ACHIEVING FLUENCY IN TWENTIETH-CENTURY RHYTHMS: A PEDAGOGICAL APPROACH

by

BRIAN WILLSON

A dissertation submitted to the Graduate Faculty in Music in partial fulfillment of the requirements for the degree of Doctor of Musical Arts, The City University of New York

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Abstract

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Examines the rhythmic materials of the twentieth century as found in the classical music of the Western tradition, and provides methodical instruction for performing them. This study aims to make common rhythmic practices previously considered uncommon or mastered only by those who specialize in twentieth-century music. The underlying philosophy is that these materials are not exceptionally difficult in general, but have not been presented as a traditional part of a musician's course of study.

Acknowledgements

I could not have written this work without the support, advice, and ongoing encouragement from friends, family, and colleagues.

My colleagues at Brooklyn College provided me unending encouragement, in particular Nancy Hager, who always considered my writing of the utmost priority, and Phil Rupprecht, who honored me with an invitation to lecture on metric modulation for his twentieth-century analysis seminar, thus giving me an opportunity to try out my written material in a lecture format. One of my greatest supporters, Skip Brunner, offered invaluable ideas and was kind enough to read and comment on many drafts of my initial chapters, and constantly nudged and inspired me to finish this work.

Morris Lang has been friend, mentor, and colleague for many years, and has inspired me for years with his clarity of thought and pedagogical skills, first as a student, and then as a colleague. His knowledge of rhythm and twentieth-century music is encyclopedic; his friendship and support seem to know no bounds.

Peter Basquin has been a great supporter of my work and saw me through countless rewrites of my initial chapters, which set the tone for the rest of this work.

I learned more about writing than I thought possible through Ellie Hisama. She provided a depth of thought and clarity beyond editing grammar and style that boosted this study to another plateau. I thank her for her unending generosity of time and friendship.

Though my parents will view my graduation from heaven, I know they will be pleased and proud. They were always after me in the kindest way to complete my work, always showing love and encouragement.

Finally, my thanks and love to my wife Sonia, who has stuck by me through the trials and tribulations of life, and managed to be patient as I disappeared days at time behind the computer. Also, to my kids, Yemi, Erin, and Katelyn, who sacrificed and allowed me to work.

Contents

Chapter 1: Introduction

The purpose of this study is to examine the rhythmic materials of the twentieth century as found in the classical music of the Western tradition, and to provide methodical instruction for performing them. A systematic presentation of this material is necessary and useful for musicians at various levels, from students in college-level ear-training classes to professional performers who may need to improve their skills in this area. The goal is for the performer to become as fluent in twentieth-century rhythmic material as he or she is with common-practice rhythms.

All musicians should achieve a basic level of competency that includes the ability to accurately read and execute the rhythms found in twentieth-century music. This competency does not exist among all musicians, even those who are otherwise well accomplished. Both students and professionals possess a mixed level of abilities to perform twentieth-century rhythms - it is considered to be a specialty skill not necessary for all musicians. College-level ear-training courses (and their accompanying texts) often do not cover the rhythmic aspects of twentieth-century music; the focus is almost exclusively on pitch materials. The goal of this study is to provide a practical remedy for this lack of training.

While there is excellent information available on notation of twentieth-century rhythms,[1] and informative articles that address certain aspects of twentieth-century performance practice,[2] I know of no text that offers comprehensive instruction in the performance of twentieth-century rhythms.

A recent text, Anne C. Hall's *Studying Rhythms*,[3] offers thirty-one chapters of rhythmic examples, intending "to help students learn to perform the rhythmic patterns most frequently encountered in Western art music," but only contains brief examples of twentieth-century materials. Seven pages are devoted to rudimentary examples of tuplets (without subdivisions), and contain no instructions as to their performance. Similarly, metric modulation receives only a brief mention in the final chapter, presenting only the most elementary aspects of metric modulation, with little or no instruction as to successful performance. This study covers both of these subjects in a comprehensive manner.

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[1] Gardner Read's *Modern Rhythmic Notation* (Bloomington: Indiana University Press, 1978) and Kurt Stone's *Music Notation in the Twentieth Century* (New York: W.W. Norton, 1980) are both exemplary texts.

