risk of loosing your attention because you now recognise the pattern since there is hardly any new information in it. However, if instead of the previous motive, it was to be followed by this motive;



your expectations have been frustrated by introducing the element of surprise. Here is the entire phrase just described concluded with the addition of a cadence.



The use of a cadence also helps to frustrate representational momentum by shifting your attention from the horizontal melodic sequence to the vertical harmonic resolution. Thus, surprise renews interest. There is also the satisfaction of arriving at a complete musical thought by cadencing.

Notice that the sequence's momentum is broken about two-thirds of the way through. It is very common for musical patterns to veer off in a new direction near ratios of the *golden mean*. This proportionality appears in musical structures of all kinds. For example, the boundary between the exposition and development section in many of Mozart's sonatas begins in the vicinity, and sometimes even exactly on, the measure that divides the movement by the golden mean.

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C	17600.00	Hz = Limit of human perception
B	15840.00	
A	14080.00	
G	13200.00	
F	11733.33	
E	10560.00	
D	9386.67	
C	8800.00	
B	7920.00	
A	7040.00	
G	6600.00	
F	5866.67	
E	5280.00	
D	4693.33	
C	4400.00	
B7	3960.00	Hz = Highest note on the piano
A7	3520.00	
G7	3300.00	
F7	2933.33	
E7	2640.00	
D7	2346.67	
C7	2200.00	
B6	1980.00	
A6	1760.00	
G6	1650.00	
F6	1466.67	
E6	1320.00	
D6	1173.33	
C6	1100.00	
B5	990.00	
A5	880.00	
G5	825.00	
F5	733.33	
E5	660.00	
D5	586.67	
C5	550.00	
B4	495.00	
A4	440.00	Hz = Concert pitch
G4	412.50	
F4	366.67	
E4	330.00	
D4	293.33	
C4	275.00	Hz = Middle C
B3	247.50	
A3	220.00	
G3	206.25	
F3	183.33	
E3	165.00	
D3	146.67	
C3	137.50	
B2	123.75	
A2	110.00	
G2	103.13	
F2	91.67	
E2	82.50	
D2	73.33	
C2	68.75	
B1	61.88	
A1	55.00	
G1	51.56	
F1	45.83	
E1	41.25	
D1	36.67	
C1	34.38	
B0	30.94	
A0	27.50	Hz = Lowest note on the piano
G	25.78	
F	22.92	
E	20.63	
D	18.33	
C	17.19	Hz = Limit of human perception

The rate of the periodic pressure changes that we perceive as sound is known as the frequency, and the strength of these fluctuations in pressure is referred to as the intensity. Frequency is measured in cycles per second, the unit of which is the *Hertz*, abbreviated to Hz. Thus, frequency is a physical measure of vibrations per second.

We humans can hear sounds ranging between 17 Hz to about 17,000 Hz. It's generally higher for youths and women, lower for rock concert aficionados, people who listen to music over headphones at elevated levels, and the aged. Even within this frequency range, pitches above 4000 Hz are difficult to tell apart. The piano has one of the widest pitch ranges of traditional musical instruments. Its lowest pitch is about 27 Hz, and it's highest slightly less than 4000 Hz. The standard reference pitch for Western orchestras is A 440 that corresponds to period sound vibration of 400 Hz.

The intensity of a sound is measured in decibels (dB). The softest sounds encroach upon our threshold of hearing at about 40 dB in very quiet locations, up to the limit of human hearing at about 120 dB, a value that is also called the *threshold of pain*. It is convenient to express frequencies above 1000 Hz in kilohertz; thus 1000 Hz is equal to 1 kilohertz, abbreviated to kHz.

A tone is characterised by three sonic qualities; pitch, loudness, and timbre. When a tone is combined with two additional temporal qualities, onset and duration, the result is a note. Thus a note is a tone placed in a particular temporal context. Pitch is the corresponding perceptual experience of frequency, that auditory attribute of sound according to which sounds can be ordered on a scale from low to high.

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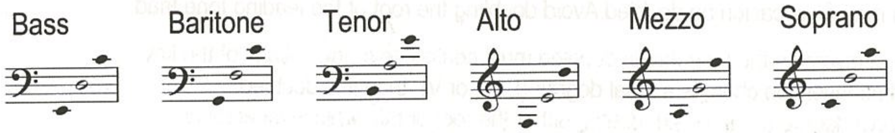
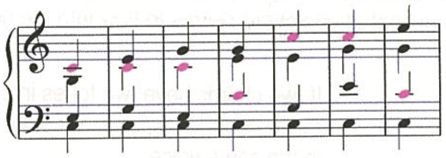
Four-Part Writing

The four *voices* or *parts* in a four-part texture are named soprano, alto, tenor, and bass. Each individual part should have a singable quality, whether written for human voices or instruments. Therefore, the range of each voice is restricted to an approximation of the ranges of the human voices.



Occasionally, these limits may be exceeded, but extreme notes must be used sparingly.

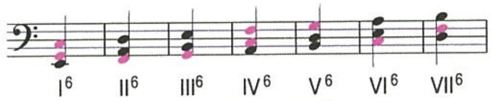
Since a triad contains only three *tones* or *factors*, it is evident that another is needed for four-part harmony. With triads in *root position*, the fourth tone is normally a duplication of the root an octave or two above. This procedure is called *doubling*. In the following example, the doubled tones are shown in red.



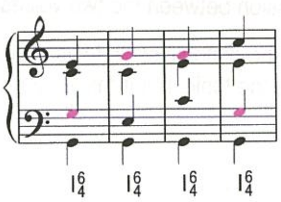
Though common in the first and second inversions, the triad on the leading tone is rarely used in root position and doubling of its root is avoided. Similarly, doubling of the leading tone as the third of V is also avoided.

The commonest arrangement of a chord places the wide intervals at the bottom, with the smaller intervals at the top. Good four-part writing usually avoids intervals greater than an octave, except between tenor and bass, where even two octaves' distance may sound satisfactory.

If the third of a triad is in the bass, triad is said to be in *first inversion*, regardless of where the root may appear above it. Adopting the method of shorthand musical notation developed by composers in the Baroque era, inversions are designated by Arabic numerals showing the intervals between bass and upper voices, with roman numerals identifying the roots. With triads in first inversion, the tone that is doubled must contribute to the solidity of the key. Therefore, it must be a tonal degree of the scale, either the tonic, subdominant, or dominant. In the following example, the tones that can be doubled are shown in red.



When the notes of a triad are arranged so that the fifth is the bass, the triad is said to be in *second inversion*, and in this position is known as a *six-four chord*, the intervals between the bass and upper voices being a sixth and a fourth. The commonest type of six-four chord is the tonic six-four preceding the dominant chord in a cadence, also known as the *cadential six-four*. In four-part writing the bass of the cadential six-four is doubled. In the following example, the doubled tones are shown in red.



VOICE LEADING

The principles governing the melodic progression of the individual voices of a polyphonic composition. The term *voices* does not necessarily mean that the parts are to be sung, but it does suggest that each part (soprano, alto, tenor, and bass), should have a singable quality charactersitic of all good melodic music, whether written for the human voice or for instruments.

Most music of the eighteenth and nineteenth centuries is conceived in four-part harmony. Since triads contain but three tones (or factors), it is evident that another required to produce four-part harmony.

With traids in root position, the fourth tone is is usually a duplication of the root an octave or two higher. This procedure is called *doubling*. The 3rd or the 5th may on occasion be doubled.Avoid doubling the root of the leading tone triad.

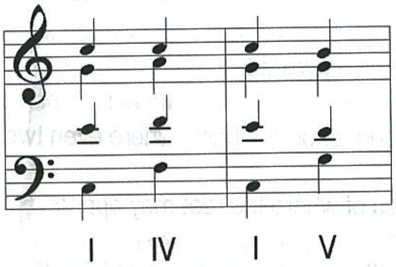
For triads in the first-inversion the tone that is doubled must contribute to the solidity of the key.
If the bass of the first-inversion chord is a tonal degree (I, IV, or V), then it is doubled.
If the bass is a modal degree (II, III, or VI), double either the root or 5th, whichever is tonal.

The commonest arrangement of a chord places the wide intervals at the bottom and the smaller intervals at the top. Good four-part writing usually avoids intervals greater than the octave, except between tenor and bass, where two octaves sounds satisfactory.

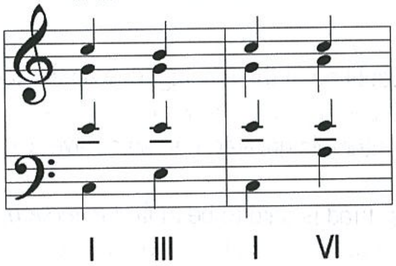
The first-inversion of a seventh chord is most effective when the seventh is in the soprano. The 5th of a seventh chord can be omitted without affecting its sonority.

When progressing from one chord to another the individual voices should move as short a distance as possible. Aim for the maximum smoothness of linear movement so that one chord seems to flow into the next.
For example;

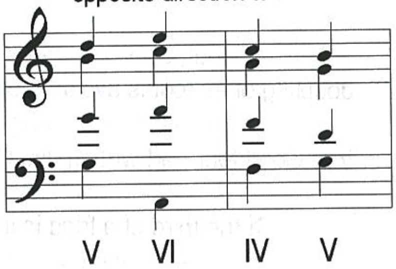
If two chords have a tone in common, this *common tone* is repeated in the same voice.



If two chords have two tones in common, these *common tones* are repeated in the same voice.



If two chords have no tones in common, the three upper voices move in opposite direction to the bass.

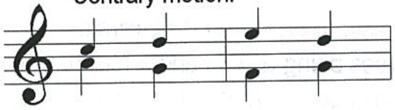


Attention must be given to the shape of each individual melodic line, and the ways in which the melodies move relative to each other. Each voice must have its own melodic shape and rhythmic vitality. A good melodic line moves mainly by step (conjunct movement), skips (disjunct movement), being being introduced judiciously for variety.

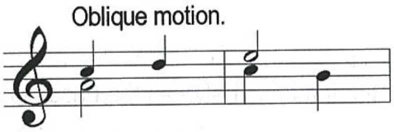
(See also the Rules of Melodic Motion overleaf.)

Relative to each other, two voices may move in three ways.
For example;

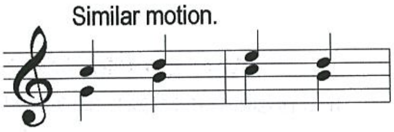
Contrary motion.



Oblique motion.



Similar motion.



In similar motion, if the two voices remain the same distance apart, they are said to be in *parallel* motion.

When two voices move upward in similar motion, the lower voice should not move to a position higher than just vacated by the upper voice, otherwise, the ear perceives a melodic progression between the two voices. The corresponding rule holds for descending similar movement.

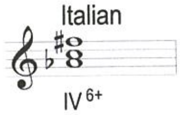
The leading tone is unlike any other degree of the diatonic scale in its audible tendency to move upward to the tonic. If the leading tone is in the highest voice it should ascend by step onto the tonic, but if the leading tone is in an inner voice it may ascend or descend.

24 AUG 2007

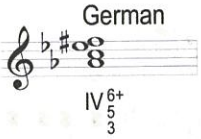
Augmented Sixth Chords

The four chords comprising the group known as augmented sixth chords are chromatic variations of subdominant or supertonic chords in the first inversion containing the interval of an augmented sixth.

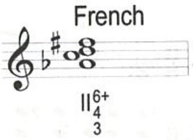
Italian



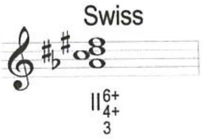
German


$\text{IV}^{\substack{6+\\5\\3}}$

French

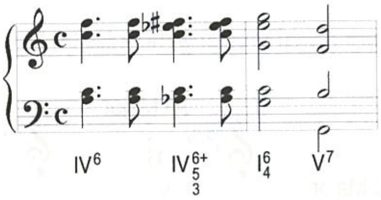

$\text{II}^{\substack{6+\\4\\3}}$

Swiss


$\text{II}^{\substack{6+\\4+\\3}}$

The German sixth is the most frequently encountered sixth chord.

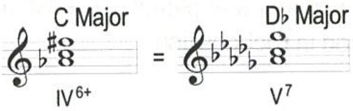
Augmented sixth chords often appear between IV^6 and V, especially in cadences. They may, however, be used anywhere in the phrase, even at the beginning, but all of the augmented sixth chords usually resolve onto V, the interval of the augmented sixth expanding to an octave. In the following example, the augmented six-five-three ultimately resolves onto V via a cadential six-four chord.


IV^6
$\text{IV}^{\substack{6+\\5\\3}}$
$\text{I}^{\substack{6\\4}}$
V^7

In four-part writing it is customary not to double either of the tones making the interval of the augmented sixth.

As a dissonant chord over a dominant pedal the augmented sixth is strikingly effective.

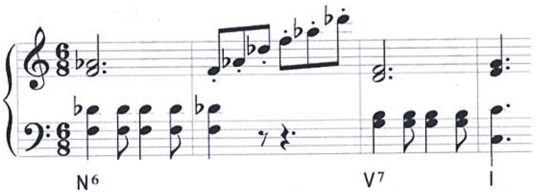
As a pivot chord in modulation to the key a semitone higher, the augmented sixth is most often employed for its enharmonic similarity to a dominant seventh chord.


C Major
D♭ Major
=
IV^{6+}
V^7

Remember that the fifth of a seventh chord can be omitted without affecting its sonority.

The Neapolitan Sixth

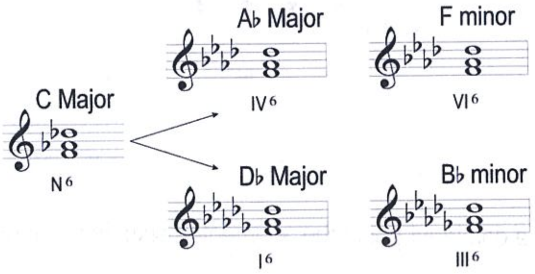
The first inversion chord built on the chromatically lowered supertonic. It may be used in any part of the phrase, but is often used in the cadential formation IV to V to I, where it replaces IV. For example, in the key of C Major,



Note the use of the commonly accepted symbol N in lieu of the roman numeral II.

The Neapolitan sixth is a major triad, and therefore, not a dissonant chord. However, the chromatic alteration of the second degree gives that tone a downward tendency, so that it makes for a descending resolution as though it were a dissonant tone.

The Neapolitan sixth is a useful pivot chord enabling modulation to a number of distantly related keys. For example,



Although frequently found in works of the Neapolitan school that flourished in Naples in the 18th century, the members of which cultivated an operatic style of composition, the Neapolitan sixth was an established idiom throughout the second half of the 17th century. During this period it was primarily used in the first inversion, hence the *sixth*, but later in the nineteenth century the triad began to be used in root position.

Chord Progressions & Creating Predictability

- 6 SEP 2007

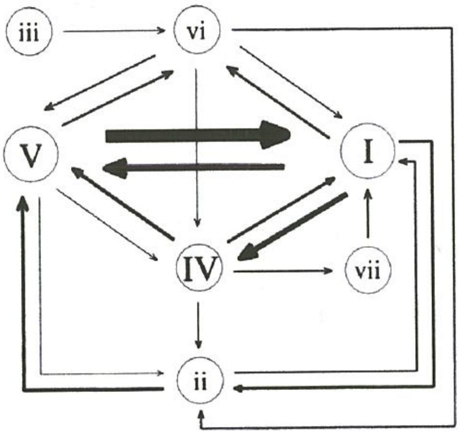


Figure 1: Schematic illustration of chord progressions in a sample of Baroque music. The thickness of each line is proportional to the absolute probability of harmonic succession. As can be seen, Baroque harmony is dominated by the dominant-tonic progression V to I. The second most common progression is the reverse, I to V. Some chords are highly constrained. For example, vii tends to be followed only by I.

Western popular music, for example, exhibits a number of distinctive characteristics compared with Baroque harmony. In general, individual pieces of popular music make use of a smaller variety of chords than is typical of Baroque works. It is not uncommon for a pop tune to employ just two or three different chords. However, popular music in general draws from a larger and more varied palette of chords than is the case for Baroque music. Roughly 30% of chords in pop music involve sevenths or ninths compared with only about 15% for Baroque music. There is also a greater variety of ways of connecting chords in popular music compared with Baroque music.

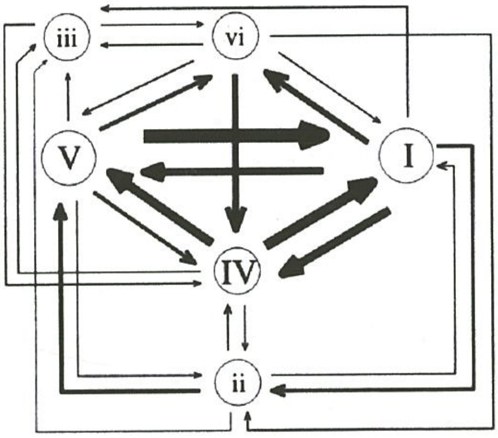
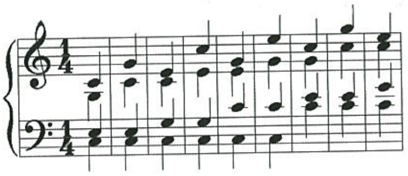


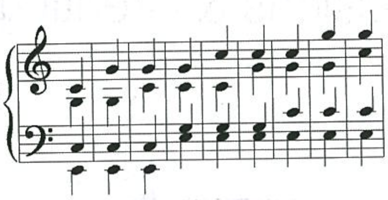
Figure 2: Schematic illustration of chord progressions in a sample of seventy Western popular songs; the graph is comparable to the one shown in figure 1. Notice the increased importance of the subdominant chord compared with Baroque harmony, but broadly speaking, the differences are minimal. In general, the tonic to dominant pole so evident in figure 1 is less apparent in pop harmony. The IV, ii, vi, and iii chords are used more frequently in popular music, while the diminished vii chord almost never appears.

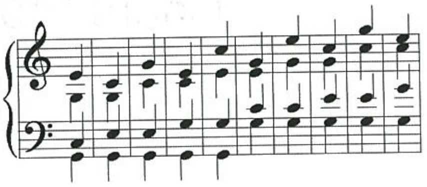
Another significant difference between popular and Baroque harmony is the use of chord inversions. Roughly one third of all chords in Baroque music are not in root position (most often used is a first inversion chord). By contrast, only about 10% of chords in popular music are in inversion, the majority of chords being in root position.

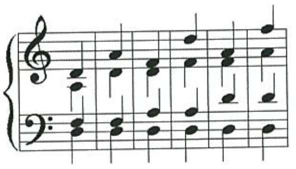
With the greater variety of chord transitions in pop music, one might suppose that pop harmony is less predictable than Baroque harmony. However, pop harmony tends to be more cyclic than Baroque harmony. Most pop harmonies employ a four-, six- or eight-chord progression that is repeatedly cycled in accordance with the strophic structure of the song. Often two harmonic cycles are used, one for the verse and one for the chorus.

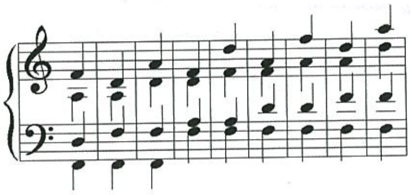
Chord spacing in vocal polyphony

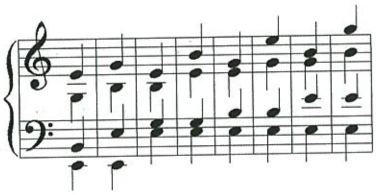
I


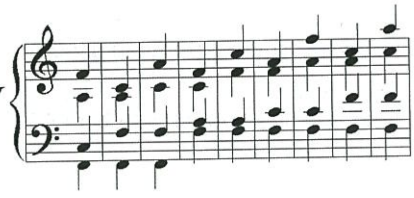
I^6


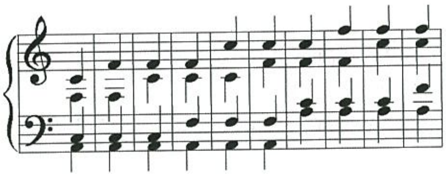
I$^6_4$


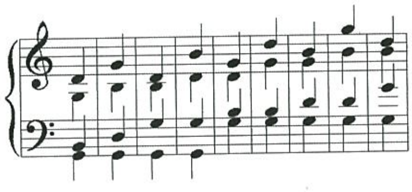
II


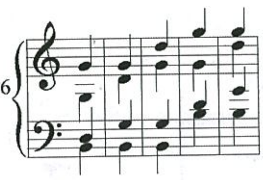
II^6


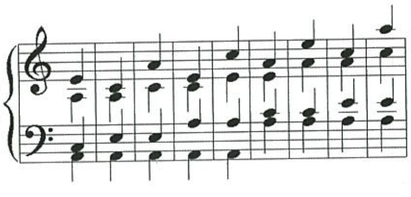
III


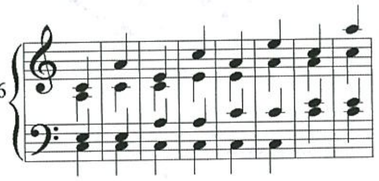
IV


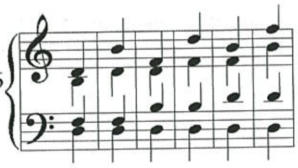
IV^6


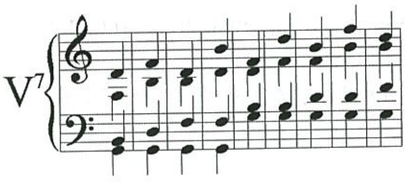
V


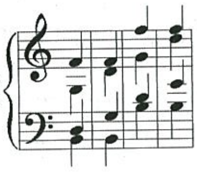
V^6


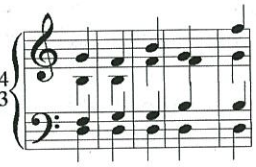
VI


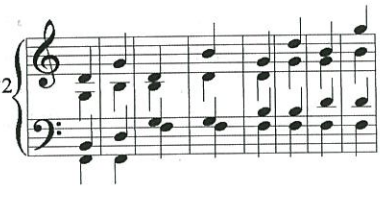
VI^6


VII^6


V^7


V$^6_5$


V$^4_3$


V^2


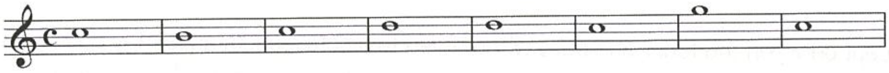
FOUR-PART HARMONISATION

11 SEP 2007

ACT 8, Scene I

Enter ALOYSIUS [*the teacher*] *and* MICO [*the student*].

Aloysius. Here you are Mico, here's something for you to be getting on with.
Mico. What's that then?
Aloysius. Have a go at harmonising this simple melody.



Mico. [*Sighs.*]

Aloysius. Don't worry my son; I'll give you a few tips to help you get started. Now, most music of the eighteenth and nineteenth centuries is conceived in terms of four-part harmony, and I would like you to harmonise this melody likewise.

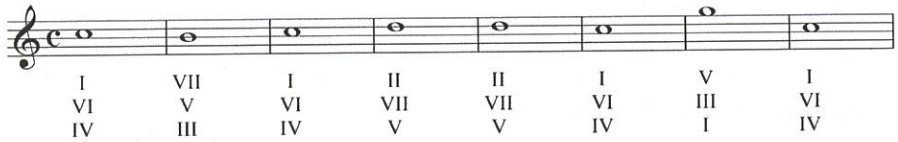
Mico. What? In four parts? But the triad only contains three...

Aloysius. Have patience, I shall explain everything. Since the triad contain but three tones, or factors, it is evident that another is needed for four-part harmony. With triads in root position, the fourth tone is normally a duplication of the root, an octave or two higher. This procedure is called *doubling.*

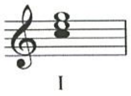
Mico. Doubling, right?

Aloysius. Yes, that's what I just said. Now, let's start on the exercise. To begin with, we'll put the melody in the soprano and add the remaining three voices below. The key is C major.

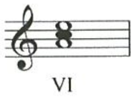
Mico. I remember you telling me that the first thing I need to do is to work out the triads which each of the melodic tones are factors... [*Mico studies the example.*]



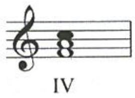
Aloysius. I see that you have used the customary Roman numerals to designate the degree of the scale on which each triad is built. You have done excellently. As you have rightly deduced, each note of the melody can be interpreted as a factor of three different chords. For example, the first note of the melody can be interpreted as the root of the triad built on the tonic degree;



the third of the triad on the submediant;



or the fifth of the subdominant triad;



Now, from amongst these possibilities, you need to decide on a suitable root progression.

Mico. [*Studies the example for a while.*] The root sequence I would go for is I to VII to I to V to II to I to V to I.

Aloysius. Why's that then?

Mico. Firstly, the progression V to I with which the sequence ends, is considered the strongest harmonic relationship in tonal music. By preceding and introducing the penultimate dominant chord by the supertonic triad in the first inversion (a chord that is strongly subdominant in feeling), and the cadential six-four, it will enable me to use the authentic cadence in its most complete form. Secondly, the leading-tone triad, which, as I remember you telling me, is always used in the first inversion, is commonly used as a rhythmically weak passing chord between the tonic chord in root position and its first inversion.

Aloysius. I am amazed at your intelligence and attention. Indeed, the progression you have devised has a high probability of occurrence in tonal music[1]. Let us settle down to work then, and add the remaining voices in the name of Almighty God, the fountain of all wisdom.

Mico. As I know the rules of melodic motion, and understand that the smooth connection of chords is primarily a melodic process in which the individual parts should move as short a distance as possible, and about placing the wide intervals at the bottom and the smaller intervals at the top of a chord, and about the avoidance of intervals greater than the octave...

Aloysius. Except between the tenor and bass where even two octaves' distance may sound satisfactory.

Mico. [*Continuing.*] ...and about repeating notes in the same voice, and of the leading-tones tendency to ascend in the soprano, and about the occasional use of a triad without a fifth, and about the avoidance of parallel perfect fifths and octaves, about direct fifths and octaves, about the avoidance of parallel fourths if not supported by parallel thirds below, about the avoidance of crossing voices, and about using a judicious mixture of similar, oblique and contrary motion between the individual melodic strands, and about the necessity of avoiding all four voices moving in the same direction all at the same time, and...

Aloysius. [*Interrupting.*] You mean you understand the principals of voice leading.

Mico. Yes, would you mind explaining to me, dear master, the conventions of doubling when triads are in the first inversion?

Aloysius. Certainly. If the bass, (that is, the note in the lowest voice, not the root), is a tonal degree[2], either I, IV, or V, then it is doubled.

Mico. So, first-inversion chords built on scale degrees II, III, and VI would have the bass doubled?

Aloysius. Correct, but if the bass is not a tonal degree...

Mico. Such as the first-inversions of I, IV, V, and VII...

Aloysius. Then double a tonal degree in the chord instead.

Mico. That means that either the root or third of first-inversion chords on I and IV can be doubled.

Aloysius. Indeed, and when V is in the first-inversion, double the root since this is the only tonal factor of the chord.

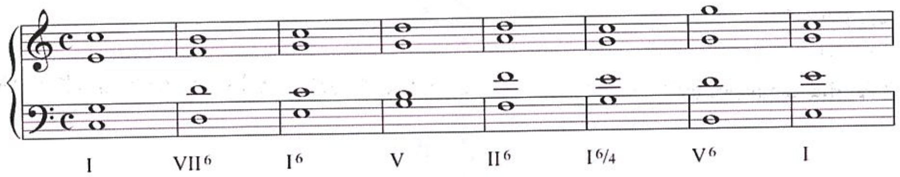
Mico. And similarly for chords on the leading-tone.

Aloysius. Strangely enough, the third of the leading-tone triad is more often doubled in preference to the fifth, but instances in which the fifth is doubled will still be encountered.

Mico. Oh, that's unusual.

Aloysius. [*Aside.*] Now for God's sake get on with the exercise.