[2] Benjamin Boretz and Edward T. Cone, eds., *Perspectives on Notation and Performance* (New York: W.W. Norton, 1976). Of particular interest are Gunther Schuller's "American Performance and New Music" and Charles Wuorinen's "Notes on the Performance of Contemporary Music." Both authors stress rhythm as the most problematic area in performance of twentieth-century music.

[3] Anne C. Hall, *Studying Rhythms*, 3rd ed. (Upper Saddle River: Pearson Prentice Hall, 2005).

Another contemporary text, David Kazez's *Rhythm Reading: Elementary through Advanced Training*, would seem by its title to be more complete in its coverage of twentieth-century rhythms.[4] It is a well-presented, functional elementary text, but again, falls short in its coverage of twentieth-century rhythms. When presenting performance instructions for quintuplets, the directives are not comprehensive: "Performing a quintuplet can be quite a challenge. Be sure that the five notes are of equal duration." Subdivisions of irregular rhythms are not discussed, odd and changing meter are presented but briefly, and metric modulation is covered in a single page, garnering only two of the text's 466 examples. This study deals with all of the above issues in detail.

Michael L. Friedmann's *Ear Training for Twentieth-Century Music* is notable for its total absence of rhythmic material.[5] Lars Edlund's *Modus Novus: Studies in Reading Atonal Melodies*, is an excellent early ear training text for twentieth-century melody, but the rhythmic material never advances in difficulty past a quarter-note triplet.[6]

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[4] David Kazez, *Rhythm Reading: Elementary through Advanced Training*, (New York: W.W. Norton, 1997).

[5] Michael L. Friedmann, *Ear Training for Twentieth-Century Music* (New Haven: Yale University Press, 1990).

[6] Lars Edlund, *Modus Novus: Studies in Reading Atonal Melodies* (Stockholm: Wilhelm Hansen, 1963).

Arthur Weisberg's *Performing Twentieth-Century Music: A Handbook for Conductors and Instrumentalists*, does specifically tackle various problems inherent in the performance of twentieth-century music.[7] Though this text covers many issues of analysis and performance, it is not comprehensive, nor does it present a system to achieve the desired results. I present my own approach regarding some of the problems which Weisberg addresses.

There are also several general texts that address the various rhythms found in twentieth-century music. These abound in excellent annotated examples, but are historically or theoretically oriented; they are not directed to the performer.[8] This study focuses on the "how to" aspect of performing these rhythms; it assembles in one volume information that is found only sporadically, or not at all in other sources. Its purpose is to serve as a handbook for musicians, by providing systematic instruction previously unavailable.

The pedagogical process presented here to conquer the various challenges of performing twentieth-century rhythms is to employ a previously learned skill to facilitate the

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[7] Arthur Weisberg, *Performing Twentieth-Century Music: A Handbook for Conductors and Instrumentalists* (New Haven: Yale University Press, 1993).

[8] Jane Clendinning and Elizabeth West Marvin's *The Musician's Guide to Theory and Analysis* (New York: W.W. Norton, 2005) presents excellent discussion and analysis of twentieth-century rhythmic practices.

acquisition of a new one. By using this method, any dedicated musician can learn twentieth-century rhythmic practices.

Each chapter discusses a particular aspect of twentieth-century rhythms and their performance: Chapter 2, Tuplets; Chapter 3, Subdivision of Tuplets; Chapter 4, Meter; and Chapter 5, Metric Modulation.

For each of these topics' specific challenges, I present specific solutions, including exercises with progressive steps needed to achieve results. These solutions are based on research of written materials, my experience as a performer and conductor, and my own pedagogical theories and practices developed from years of teaching percussion and ear training.

Overview

Chapter 2 explores tuplets. Tuplets are perhaps the most common element found in compositions from the twentieth century. They have entered into the composer's vocabulary and are considered a standard element in a composition. The most widely used tuplets are quintuplets and septuplets; this chapter is devoted almost exclusively to their performance, with a short section on the nonuplet, a rarer occurrence.[9]

[9] This study does not include triplets and sextuplets as they have long been a part of music from the common-practice period.

Chapter 3 examines the subdivisions of tuplets within one beat, providing many different exercises to achieve fluency of the subdivided quintuplet and septuplet, and, again, a limited section on the nonuplet. This chapter introduces the idea of the *rhythmic grid*, a writing out of the underlying subdivisions that are the source of any subdivided rhythm, and its use as a learning aid.

Chapter 4 discusses meter, focusing on the use of odd (non-traditional metrical groupings) and changing meter, leaving aside more esoteric metrical innovations such as composite meter, polymeter, and fractional meter. In addition to rudimentary exercises that isolate each possible aspect of odd and changing meter, progressive exercises lead the performer to increasingly difficult material, comparable to actual musical examples. This chapter also considers meter in relation to the melodic and rhythmic material within a composition, drawing examples from the literature. A section on cross-metrical writing - a typical twentieth-century compositional tool - is included and several exercises are given. The final three exercises are based upon Stravinsky's *L'Histoire du Soldat* and the *Rite of Spring*, and a percussion work by Dave Hollinden, *Second Quartet*.

Chapter 5 is devoted to metric modulation, the compositional technique associated with Elliot Carter that is used to provide for systematic change of tempo within a composition. The chapter begins with rudimentary exercises that are immediately performable; these segue into more sophisticated tasks which lead the performer into articulating a metric modulation as it would appear in actual music. Examples illustrate modulations from the most basic to the advanced. At the end of this chapter are several annotated examples extracted from Carter's music, graded from rudimentary to advanced.

All chapters start with exercises that a beginner could accomplish, and they rapidly increase in difficulty. Some of the initial exercises may appear too rudimentary to the more advanced performer; but often they serve to illustrate a pedagogical point in the text. The end of each chapter contains examples that will challenge all but the most well-versed performer in twentieth-century music.

Notation of tuplets

Twentieth-century notational practices are not standardized, and the area that is most problematic is the notation of tuplets. Several procedures that have come into common usage are confusing, misleading, or erroneous. These inconsistent and/or erroneous practices can only lead to

confusion. The performer needs to be able to recognize incorrect notation instantly, in order not to waste time attempting to work out a poorly notated rhythm. By studying notational principles, the performer will be able to discern correct from incorrect notation and thereby will have a better chance of performing the work accurately and musically.

Note Values of Tuplets

The most contentious aspect of notating tuplets is establishing what note value is to be given to each member of the group. Gardner Read suggests the following rule of thumb: "The same note value for both the normal and the irregular group is retained until the notes in the latter exceed twice the written value of the normal group."[10]

Most composers agree as to the note values of triplets and quintuplets (and sextuplets) when replacing a duplet or quadruplet, respectively, in simple meter. However, there is widespread disagreement when it comes to the notation of septuplets. Septuplets are often moved to the next smaller note value, e.g., by using thirty-second notes instead of sixteenth notes for a septuplet within a quarter note. This

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[10] Gardner Read, *Modern Rhythmic Notation* (Bloomington: Indiana University Press, 1978), p. 22.

ignores the above-mentioned rule of notation and is incorrect.

Tuplets in the music of Carter

Elliott Carter employs two notational idiosyncrasies that require examination, since this study utilizes several of his examples in Chapter 5. First is his habitual use of second division note values for septuplets in simple time. Second, he utilizes dotted quintuplet and septuplet notes in simple time - for example using five ♪. in the space of three beats in 3/4 time. Use of dotted notes should serve to eliminate the tuplet with the numeral; however, using the dotted notes implies that those five dotted notes add up to three quarter notes, which they do not. The dotted note overcomplicates the notation of an already difficult rhythm, making accurate execution more problematic for the performer.

In the text that follows I will use the direct mode of address, speaking to the reader as a participating student of this material. I believe this mode is appropriate for an instructional text.

Chapter 2: Tuplets

One of the most common and easily remedied problems facing the student of twentieth-century rhythms is to perform successfully tuplets such as quintuplets and septuplets. Because these groupings are not often found in the standard repertoire and normal course of study, many students, understandably, lack skill in performing them.