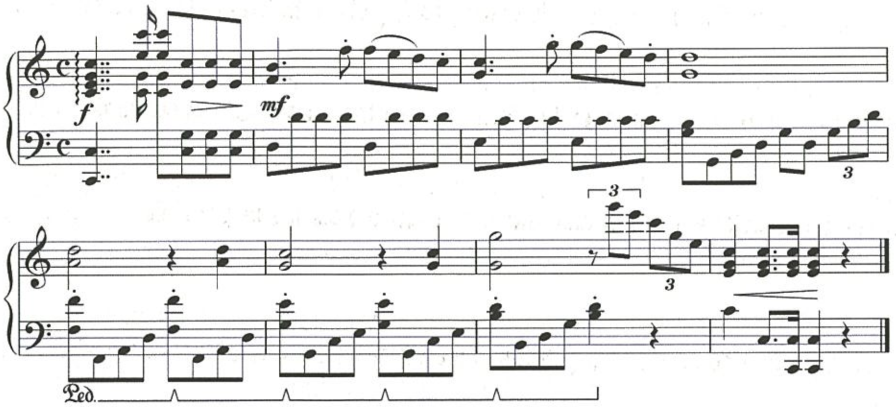
Mico. Let me have a look. [*Mico studies the example.*]



Aloysius. I see that you have adopted the method of musical shorthand developed by composers in the Baroque era, and designated the inversions of chords by the customary Arabic numerals. Let's see. The tonic chord in bar one is in root position and you have doubled the root; that's right. In bar two you have doubled the third of the leading-tone triad in preference to the more tonal fifth; correct. In bar three the root of the tonic chord in its first-inversion has been doubled since the bass is not tonal; correct. In bar four, the dominant chord is in root position so the root is doubled. Bar five, the first-inversion of the supertonic triad has the bass doubled. Bar six, the tonic triad when it appears in the second-inversion has the bass doubled; that's correct. Bar seven, the only tone that can be doubled when the dominant triad appears in the first-inversion is the root; that's right, and finally, bar eight, another chord in root position so we double the root. You have done excellently. Let's go over to the piano.

Mico. [*Mico fetches the Zimmer from beside the commode.*] Are you O.K., or shall I give you a hand?

Aloysius. [*Lowers himself onto the stool and plays.*]



Mico. Wow!

Aloysius. Did you like that? As you heard, I arpeggiated many of the chords you wrote or fashioned them into rhythmic patterns, and, as in the second and third bars, I added a few unessential notes, but the strict four-part writing should have been distinctly traceable. Did you notice how the distribution of the factors within a chord contributes to the sonority, and such qualities as brilliance and intensity?

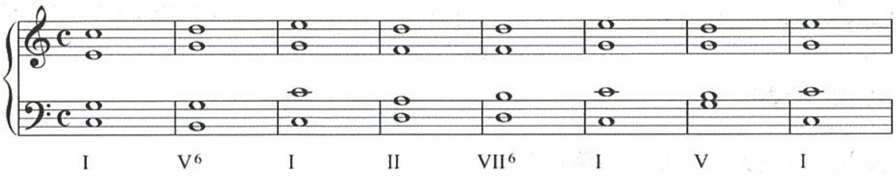
Mico. Erm...

Aloysius. Considered vertically as a sonority, the triad in its first-inversion is lighter, less ponderous, less block-like than the same triad in root position. Now, have a go at harmonising the same melody, but this time, I'd like you to put the melody in the bass.

Mico. I shall do my best. [*Mico studies the example.*] Um...

Aloysius. Remember, it is difficult to arrange a smooth melodic line for the bass when all the chords are in root position.

Mico. [*Studying the example.*] So first-inversion triads permit the bass to move by step in progressions that, if the chords were in root position, would otherwise move by skip...



Aloysius. Very good!

Mico. What's the importance of having stepwise melodic progressions in the bass?

Aloysius. You are an eager student Mico. Perhaps, this is something for you to think about before we meet again.

Mico. Um...

Enter SCIPION [*Manservant to Aloysius*].

1. Considering the first four bars alone, there are 81 root progressions that Mico could have used.

I VII I II 0751
I VII I VII 0633
I VII I V 0984
I VII VI II 0312
I VII VI VII 0196
I VII VI V 0366
I VII IV II 0295
I VII IV VII 0295
I VII IV V 0543
I V VI II 0727
I V VI VII 0611
I V VI V 0781
I V IV II 0547
I V IV VII 0547
I V IV V 0795
I III I II 0231
I III I VII 0113
I III I V 0464
I III VI II 0640
I III VI VII 0524
I III VI V 0694
I III IV II 0497
I III IV VII 0497
I III IV V 0745
I V I II 1312
I V I VII 1194
I V I V 1545
VI VII I II 0842
VI VII I VII 0724
VI VII I V 1075
VI VII VI II 0403
VI VII VI VII 0287
VI VII VI V 0457
VI VII IV II 0386
VI VII IV VII 0386
VI VII IV V 0634
VI V VI II 0637
VI V VI VII 0521
VI V VI V 0691
VI V IV II 0457
VI V IV VII 0457
VI V IV V 0705
VI III I II 0275
VI III I VII 0157
VI III I V 0508
VI III VI II 0684
VI III VI VII 0568
VI III VI V 0738
VI III IV II 0541
VI III IV VII 0541
VI III IV V 0789
VI V I II 1222
VI V I VII 1104
VI V I V 1455
IV VII I II 0858
IV VII I VII 0740
IV VII I V 1091
IV VII VI II 0419
IV VII VI VII 0303
IV VII VI V 0473
IV VII IV II 0402
IV VII IV VII 0402
IV VII IV V 0650
IV V VI II 0731
IV V VI VII 0615
IV V VI V 0785
IV V IV II 0551
IV V IV VII 0551
IV V IV V 0799
IV III I II 0231
IV III I VII 0113
IV III I V 0464
IV III VI II 0640
IV III VI VII 0524
IV III VI V 0694
IV III IV II 0497
IV III IV VII 0497
IV III IV V 0745
IV V I II 1316
IV V I VII 1198
IV V I V 1549

The figure after each progression is a measure of the absolute probability of its occurrence in tonal music. Those progressions with a high probability of occurrence are frequently encountered. Those with a low probability are unlikely to be encountered. Such probabilities enable a composer to select the most suitable harmonisation for a given melody. The progression chosen by Mico has a probability of 0984. The progression with the highest probability of occurrence (1549), and capable of harmonising the melody given in the example would be IV to V to I to V.

2. Tonal music consists mainly of chords with tonal degrees as roots, and modal degree chords used for variety. In the major mode, the tonic, subdominant, and dominant degrees of the scale are called the tonal degrees, since they define the tonality. The mediant and submediant are called the modal degrees and have little effect on the tonality, but they do define the mode since they are different in major and minor. The supertonic degree has subdominant properties, but has much less tonal strength. The seventh degree, the leading-tone, for all its importance as an indicator of the tonic through its melodic tendency, does not function as a generator of harmony, but tends to be associated with the dominant. The progression of the leading-tone may be described melodically as VII to I, and harmonically as V to I.

PLATO'S MUSICAL IDEALISM

16 SEP 2007

ACT 12, Scene 4

ALOYSIUS [*the teacher*] *and* MICO [*the student*] *sitting at the kitchen table.*

Aloysius. By maintaining a sound system of education and upbringing you produce citizens of good character; and citizens of sound character, with the advantage of a good education, produce in turn children better than themselves.

Mico. That's likely enough.

Aloysius. Those in charge of our state must be watchful against innovations in music and gymnastics counter to the established order.

Mico. [*Aside.*] They've been avoiding innovation in the established physical and academic curriculum for years.

Aloysius. When they hear someone saying that men pay most attention to the latest song on the singer's lips, they must be afraid that people will think that the poet means not new songs, but a new kind of song, and that that is what he is recommending.

Mico. Lest it be supposed that the poet means not new songs, but a new way of song and is commending this, you mean?

Aloysius. Exactly. Such innovation should not be recommended, nor should the poet be so understood. You should hesitate to change the style of your literature, because you risk everything if you do. Believe me, a change to a new type of literature and music is something to beware of as a hazard to all our fortunes, for the modes of music are never disturbed without unsettling the most fundamental political and social conventions. Take my word for it.

Mico. And you can set me down as a believer too.

Aloysius. And so it is here, in education, that our Guardians must build their main defences. It is in education that disorders can most easily creep in unobserved.

Mico. Yes, because people treat it as child's-play, and think no harm can come of it.

Aloysius. Gradually, they will undermine morals and manners, invade business dealings, and eventually spread into the laws and constitution with complete lack of restraint, until they have upset the whole of private and public life.

Mico. Is it really as bad as that?

Aloysius. Yes, I think it is. To illustrate the point, let us consider the development of Beatle music in the United States. Beginning as an importation from Great Britain, this style of music had certain characteristics, both musical and non-musical, that readily established communication with teenagers in the United States who at that stage of the life cycle in that particular society were quite naturally in revolt against the mores of their elders.

Mico. [*Sips from coffee cup.*] You mean the distinctive hairstyles, dress, and abandon in body movements?

Aloysius. Yes, it gave the teenagers an identity that set them apart from older age groups. Homespun, candid lyrics, special lighting, and an exaggerated go-to-hell attitude made the identity more expansive. A simple instrumentation distinct from various kinds of jazz ensembles, a beat that teenagers have described to me as being like the heartbeat or the drive of an orgasm, a high dynamic level...

Mico. ...monotonous tempo; an exclusive world of teenage sound that expressed their spirit of revolt in diametrical contrast to the taste and habits of his elders.

Aloysius. The immense teenage audience was quickly exploited by every conceivable entrepreneur and with such success that in a relatively short time Beatle music began to affect other segments of society as well. Soon, the carefree movements of teenagers dancing Beatle style became clumsy and desperately suggestive when the matrons and sexagenarians, with their hemlines well above the knee, tried to imitate their youngsters. What had begun as an exclusive realm of identity for the teenager became lost in the absorbing processes of commercial exploitation.

Mico. [*Eating the last biscuit.*] So...

Aloysius. They sought other ways of assuring their identity. The image deepened to include the use of hallucinatory drugs, love-ins, public nudity, light shows, the Indian sitar, beards and dirty bodies, communal sex orgies and the extreme fringes of the hippie world that were indicative of losing touch with reality.

Mico. Who would have thought that the amplified guitar, through the manipulations of clever management, would ever serve as the vehicle for such a social nightmare!

19 SEP 2007

Seventh Chords

Chords consisitng of the third, fifth and seventh above the fundamental are known as *seventh chords*.

In a given key there are seven such chords, one on each degree of the scale. By far the most important of these is the *dominant seventh*.

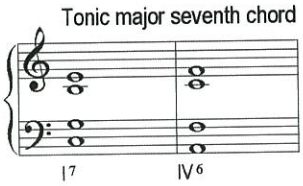
Each seventh chord is capable of three inversions, according to whether the third, fifth or seventh is in the bass.

With the exception of the dominant seventh, dissonant chords of non-dominant character were seldom used in music of the 17th and 18th centuries. When they do appear, it is usually the result of contrapuntal writing, especially as suspensions or appoggiaturae. Not until the 19th century were they exploited independently with their dissonant factors introduced without preparation.

Seventh chords containing the interval of a major fifth have a certain pungency of sound. By contrast, the minor seventh chords are generally softer in character.

Tonic major seventh chord

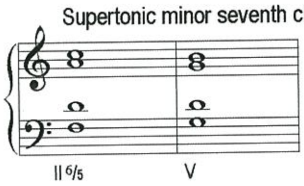
(Major 3rd, perfect 5th, and major 7th.)



The regular resolution of the tonic seventh is to IV.

Supertonic minor seventh chord

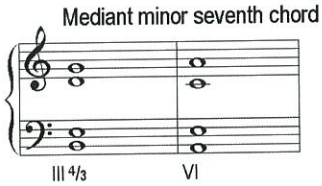
(Minor 3rd, perfect 5th, and minor 7th.)



The regular resolution of the supertonic seventh is to V.
It is commonly used in cadences, before the dominant or the tonic six-four chord.

Mediant minor seventh chord

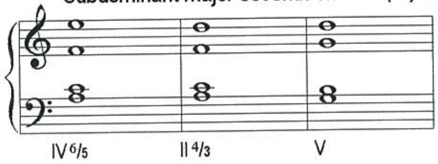
(Minor 3rd, perfect 5th, and minor 7th.)



The regular resolution of the mediant seventh is to VI.

Subdominant major seventh chord

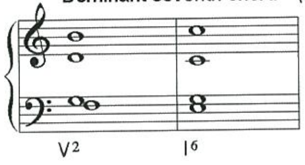
(Major 3rd, perfect 5th, and major 7th.)



The regular resolution of the subdominant seventh is not to the root a fourth above (VII), as would be expected, but to V, via the supertonic seventh.

Dominant seventh chord

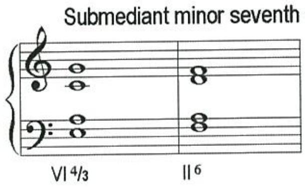
(Major 3rd, perfect 5th, and minor 7th.)



The regular resolution of the dominant seventh to I is the most fundamental and commonest harmonic progression in music, and gives the strongest possible definition of the key.

Submediant minor seventh chord

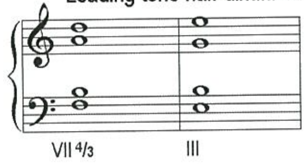
(Minor 3rd, perfect 5th, and minor 7th.)



The regular resolution of the submediant seventh is to II.

Leading-tone half-diminished seventh chord

(Minor 3rd, diminished 5th, and minor 7th.)



The regular resolution of the leading-tone seventh (which is usually interpreted as an incomplete dominant ninth), is to III.

9 SEP 2008

CREATING SURPRISE

Surprises are most reliably evoked when a composer establishes a context in which the surprising event appears. That is, surprises are best ensured when the preceding musical events are predictable. Introducing the element of surprise reduces the possibility of the listener becoming bored or irritated. There are four basic methods a composer can use to make musical events appear surprising:

1. *Schematic surprises* are constructed so that some existing schema the listener has brought to the listening experience is violated.
2. *Dynamic surprises* are constructed so that the work itself sets up a work specific expectation that is subsequently violated.
3. *Veridical surprises* are evoked by violating a listeners existing knowledge of a given musical work, and arise, for example, through performance error, misquotation, or parody.
4. *Conscious surprises* lead a knowledgeable listener to consciously form an expectation about a future event that is then thwarted.