Any group of notes that must have a bracket and a number in order to define it falls into the general category of tuplets. These groupings have also been labeled odd, irregular, irrational, extrametric, or artificial.[1] Though more or less commonly found, the above-mentioned terms are either misnomers, have extra-musical implications, or assign extraneous or erroneous character to a simple notational device. For the purpose of this study I will use the term tuplets, a more generic term with no extra-musical connotations.

Common tuplets based on triple subdivision (such as triplets and sextuplets) are a standard part of a student's course of study and it is assumed that the student is able to perform these in their simple forms. Groupings such as quintuplets and septuplets are less commonly studied

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[1] Gardner Read, *Modern Rhythmic Notation* (Bloomington: Indiana University Press, 1978), p. 22.

because they appear infrequently in pre-twentieth century repertoire.[2] The goal of this chapter will be to provide the student with ways to execute those groupings that have been heretofore considered uncommon.

The term "groupings" refers to a group of notes that are to be played in the space of one beat or subdivision of a beat.

Ex. 2-1 Standard groupings, using ♩ as the beat:

Ex. 2-2 Common tuplets:

Ex. 2-3 Less common tuplets:

[2] Another way to think of these groupings (and gives us a hint as to the difficulty involved in performing them) is that they cannot be divided into two without splitting a note, therefore, subdividing the beat gives us no help in performing them. This would also include other groupings that are not divisible by 2: 9, 11 and 13.

Learning quintuplets

Much of the same methodology used in studying quintuplets will be used for learning septuplets as well. It is assumed that you are beginning the study of tuplets, and, when attempting to perform a quintuplet, may guess at the rhythm rather than play it with certainty. Another common erroneous approach is to approximate the quintuplet by combining a duplet and triplet figure as illustrated in Ex. 2-4.

Ex. 2-4. Erroneous attempt Desired rhythm

This produces a weak approximation of the quintuplet, for although five notes exist within the beat, the temporal relationship is obviously incorrect. In reality, this group of five notes simply comprises two individual groups relating to an eighth-note pulse. This procedure is not at all recommended. You will learn to render correctly five notes within one beat by utilizing abilities already in place, and then apply that facility to actual music.

Preliminary exercises

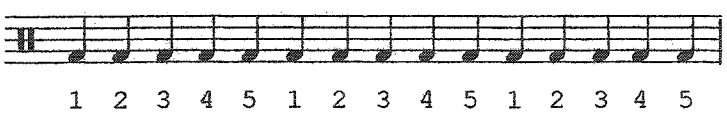
Before approaching the more difficult task of performing a quintuplet as written in standard notation,

first follow the subsequent step-by-step approach to performing five notes within the span of one. By following these steps you will accomplish this goal.

Use the following process in order to memorize and internalize the relationship of five notes within one beat, in the same way that you have already internalized common subdivisions of two, three, and four. Since you may not yet have the ability to perform correctly a quintuplet in a given pulse, the first step is to perform a group of five notes without relating it to a pulse.

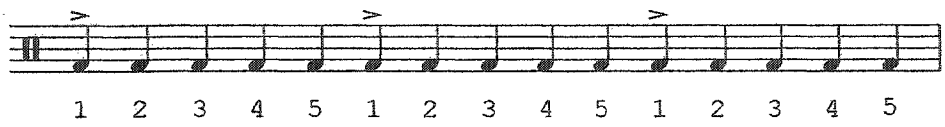
Start by performing a steady stream of notes and then divide this stream into groups of five simply by counting 1 to 5 repeatedly (Ex. 2-5a). Rather than trying to put five notes into one beat, you are first establishing a group of five notes with each note assigned an individual pulse. (Because this is an artificial setting, bear in mind that this is merely an elementary learning aid.)

Ex. 2-5a ♩ = 138



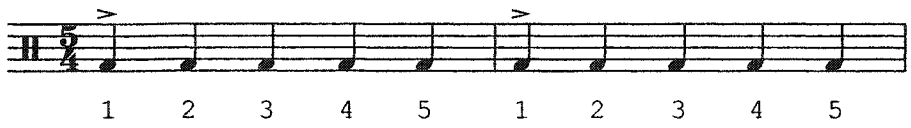
Next accent every fifth note, as shown in Example 2-5b.