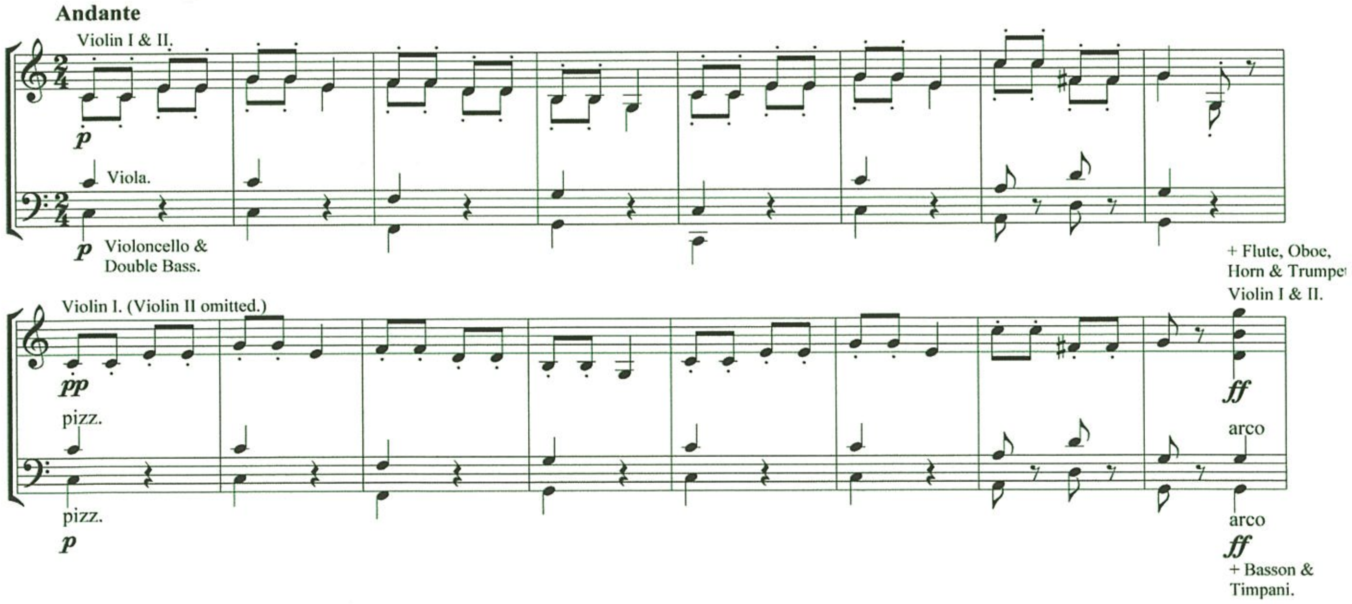
SCHEMATIC SURPRISES

These include surprising changes in dynamics, instrumentation, scales, meters, harmonies, intervals, styles, and so on. Sudden changes in loudness, switching instrumentation, violating the current key, transgressing the meter, using a rare chord progression, prematurely terminating a phrase, employing an improbable melodic leap, delaying a resolution, and jumping to a different style all invoke a sense of surprise in the listener.

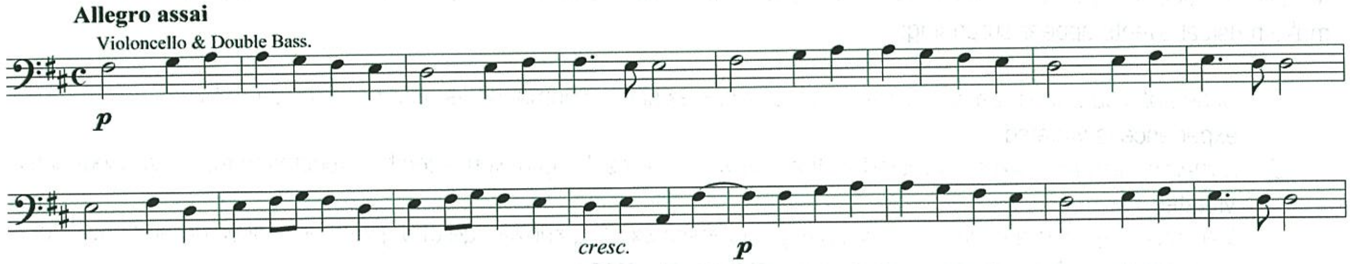
In Western music, perhaps the quintessential example of a schematic violation is the deceptive cadence, thwarting the listeners expectations of the more probable progression V to I. The surprise evoked by the progression V to VI resides solely in the fact that it is statistically much less common than V to I. However, compared to diatonic chord progressions, chromatic mediant progressions are even more surprising. Chromatic mediant chords are the major and minor chords based on scale degree III and VI, and since they are rare, appear surprising a diatonic context.

DYNAMIC SURPRISES

The most familiar example of dynamic surprise in Western classical music occurs in Joseph Haydn's Symphony No. 94. The *surprise* from which the symphony gets its nickname occurs in the second movement. When Haydn reiterates the main theme a second time, first-time listeners can be forgiven for assuming that the passage is likely to unfold in a similar manner to its first rendition.



Another example from the classical literature occurs in the fourth movement of Ludwig van Beethoven's Symphony No. 9. The principal theme consists of four phrases, the second and fourth of which are almost identical. The surprise occurs when the fourth phrase begins prior to the expected downbeat.



VERIDICAL SURPRISES

Veridical surprises most often arise from differences in performance nuance resulting not from the activity of composers, but from performers. In the simplest case, a veridical surprise can arise simply as a result of performance error. Additionally, since the advent of sound recording, it has become commonplace for listeners to acquire an intimate familiarity with a particular recording of a work. When another rendition fails to duplicate familiar interpretive gestures, such as differences in dynamic levels, articulation, tempo, and phrasing, we become surprised.

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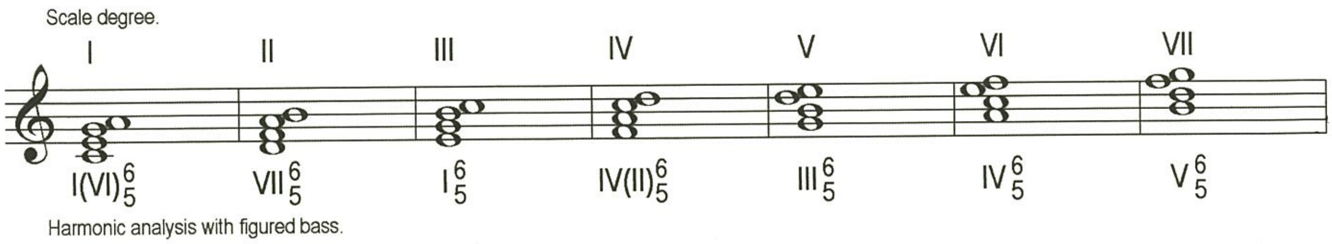
Added Sixth Chords

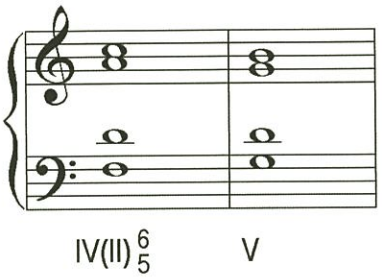
20 SEP 2007

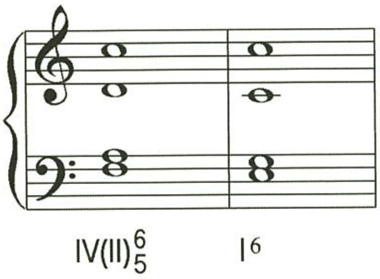
The addition the sixth above the root of a triad results in the creation of an *added sixth chord*.

A complete series of triads with added sixth can be constructed on each degree of the scale.

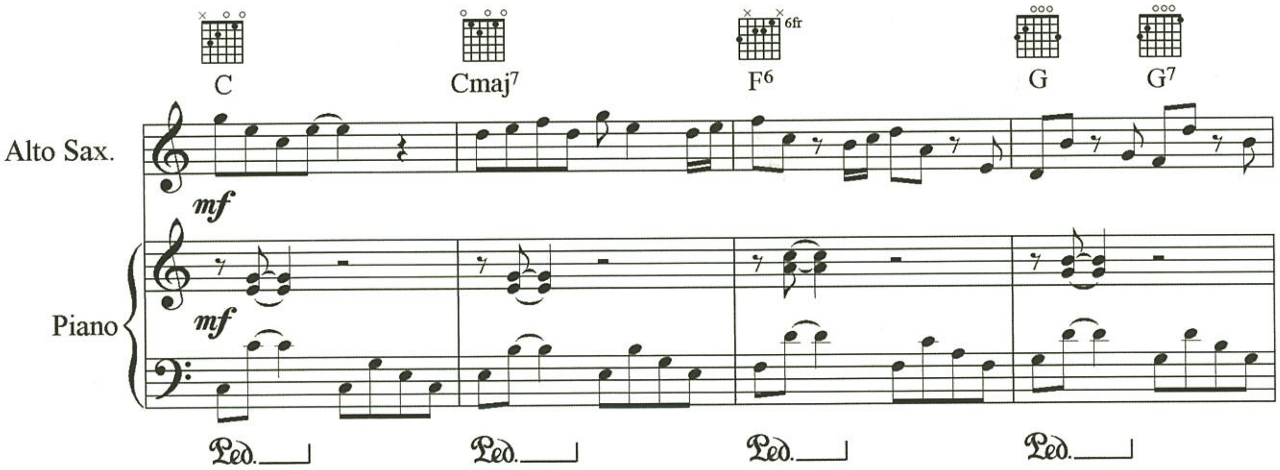

Scale degree.
I
II
III
IV
V
VI
VII
I(VI) 6 5
VII 6 5
I 6 5
IV(II) 6 5
III 6 5
IV 6 5
V 6 5
Harmonic analysis with figured bass.

In classical harmony, the chord of the added sixth occurs preferably on the fourth degree and has a subdominant function.
The chord can be interpreted harmonically as the first-inversion of the supertonic seventh chord. Although according to strict rules the chord must resolve onto the dominant or the tonic, it is used in some works as a colour modification of the triad that does not demand resolution. Jazz musicians often use such a cloying effect, particularly for the final chord of a piece.





Note that the added sixth chord constructed on the seventh degree is identical with the first-inversion of the dominant seventh chord.


C
Cmaj7
F6
6fr
G
G7
Alto Sax.
mf
Piano
mf
Ped.
Ped.
Ped.
Ped.

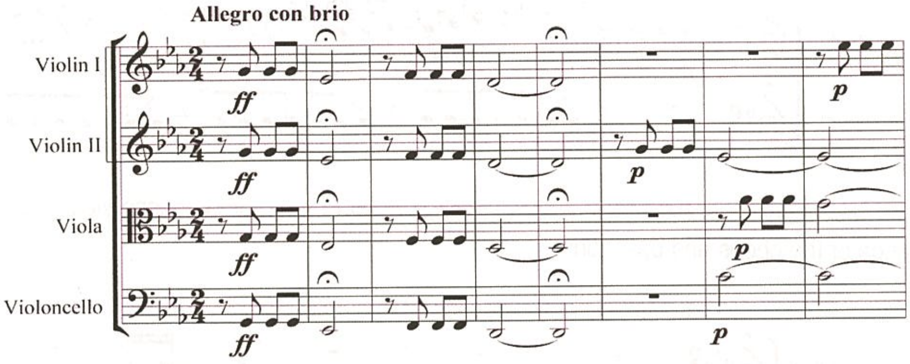
21 SEP 2007

MOTIVE

In most cases, the phrases of instrumental music are made up of smaller melodic units, called *motives*; short figures of characteristic design (melodic, harmonic, or rhythmic), that recur throughout a composition or section as unifying elements.

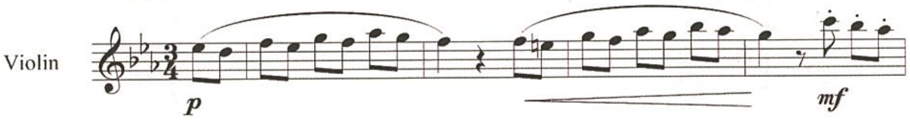
A rigid definition of the limits of a motive is impractical. Some would argue that the motive is a complete musical thought, while others stress its quality as an irreducible minimum of musical meaning. Indeed, many motives are capable of further subdivision into groups of tones that could still be called motives. However, a motive is distinguished from a theme or subject by being much shorter and generally fragmentary.

The principal motive of a work usually appears in a characteristic and impressive manner at the very beginning of a piece. In the following example, note how the motive is followed by a fermata; this is a good way to make an opening proclaim that it is providing the basic material to which we must pay attention for the rest of the movement.

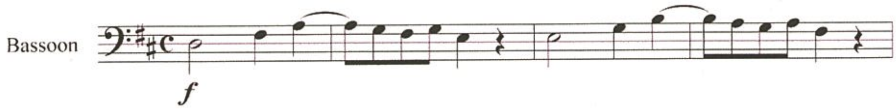


Motives are used by repetition. Once stated, however, the monotony of repetition is avoided by transposition to different scale degrees, using the inversion, retrograde, diminuted and augmented forms, or recognisable variation. Preservation of the rhythmic features of a motive is more effective at producing coherence than maintenance of the intervallic relationships between its constituent tones. In other words, the identity of a motive can in most cases be maintained by the rhythm alone, even when the intervals and the direction of the melodic contour have been completely altered.

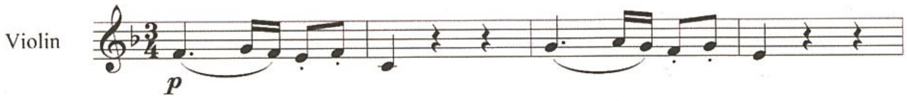
Most often, the motive takes the rhythmic form of an anacrusis, acting as a long or short up-beat, terminating on a down-beat; this propels the music forward.



The opposite type of motive begins with a down-beat and ends on an up-beat, producing the impression of punctuation, like a comma or slight intake of breath.



A third type begins and ends on a down-beat. The rhythmic effect is positive and block-like with little feeling of forward motion.

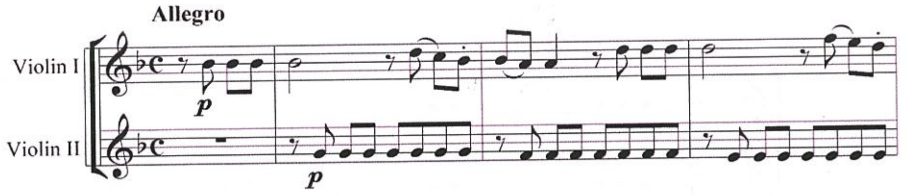


Continued overleaf...

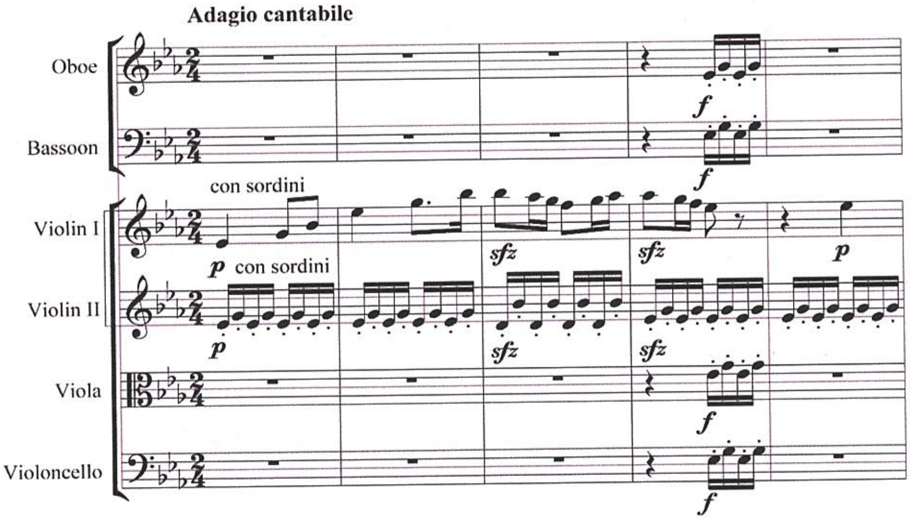
A motive could also conceivably begin and end on an up-beat, beginning with aspects of the first type, and ending similar to the second type.

Motivitic development has been a basic technique of Western music since at least the fifteenth century. During the eighteenth century there was a renewed interest in the contrapuntal style of this earlier period. The revival of the old contrapuntal art with its ideal of equality among all voice of the polyphonic texture led composers to develop motivitic interchange between melody and accompaniment, a technique that challenged the then prevalent hierarchy between principal voice and accompaniment. This was accomplished by making themes out of conventional accompaniment figures, thus giving the accompaniment motivitic significance. By using simple sections of scales and arpeggios as themes, virtuoso passages were also made to appear thematically significant.

The simplest way to transform accompaniment into melody is to make a theme out of repeated notes. In the following example, once the first violins have played the first four notes of the theme, everything the second violins play from then on is thematic.



The next example shows how the unobtrusive accompaniment of the muted second violins is turned into a fanfare by the sudden entrance of the oboes and bassoons.



26 SEP 2007

Rhetoric & Music

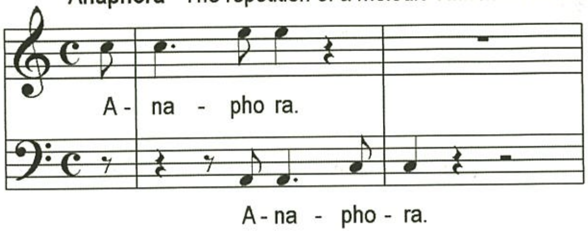
The extensive literature on oratory (the art or practice of formal public speaking), and rhetoric (the art of effective or persuasive speaking), by the ancient Greek and Roman writers stressed that the requirements of a well-trained orator included a knowledge of the principles of music. Similarly, composers have sought the power to excite and assuage human emotions, just as the orator speaks loudly, then softly, and more slowly, and then more rapidly.

The connections between rhetoric and music have often been extremely close, particularly during the Baroque period,a period in which the composer was obliged, like the orator, to arouse in the listener idealised emotional states, such as sadness, hate, love, joy, anger, doubt, and so on.

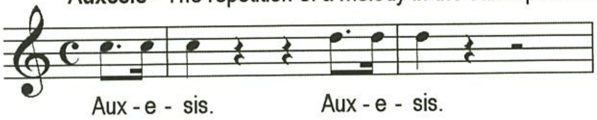
Many of the musical figures associated with rhetoric originated in attempts to explain or justify irregular, if not incorrect, contrapuntal writing. Although proceeding contrary to the rules of counterpoint, such passages were found to be suitable for dramatizing affective expression of the texts.

Anadiplosis - The repetition of a closing melody at the beginning of a new section.

Anaphora - The repetition of a melodic statement on different notes in different parts.

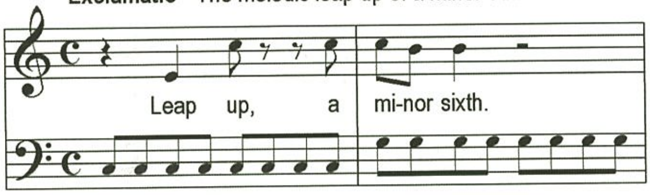


Auxesis - The repetition of a melody in the same part a 2nd higher.



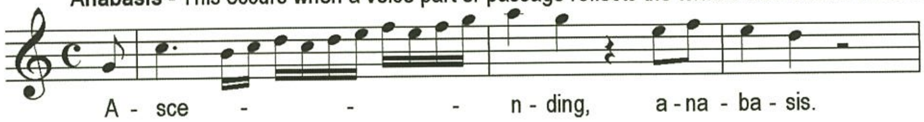
Epistrophe - The repetition of a closing section at the end of other sections.

Exclamatio - The melodic leap up of a minor 6th.

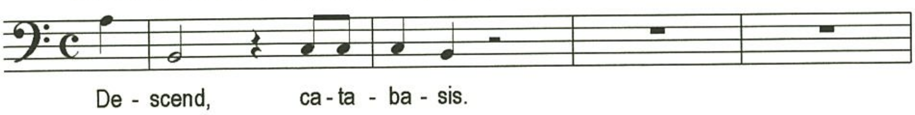


Pathopoeia - Movement through semitone steps to express affections such as sadness, fear, terror, etc...

Anabasis - This occurs when a voice part or passage reflects the textual connotation of ascending.



Catabasis - This occurs when a voice part or passage reflects the textual connotation of descending.



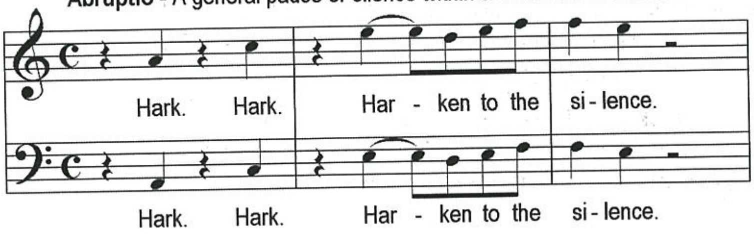
Circulatio - The musical description of circular or crossing over movement.

Antitheton - A musical contrast, to express things contrary and opposite, occuring successively or simultaneously. It can be characterised by contrasting registers in a voice part, contrasting thematic ideas in a contrapuntal texture, contrasting musical textures etc...

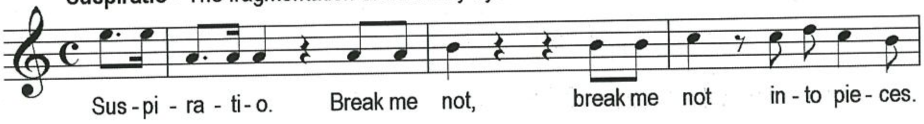
Fauxbourdon - Parallel motion between parts in 3rds or 6ths.

Continued...

Abruptio - A general pause or silence within a music texture where silence is not expected.


Hark. Hark. Har - ken to the si - lence.
Hark. Hark. Har - ken to the si - lence.

Suspiratio - The fragmentation of a melody by rests to illustrate the text.


Sus - pi - ra - ti - o. Break me not, break me not in - to pie - ces.

Schematic Predictability

29 OCT 2007

Few musical works exist that don't follow some important musical conventions. The vast majority of works employ familiar instruments, use a familiar scale, follow a familiar meter, use familiar harmonies, and conform to a familiar style.

What matters is that the members of one's intended audience already hold a particular expectational schema. For example, a composer will evoke pleasure by using the most common pitch successions associated with a particular style or genre. The most predictable pitch successions are those that make use of tendency tones, those tones whose subsequent resolutions are most pre-ordained.

In addition to the pitch-related *what* of expectation, the predictability of music can also be influenced by using commonplace *when* devices. For example, pleasure arising from the prediction effect can be evoked by using a conventional meter and regular four-bar phrases. When a tone appears at a certain point in the metric frame, its appearance makes some ensuing moments more likely.

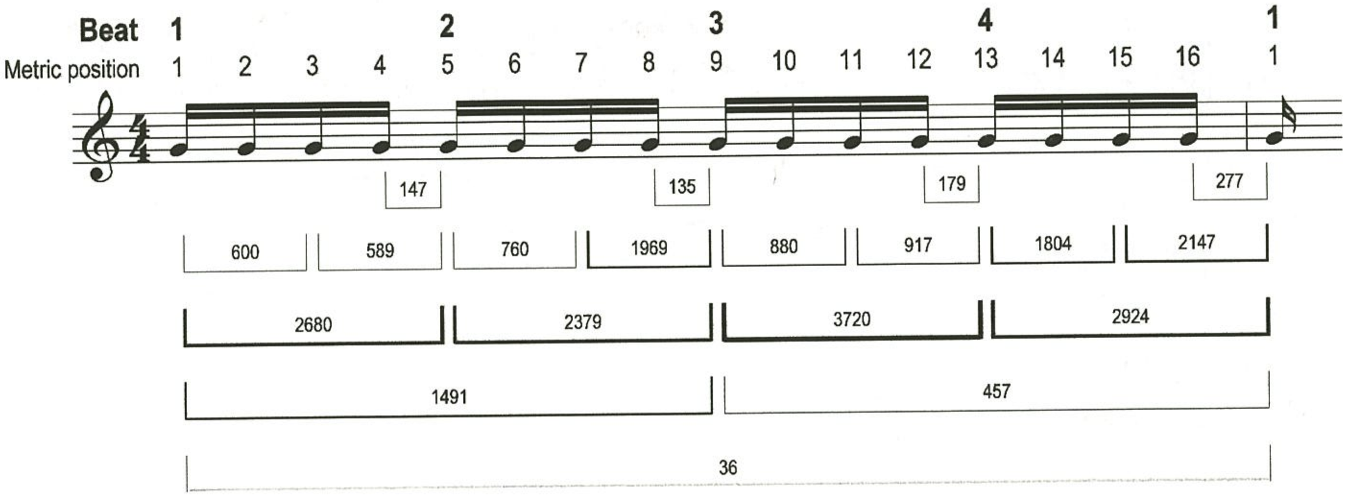


Figure 1. The thickness of each line is proportional to the absolute probability of metric succession indicated by the numerals. Lines have been drawn only for those transitions above a minimum threshold. Notice the strong tendency for beat 3 (metric position 9) to be followed by an onset on beat 4 (metric position 13). The second most common event is a note on beat 4 (position 13) being followed by a note on the downbeat of the following measure (position 1). Additionally, notice that when an onset occurs in the first metric position (the downbeat), the most likely ensuing event is an onset at metric position 5 (second beat). We might refer to such metric positions as *tendency moments*.

Of course, the sequence of temporal events in music must provide the appropriate cues that help a listener invoke the appropriate metrical schema. Durational (agogic) stress helps listeners infer the downbeat. In Western music, the typical meter-defining rhythm is a long-duration note followed by one or two short-duration notes. This type of temporal structure makes it easy for the listener to infer beat placement and the downbeat.

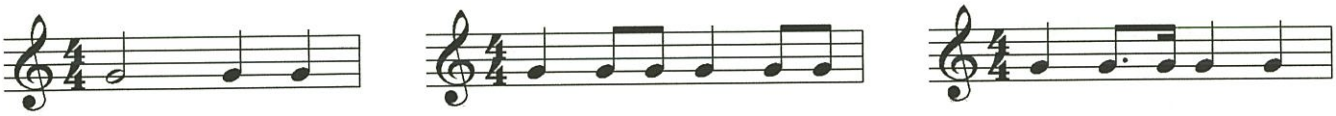


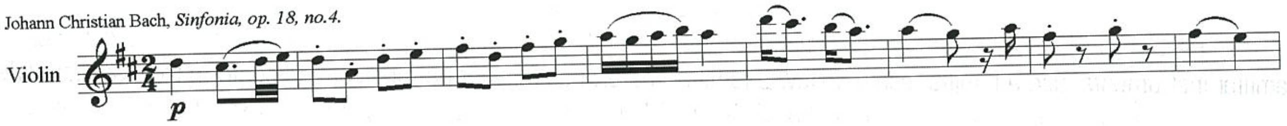
Figure 2. Examples of meter-defining rhythms; the half note followed by two quarter notes, the quarter note followed by two eighth notes, and the dotted eighth note followed by a sixteenth.

30 OCT 2007

Monophony.

Music that consists of a single melody.