Ex. 2-5b



Ex. 2-5b can also be written as a measure of 5/4, as shown in Example 2-5c.

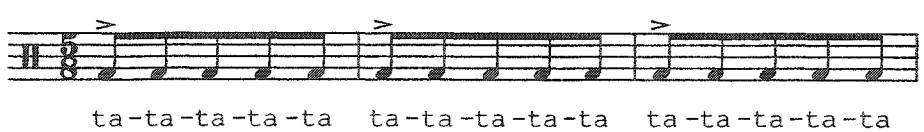
Ex. 2-5c



At an initial moderate tempo of ♩ = 138, this will not produce the desired perception of a quintuplet within a beat, for the mind will simply be perceiving each quarter note as a pulse.

The next step is to increase the tempo to ♪ = 208 and practice it at this tempo. At this point rewrite the exercise as a measure of 5/8, as it would be more commonly notated at that tempo (Ex. 2-5d). Perform these exercises in a strict, metronomic manner.

Ex. 2-5d ♪ = 208 Use the syllable ta.



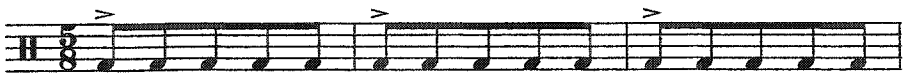
Clap your hands on the first ♪ of each measure of Ex. 2-5c to reinforce the accent while vocalizing the ♪'s on the syllable ta. Replacing the numerals with this syllable eliminates the unevenness found in the pronunciation of the numerals. It is also important to use a syllable that begins with a hard consonant like ta since syllables like la tend to receive a legato performance, which is less helpful for rhythmic training. Transfer your concentration from the perception of the individual note as the basic pulse to the accented beginning of each measure, using the accent to perceive a whole measure as a single beat.

Increase the tempo to ♪ = 250. At this point the accented first note of the beginning of each measure will coincide with ♩+♩. = 50), an easily perceivable pulse. Rewrite this example as a quintuplet, the duration of the previous whole measure (Ex. 2-5d) equaling that of the individual half-note pulse (Ex. 2-5e).

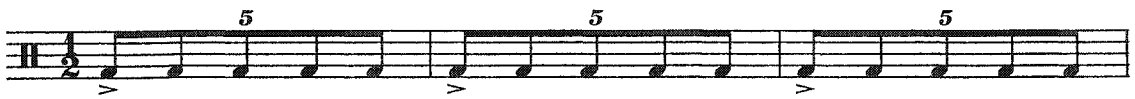
Ex. 2-5e

The next step is to practice Ex. 2-5d and 2-5e together. First perform Ex. 2-5f and then look at Ex. 2-5g. At this point you will be correctly performing a quintuplet while perceiving it in standard notation.

Ex. 2-5f

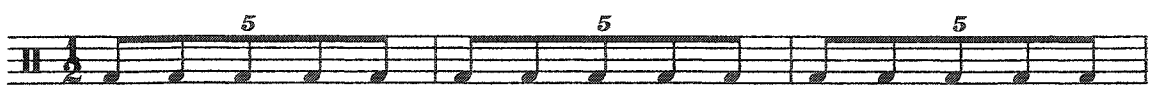


Ex. 2-5g



Practice quintuplets at several different tempos (Ex. 2-5h and 2-5i) without the aid of the artificial "backwards approach," (i.e., utilizing a stream of notes to create a quintuplet as shown above in Ex. 2-5a - 2-5g). Always use a metronome. (If you are having difficulty it is necessary to repeat the steps given in examples 2-5a through 2-5e.)

Ex. 2-5h ♩ = 42-72

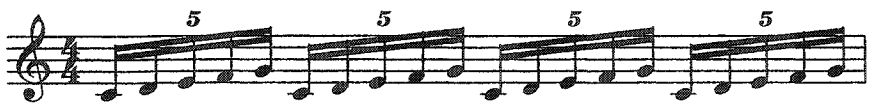


Ex. 2-5i ♩ = 60-84

Use of scale fragments

Another elementary method of learning quintuplets is the use of scale fragments (Ex. 2-6).[3] You may play this exercise at your instrument or at the piano. At the piano, the five fingers of the hand form a physical quintuplet configuration.