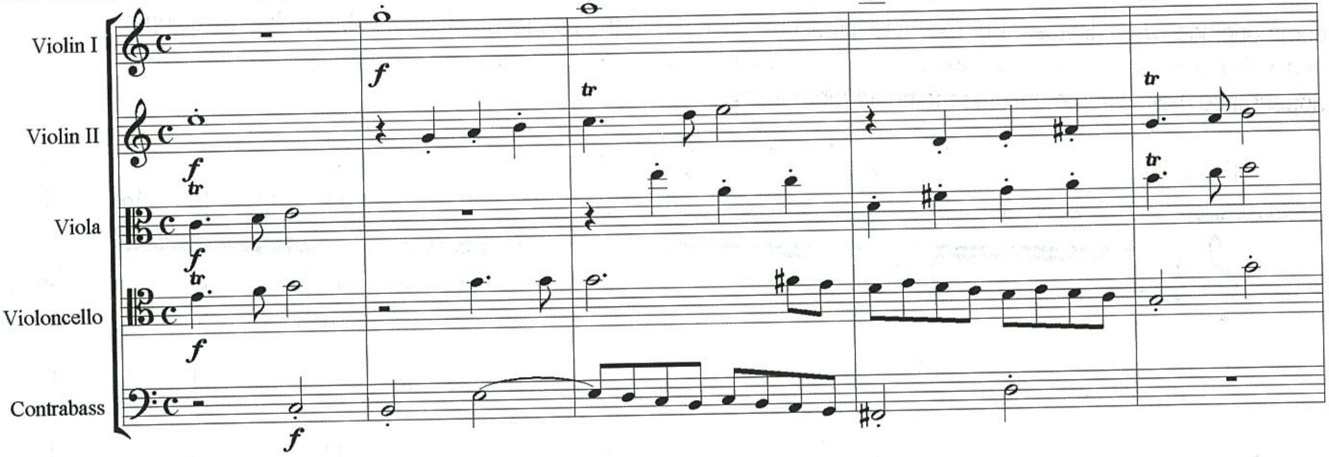
Ex. 1. Johann Christian Bach, *Sinfonia, op. 18, no.4.*



Polyphony.

Music that combines two or more simultaneous voice-parts of individual design. This term is synonymous with counterpoint.

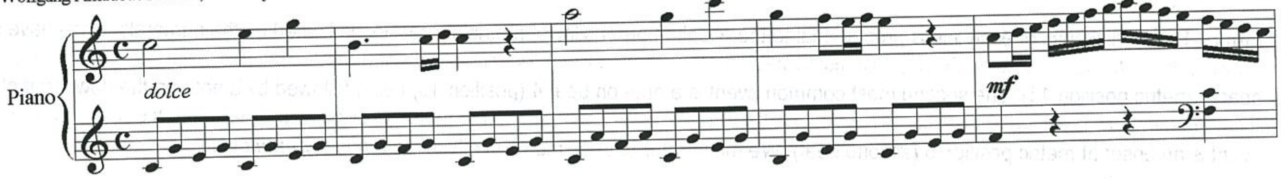
Ex. 2. Wolfgang Amadeus Mozart, *Symphony, K. 551.*



Homophony.

Music in which one voice leads melodically, being supported by an accompaniment.
Term is also, rather unfortunately, applied to polyphonic music in which all the voices move in the same rhythm.
Thus, homophony is synonymous with strict chordal style or the familiar style.
A more suitable term for this style is homorhythmic.

Ex. 3. Wolfgang Amadeus Mozart, *Sonate für Klavier, No. 15, K. 545.*



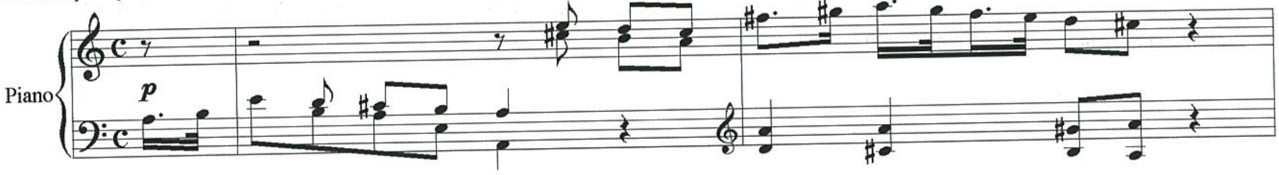
Heterophony.

A term used to describe an improvisational type of polyphony, namely, the simulataneous use of slightly or elaborately modified versions of the same melody by two or more perfomers.
Gamelan music is largely based on this technique.

Freistimmigkeit.

A German term, translated as free voice leading, for a pseudo-contrapuntal style in which there is no strict adherence to a given number of parts.
Voices are free to enter and drop ou, and choral elements also occur.
The natural idom for such a style lies in keyboard instruments or for the lute.

Ex. 4. Franz Joseph Haydn, *Hob. XVI: 26, i.*



Antiphony.

Music composed for two or more alternating groups.

THE LAMENT

11 OCT 2007

ACT I, Scene I

ALOYSIUS [*the teacher*] *and* MICO [*the student*] *at table.* SCIPION [*manservant to Aloysius*] *dusting.*

Aloysius. In time-orientated arts, such as poetry and music, the placing of the component parts within the whole is crucial.

Mico. In what way do you mean?

Aloysius. Well, if we were to take opera as an example, the prologue sets the tone and guides the expectation; near the centre there is usually an impassioned plea; and before the end, a poignant lament, after which the finale relaxes tension and attention...

Mico. ...telling the listener the outcome of the plot, and at the same time the audience that the show is over, right?

Scipion. Such is the stuff dreams are made of! How many more students have you got today? I've been tryin' to get the house clean all mornin'.

Aloysius. [*To the student*.] Pay no attention Mico; he'll be on his way before too long.

Mico. [*To Aloysius*.] Haven't Social Services replaced him yet?

Aloysius. To reach a happy ending, then, we are often wrenched from expected catastrophe to an unforeseen solution.

Mico. I remember you mentioning that tragedy and comedy are often mixed in order to recreate the natural balance of human existence.

Aloysius. With verisimilitude and artistic discretion, though, Mico. Indeed, and the play of opposites looms no larger than in the genre of opera; vocal versus instrumental sonorities, fully-fledged music versus speech-song...

Mico. ...aria versus recitative, yeah?

Aloysius. ...melody versus accompaniment, and last, but not least, solo song versus ensemble. Here, Mico, here we have the classic contrast between expressive solo singing and the choral finale.

Mico. Rather like the slow movement of a sonata acknowledges the need at some point for a substantial relaxation in tempo and a more openly expressive style?

Aloysius. Indeed. The lament, as this penultimate number has become to be known, should be a highly expressive dramatic piece functioning as a self-contained scene.

Mico. Occurring immediately prior to the final resolution of the plot, yeah?

Aloysius. Yes. Set apart as an exceptional moment of emotional climax or particularly intense expression, it provides an occasion for special formal development and the display of expressive rhetoric, and of affective imagery.

Mico. What differentiates, then, the lament from the other numbers in an opera?

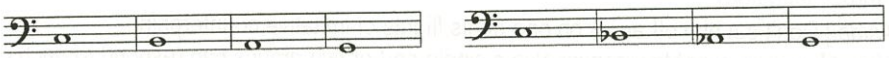
Aloysius. The classic lament is characterised by a highly accented triple meter and a slow tempo.

Mico. Is that all?

Aloysius. Not quite; usually, they're vocal pieces associated with female characters and the female voice, based on a mournful text, and built over a descending tetrachord, either diatonic or chromatic, in the bass.

Mico. So, the bass line consists of a descending four-note figure?

Aloysius. Yes, repeated persistently in the manner of an ostinato. [*Fumbles amongst papers.*] Here's a couple of examples, the first a diatonic descent to the dominant, and the second, a chromatic descent.



Mico. That's interesting.

Aloysius. Perhaps the polarity between the tonic and dominant in our harmonic system favours such a descent.

Mico. Of a perfect fourth, you mean?

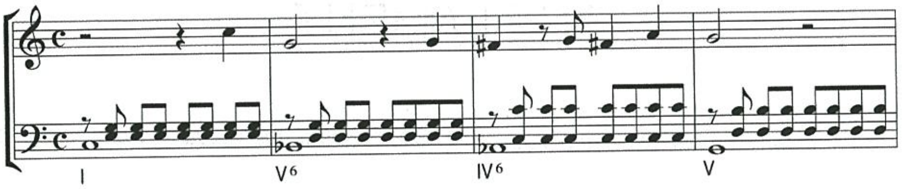
Aloysius. The fourth also has cadential implications and endows the bass line with a structural robustness, particularly when it occurs as an ostinato.

Mico. What factors contribute to the elegiac character of these compositions, then?

Aloysius. Several musical gestures are used to communicate lamentation, melancholy, or pathos. Along with the descending tetrachord in the bass, simple melodies opening with a descending leap of a fourth seem to be associated with these songs of complaint.

Mico. The descending fourth again!

Aloysius. Here we are, another example.



Mico. [*Studies the example.*] So, the musical gestures used...

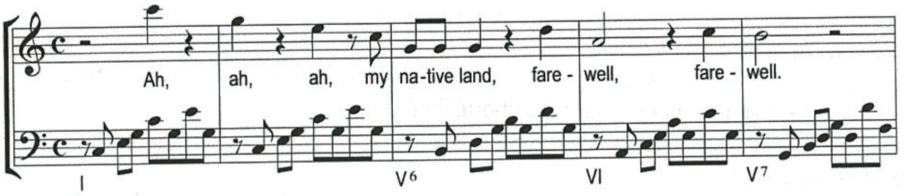
Aloysius. Melodic pathos is achieved mainly by short appoggiaturae, yearning leaps, and expressive rests.

Mico. Surely, instrumentation must play its part too?

Aloysius. Indeed. While muted trumpets and discordant drums have long been associated with tragic or mournful events, strings usually accompany the lament. Do you remember me telling you about how tragedy can be evoked using predominantly minor chords played with rich sonorities in the bass register, and that suspense can be evoked using a diminished seventh chord with rapid tremolo? [*Scipion climbs on bookcase.*]

Mico. [*Watching Scipion.*] Erm... What about the lyrics to these songs?

Aloysius. The lament has had a fairly consistent vocabulary in which certain words have been encountered through the centuries; weeping, death and dying, sighing, grief, bewailing, as well as interjections and expletives expressing pain or disappointment, such as *alas*, or the single vowels *a* and *o*. Frequently, the emotions expressed through these words are intensified by the device of repetition, often carried out to a surprising degree. Oh, here's another example, look!



Mico. Repetition, that's interesting.

Scipion. Through the centuries, you say?

Aloysius. Since its origin in ancient Greek drama... [*Noticing Scipion.*] Get down, Scipion!

Scipion. Sorry master.

Aloysius. What are you doing anyway? If that heavy bookcase comes away from the wall and falls on top of you...

Scipion. I was tryin' to get some of the dust off...

Aloysius. Where had we got to? Erm... Strongly metered and rhymed texts in which particularly affective lines recur as refrains, yes, repetition has a number of functions; it extends the dimensions of the basic elements such as the line of verse or the musical phrase; it creates coherence; and it contributes towards emphasis and intensification.

Mico. Coherence...

Aloysius. Remember that repetition need not be straightforward. In music, repetition can be literal, such as an echo; it can be transposed, as occurs in sequence; and it can be achieved through successive imitative entries pervading a polyphonic texture.

Mico. You mean, imitation?

Scipion. [*Aside.*] Don't set him off again on one of his flights of imitative counterpoint.

Aloysius. Yes. Moreover, repetition can involve a single part or two groups can respond to each other in the style known as *cori spezatti*.

Mico. So, these solo songs associated with persuasion, sensual attraction and enchantment, wallow in grief and scorn the danger of monotony.

Aloysius. Yes, the type of text that moves an audience to pity, thereby purging them of strong passions.

Mico. The penultimate solo number, then, acts as a foil to the concluding ensemble.

Aloysius. Yes. Such complaints also add to the differences of texture and dynamics to those of tempo and emotion. The plaint is slow, soft and languorous, whereas the finale is brisk, sonorous, and optimistic.

Scipion. Some pop-music, you know, uses the cyclic progression I to VII to VI to V, very often with lyrics suggesting loss, resignation, or sadness.

Aloysius. [*Dismissive.*] How would you know?

Mico. After a tragedy, wasn't it customary to perform a jig?

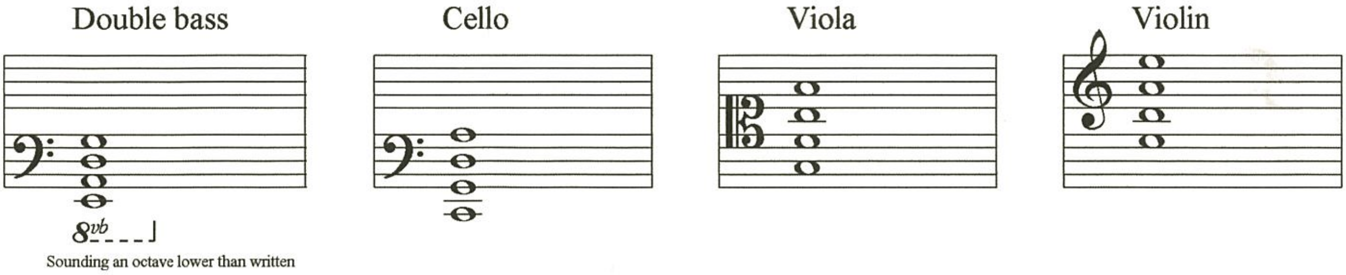
Aloysius. Indeed, Mico, a close parallel to the Italian *moresca* that so often comes at the end of an Italian stage entertainment. Both dances have connotations of gaiety and laughter and the sudden progression from tears to laughter is to be admired.

Scipion. He means bathos, [*At Mico.*] boy!

16 NOV 2007

String Instruments

The pitch of a note played on a stringed instrument is determined by the length of a vibrating string.
When a string is pressed against the fingerboard, an action known as *stopping*, it ceases to vibrate along its entire length.
The section that is left free to vibrate is shorter and thus, produces a higher pitch.
A string which is not stopped in this manner is said to be *open*.
The string instruments of an orchestra all have four strings.
The following example shows the pitches to which their open strings are tuned and the clefs normally used.


Double bass
Cello
Viola
Violin

Sounding an octave lower than written

Arco - *Bow the strings.*

Bow marks - Two or more notes within a slur are played in a single stroke of the bow.

Chanterelle - The highest pitched string on a string instrument. Strings are numbered 1 to 4 (highest to lowest).

Col legno - *With the wood.* Turn the bow over and sound the strings with the wood. This produces a dry, spooky effect.

Con sordino - *With the mute*. Use a *mute*, a device placed on the bridge to dampen the sound.

Double stop - The execution of two or more notes simultaneously.

Down bow - Move the bow from the *heel* (the end with which it is held), to the *point* (the far end).

Naturale - *Bow the strings in the normal manner*. Bow the strings between the bridge and the end of the fingerboard.

Pizzicato - *Pluck the strings.*

Sul E - *On the E string*. The same note produced on different strings of the same instrument will have a different timbre.

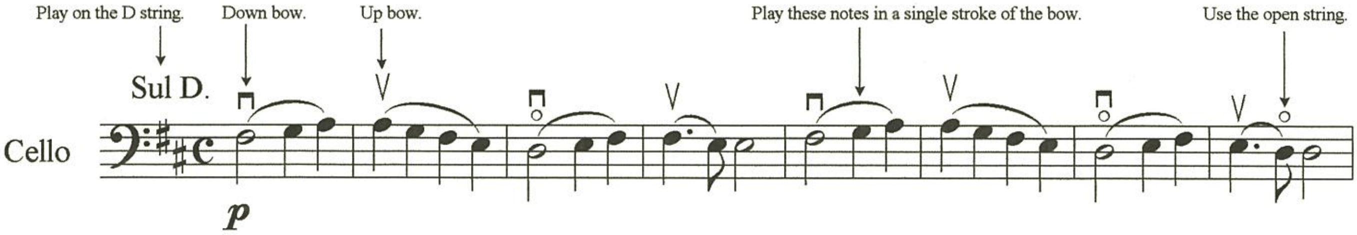
Sul ponticello - *On the bridge*. Bow the strings as close to the *bridge* (the wooden support for the strings).
This produces a thin, wiry sound.

Senza sordino - *Without the mute*. Remove the mute.

Sul tasto - *On the fingerboard.* Bow the strings over the fingerboard. This produces a colourless tone.

Up bow - Move the bow from the the *point* (the far end), to the *heel* (the end with which it is held).

Example 1.

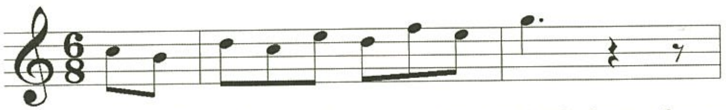

Play on the D string.
Down bow.
Up bow.
Play these notes in a single stroke of the bow.
Use the open string.

Taylor, Eric, *The AB Guide to Music Theory, Part II*, ABRSM, 1991. Page 198 to 200.

Motive structure

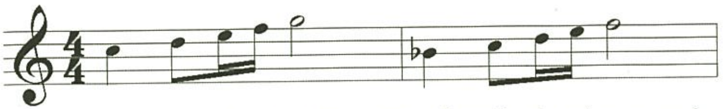
17 JAN 2007

1



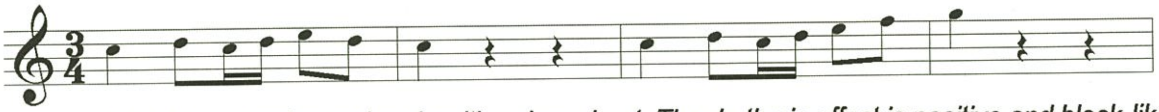
Most often, the motive takes the rhythmic form of an anacrusis, acting as a long or short up-beat, terminating in a down beat. This propels the music forward.

2



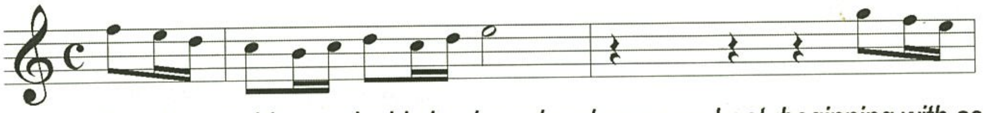
The opposite rhythmic type of motive begins on a down-beat, and ends on an up-beat.
This up-beat does not serve as an anacrusis leading into the next down-beat.
This type gives the impression of punctuation between the motives, like a comma
or a slight intake of breath.

3



A third type begins and ends with a down-beat. The rhythmic effect is positive and block-like, with less feeling of forward motion than the previous types.

4



A motive could conceivably begin and end on an up-beat, beginning with aspects of the first type, and ending similar to the second type.

Aloysius. Having studied for so long, then, you are aware of the importance of not practicing to the point of physical exhaustion.

Serafino. Yes, this I avoid by always having some other musical study at hand.

Aloysius. Good. Become not merely a singer, but a musician. If I remember, you play the piano as well, don't you?

Serafino. Someone has asked me to go to him on Saturday so that I might try out his organ!

Aloysius. Good. This will help you to become acquainted with a musical literature other than that of song.

Scipion. You sing well, master Serafino. Shall I get your coat?

Serafino. Grazie, Scipion.

Aloysius. Yes, it would be a shame to ruin such a beautiful voice, as generations have ruined theirs, with whiskey and cigarettes.

Scipion. [*To Aloysius.*] If one is to keep his body in good condition he must abstain from intoxication and gluttony.

Aloysius. The ancient Greek philosophers, you know, believed that music possessed *ethos*; that is, the power to influence its hearers behaviour and emotions, indeed their morals.

Serafino. Really.

Aloysius. Plato, born in 427 B.C., considered there to be two disciplines; one for the body, which is gymnastics, and one for the good of the mind, which is music. Through the exercises and toils of gymnastics a man should aim to arouse the spirited part of his nature rather than mere strength, unlike ordinary athletes who treat diet and exercise only as a means to muscle. Have you not observed the effect on the disposition of the mind itself of lifelong devotion to physical exercise with total neglect of music or, the disposition of those of the opposite habit?

Serafino. In what respect do you mean?

Aloysius. In respect of savagery and hardness or, on the other hand, of softness and gentleness?

Serafino. Of course. The devotees of unmitigated gymnastics turn out more brutal than they should be and those of music indecently soft, softer than is good for them I would say.

Aloysius. Precisely. If a man toils hard at exercise and, eating right lustily, holds no truck with music and philosophy, does he not at first get very fit and full of pride that he becomes more brave and bold than he was?

Serafino. He does indeed.

Aloysius. Such men are strangers to the Muses. They no longer make any use of persuasion by speech, but achieve all his ends like a beast by violence and savagery, and in their brute ignorance and ineptitude, live a life of disharmony and gracelessness.

Scipion. [*Aside.*] Get a move on.

Serafino. So it appears.

Aloysius. As a singer, then, you should seek a harmonious adjustment of these two principles, music and gymnastics, by the proper degree of tension and relaxation of each.

Serafino. Then he who blends physical exercise with music and applies them most suitably to the soul is the man whom we should most rightly pronounce to be the most perfect and harmonious musician.

Aloysius. Rather like one who brings two strings into unison with one another.

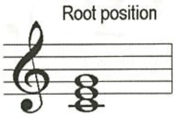
Serafino. [*Coughing.*] I see.

FOUR-PART WRITING

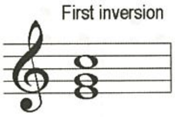
Most music of the eighteenth and nineteenth centuries is conceived in four-part harmony. However, since triads contain but three factors (root, 3rd, and 5th), it is evident that another is needed for writing in four-parts.

Chord spacing in triads;

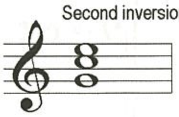
Root position



First inversion



Second inversion

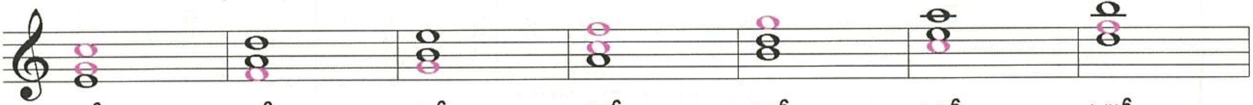


	Root position	First inversion	Second inversion
Figured bass in full:	$\mathrm{I}\begin{smallmatrix}5\\3\end{smallmatrix}$	$\mathrm{I}\begin{smallmatrix}6\\3\end{smallmatrix}$	$\mathrm{I}\begin{smallmatrix}6\\4\end{smallmatrix}$
How the figured bass is usually indicated:	I	I^{6}	$\mathrm{I}\begin{smallmatrix}6\\4\end{smallmatrix}$

For triads in root position the fourth tone is a duplication of the root an octave or two higher, although on occasion, the 3rd or 5th may be doubled. Avoid doubling the root of the leading-tone triad.

For triads in the first-inversion the tone that is doubled must contribute to the solidity of the key.
If the bass of the first-inversion chord is a tonal degree (I, IV, or V), then it is doubled.
If the bass is a modal degree (II, III, or VI), double either the root or 5th, whichever is tonal.

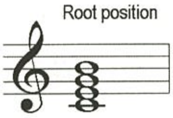
Tones that may be doubled in first-iversion triads are shown in red.



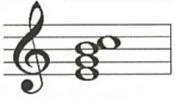
I^{6}	II^{6}	III^{6}	IV^{6}	V^{6}	VI^{6}	VII^{6}
Root or 5th	3rd	3rd	Root or 5th	Root	3rd	5th

Chord spacing in seventh chords;

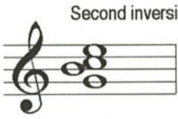
Root position



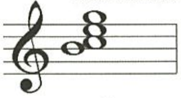
First inversion



Second inversion



Third inversion



	Root position	First inversion	Second inversion	Third inversion
Figured bass in full:	$\mathrm{I}\begin{smallmatrix}7\\5\\3\end{smallmatrix}$	$\mathrm{I}\begin{smallmatrix}6\\5\\3\end{smallmatrix}$	$\mathrm{I}\begin{smallmatrix}6\\4\\3\end{smallmatrix}$	$\mathrm{I}\begin{smallmatrix}6\\4\\2\end{smallmatrix}$
Usually indicated:	I^{7}	$\mathrm{I}\begin{smallmatrix}6\\5\end{smallmatrix}$	$\mathrm{I}\begin{smallmatrix}4\\3\end{smallmatrix}$	I^{2}

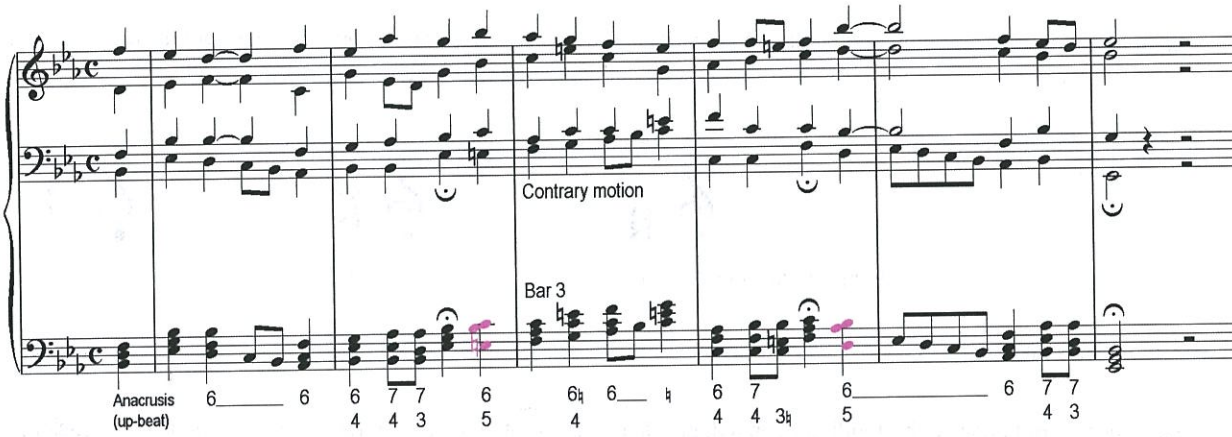
The first-inversion of a seventh chord is most effective when the seventh is in the soprano.

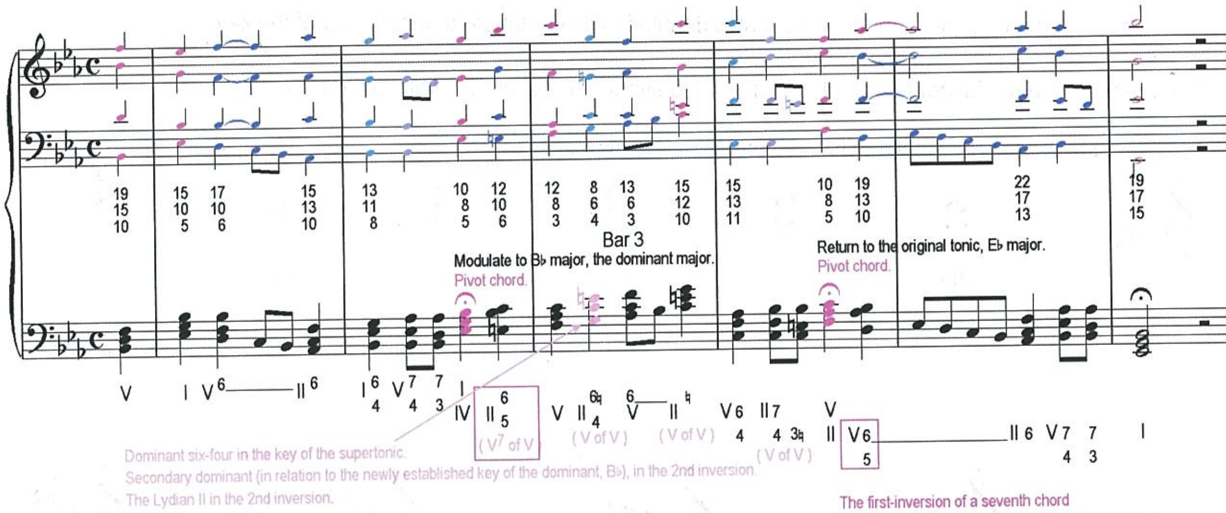
The 5th of a seventh chord can be omitted without affecting its sonority.

Place wide intervals at the bottom, the smaller intervals at the top. Avoid intervals greater than an octave, although two octaves between the tenor and bass is permitted since this configuration sounds satisfactory.

When two voices move upward in similar motion, the lower voice should not move to a position higher than just vacated by the upper voice, otherwise, the ear perceives a melodic progression between the two voices. The corresponding rule holds for descending similar movement.

Number 5


Contrary motion
Bar 3
Anacrusis (up-beat)
6 — 6 6/4 7/4 7/3 6/5 6♮/4 6 — ♮ 6/4 7/4 3♮ 6/5 — 6 7/4 7/3


19/15/10 15/10/5 17/10/6 15/13/10 13/11/8 10/8/5 12/10/6 12/8/3 8/6/4 13/6/3 15/12/10 15/13/11 10/8/5 19/13/10 22/17/13 19/17/15
Bar 3
V I V6 — II6 I6/4 V7/4 7/3 I IV II6/5 V II6/4 V — II♮ V6 II7/4 4 3♮ V II V6/5 — II6 V7/4 7/3 I
(V7 of V) (V of V) (V of V) (V of V)

Modulate to B♭ major, the dominant major.
Pivot chord.

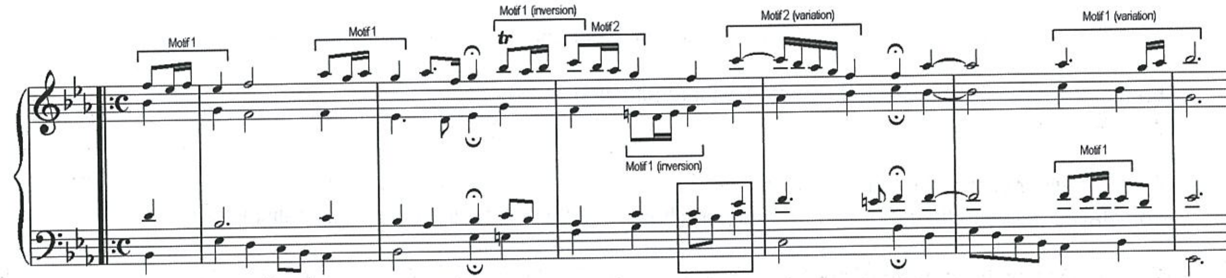
Return to the original tonic, E♭ major.
Pivot chord.

Dominant six-four in the key of the supertonic.
Secondary dominant (in relation to the newly established key of the dominant, B♭), in the 2nd inversion.
The Lydian II in the 2nd inversion.

The first-inversion of a seventh chord is most effective when the seventh is in the soprano

At which point does the modulation occur?
- On the third beat of bar 2, modulating to the dominant major?
- On the fourth beat of bar 2, modulating to the supertonic major?
Such decisions are usually subjective.

Introduction of motivitic material.


Motif 1
Motif 1
Motif 1 (inversion)
tr
Motif 2
Motif 2 (variation)
Motif 1 (variation)
Motif 1 (inversion)
Motif 1

If the melodic movement of the bass suggests any indication of a motivitic figure, try to incorporate it into the added parts.

When two voices move upward in similar motion, the lower voice should not move to a position higher than just vacated by the upper voice, otherwise, the ear perceives a melodic progression between the two voices. The corresponding rule holds for descending similar movement.

Look to see if the bass contains any sequential passages. If so, the soprano at least, should also be sequential in conjunction with the bass.
It is often quite good to introduce a certain amount of variation into the sequential comes .

What is considered unacceptable about the melodic line in the soprano of this example?

What contributes to the effectiveness of the texture in bar 3 of this example?

Ornamentation

15 FEB 2008

During the Baroque period stereotyped melodic figures, or ornaments, were added according to definite rules.

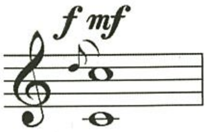
Embellishments are better suited to slow or moderate tempos than rapid ones, and to long rather than short notes.
They are best applied to those places where a melody is taking shape or where its partial, if not complete, meaning or sense has been revealed.

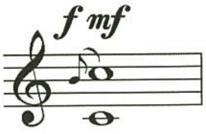
Thus, for example, the appoggiatura, trill and turn were regarded as essential agréments in that their use was obligatory in certain portions of a given musical phrase, depending upon the conduct of the melody and other parts, tempo and expression.
Hence, they are found chiefly at half or full closes (cadences), caesurae (breaks between phrases), and fermate.

Appoggiaturae

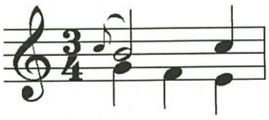
An appoggiatura is a rhythmically strong dissonant note that usually resolves downwards, although chromatically raised and leading tone appoggiaturae resolve upwards. Appoggiaturae can be either short or long so it is essential that their duration is notated.
They are essentially harmonic in function.

Appoggiaturae are louder than their note of resolution, and are slurred so that both are smoothly joined.

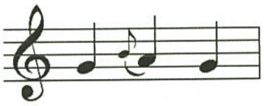




In triple time, appoggiaturae appear only on the downbeat and always before a relatively long note.



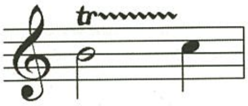
When a melody ascends a second and then returns, the middle tone may be decorated with an appoggiatura.



Trills

A trill is an ornamental resolution of a dissonance (due to either an appoggiatura or suspension), usually on the penultimate strong beat of a phrase. The modern trill, beginning on the main note, is the alternation of the written note and the diatonic second above, and is essentially a virtuoso effect accentuating the main note whilst adding colour and brilliance to the performance.
Trills can be used in conjunction with either a prefix or a suffix.

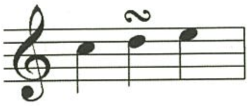
This example shows the symbol that is commonly used to indicate the trill.

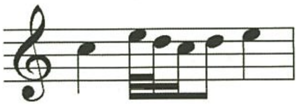


Turns

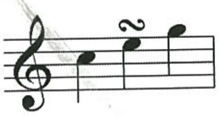
Turns are essentially melodic in function. They begin on a dissonance, either the upper auxilliary (neighbour) note, as in the turn, or the lower auxilliary, as in the inverted turn.

This example shows the symbol that is commonly used to indicate the turn, and its realisation in performance. Note that the final tones are played less rapidly than the preceding ones.

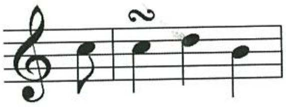




Turns are best employed in ascending stepwise successions, as in the preceding example, but they can also be used in passages ascending by leap.

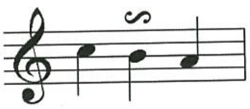


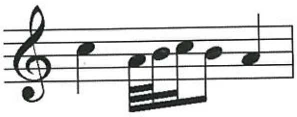
Turns can be used over a repeated note.



Turns are also employed at ceasurae, fermate, and cadences.

This example shows the symbol that is commonly used to indicate the inverted turn, and its realisation in performance. The inverted turn is often used for the expression of sadness in laguid, adagio movements.



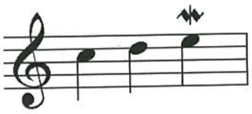


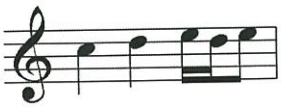
Inverted turns are best employed in descending stepwise successions, in passages descending by leap, over a repeated note, and again, at ceasurae, fermate, and cadences.

Mordents

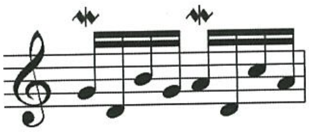
Mordents are the alternation of the written note and the one immediately above or below. The terms upper and lower mordent are preferable to simply mordent and inverted mordent. Mordents are essentially rhythmic in function and are thus suited for use in the bass and the inner voices of chords.

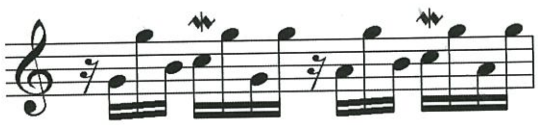
This example shows the symbol that is commonly used to indicate the lower mordent, and its realisation in performance.



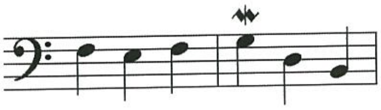


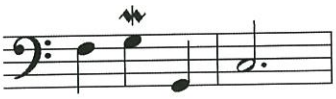
The lower mordent is especially good in stepwise or leaping ascent, and is often used in such situations in arpeggiative figurations.





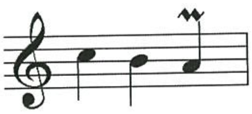
Of all the embellishments, the lower mordent is most frequently used in the bass, particularly over apex notes reached by step or leap, and especially when the following note lies an octave below.

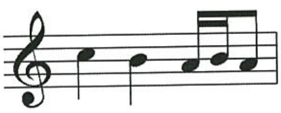




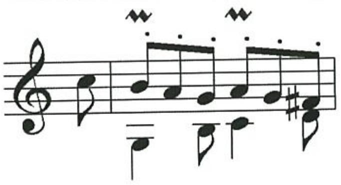
The brilliance of a lower mordent can be increased by chromatically raising the lower tone.

This example shows the symbol that is commonly used to indicate the upper mordent, and its realisation in performance.





The upper mordent appears only before detached notes in descent.



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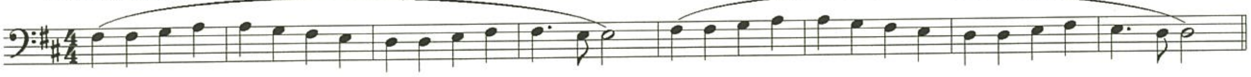
Statistical Properties of Music

Listeners are sensitive to the frequencies of occurrence of different auditory events. The following statistical regularities seem to characterise Western music in general.

Pitch Proximity

Melodies typically employ sequences of tones that are close to one another in pitch. Research has shown that the brain processes small intervals quicker than large intervals.

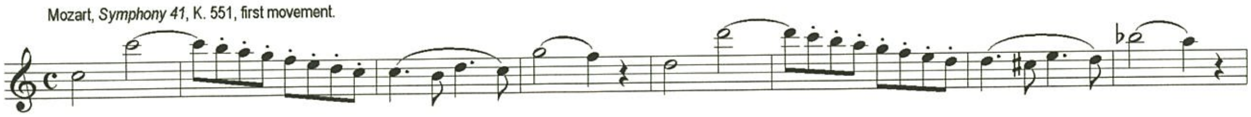
Beethoven, *Symphony No. 9*, op. 125, fourth movement.



Step Declination

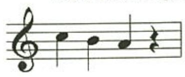
Large intervals are more likely to ascend. Conversely, small intervals are more likely to descend. Melodies typically begin with an initial ascending leap which is followed by a series of descending steps.

Mozart, *Symphony 41*, K. 551, first movement.

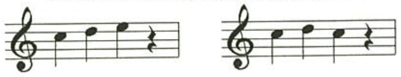


Step Inertia

70% of descending steps are followed by another descending step.



However, an ascending step is just as likely to be followed by a descending step as it is an ascending step.



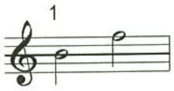
Melodic Regression

Since at least the sixteenth century, music theorists have maintained that large intervals should be followed by a step in the opposite direction, a concept known as *post skip reversal.*

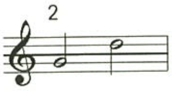
However, melodies do not simply wander around in an unbounded pitch space, but display a stable range or tessitura.
The most frequently occuring pitches in a melody lie near the centre of the melodic range while pitches near the extremes occur less commonly.

Consider the examples below in which the centre of the melodic range (the *mean*), is represented by the bold centre line in the staff.

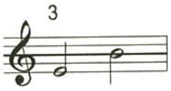
1



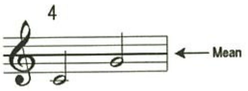
2



3



4



In examples 1 and 2, both regression to the mean and post skip reversal would predict a change of melodic direction after the skip.
In example 3, the leap lands directly on the centre of the melodic range.
The concept of post skip reversal would predict a change of direction, whereas regression to the mean predicts that either direction is equally likely.
In example 4, the leap lands below the central pitch range. Here, regression to the mean predicts that the melody should continue in the same direction towards the mean, whereas post skip reversal predicts a change in direction.

Although listeners expect post skip reversal to occur, research has shown that melodies are in fact organised according to the principal of regression to the mean.

Melodic Contour

There is a general tendency for a melody to ascend in pitch and then descend forming an arch-shaped contour.

Additionally, individual ascending and descending phrases tend to be paired together, thus forming an arch over two phrases.

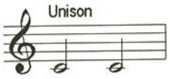
Research has shown that although ascending phrases tend to be followed by descending phrases,
descending phrases are no more likely than chance to be followed by an ascending phrase.

Metric Context

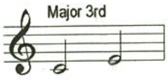
Certain melodic intervals tend to appear in certain metric contexts, that is, in strong-to-weak, or weak-to-strong situations.

Metrical context for ascending melodic intervals in a strong-to-weak relationship

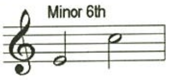
Unison



Major 3rd

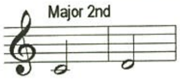


Minor 6th

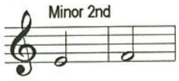


Metrical context for ascending melodic intervals in a weak-to-strong relationship

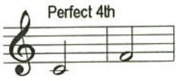
Major 2nd



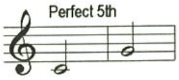
Minor 2nd



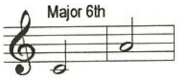
Perfect 4th



Perfect 5th

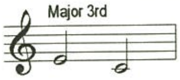


Major 6th

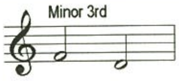


Metrical context for descending melodic intervals in a strong-to-weak relationship

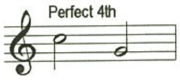
Major 3rd



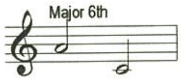
Minor 3rd



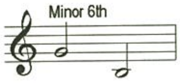
Perfect 4th



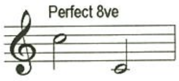
Major 6th



Minor 6th



Perfect 8ve



All other intervals are equally likely to appear in either context.

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