Ex. 2-6



Attempt to perform Ex. 2-6 at ♩ = 58-63. Once you find this exercise comfortable, increase the tempo to ♩ = 76. Set a metronome at the desired tempo, allowing it to click for several beats to establish the tempo rather than jumping right in. Always keep in mind that the metronome must be used as the reference pulse. It is a necessary tool to discern whether or not an irregular grouping is being properly performed.[4]

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[3] From this point on the quintuplet will be notated in the standard manner with qualifying numeral above the tuplet.

[4] I have found that when students provide their own pulse source while performing tuplets (i.e., tapping on the table or clapping hands), they will often adjust that source to accommodate discrepancies and imperfections in performance. This procedure is not recommended, since it assumes that the student has the ability to produce an inflexible sense of pulse while performing a challenging rhythm, a potentially contradictory task.

Use of rhythmic words

Another elementary tool to help assimilate quintuplets is the teaching aid of a rhythmic word. Just as a young child is taught that a group of four sixteenth notes has the same rhythmic configuration as the word "Mississippi", the quintuplet can be learned with the help of a five-syllable word. The word "serendipity" works very well. The equally weighted syllables lend themselves to even articulation and enunciation.

First, simply say "serendipity" repeatedly in a strict tempo, allotting equal time value, stress, and articulation for each syllable. Next, set the metronome at ♩ = 54. With this as your basic pulse, pronounce the word, using the division of syllables shown in Example 2-7a.

Ex. 2-7a ♩ = 48-60

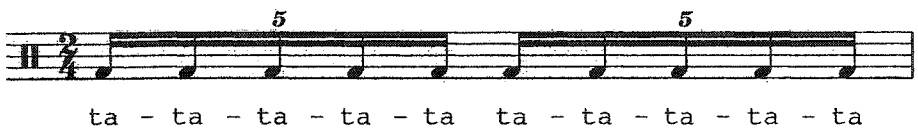
se - ren - di - pi - ty se - ren - di - pi - ty

If necessary, use a slower tempo at first (but not slower than ♩ = 48), then work up to ♩ = 54-60. You must vocalize in a rather mechanical fashion initially in order to achieve the best results. At this point it is not at all necessary to attempt this exercise at faster tempi.

The focus of this exercise is to internalize and memorize the relationship of five notes to one. Once this is accomplished at a moderate tempo, speed will not pose an inordinate problem.

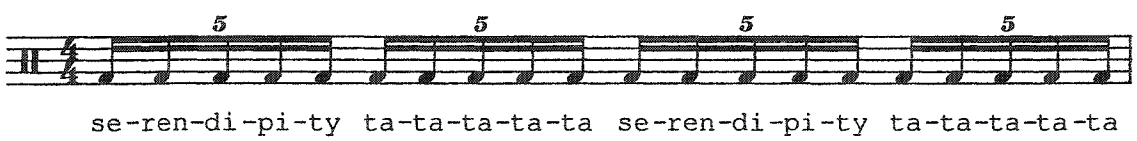
After you are comfortable with this, replace the syllables of "serendipity" with the syllable ta, illustrated in Example 2-7b.

Ex. 2-7b ♩ = 48-60



If you are having difficulty, go back and forth between "serendipity" and ta, performing one beat using "serendipity" and then one beat using ta, alternating between the two (Ex. 2-7c).

Ex. 2-7c ♩ = 48-60



You should find this short process an easy way to assimilate a quintuplet; remember to perform all examples in a strict manner. It is useful to realize that you are

again using a previously mastered skill to help to assimilate a new one.

Exercises employing quintuplets

By this time you should possess a fundamental understanding of the quintuplet and be able to perform it in an isolated setting. The next step is to combine it with other rhythms. The next exercises are much closer to an actual musical setting, in which quintuplets co-exist with other rhythms. These exercises are limited to the simplest form of a quintuplet: 5 notes in the space of one beat (♩), with no inner subdivisions.

Warm up for the following drills first by practicing quintuplets by themselves (Ex. 2-8). All drills should be performed repeatedly. Start at ♩ = 58 and work up to ♩ = 72.

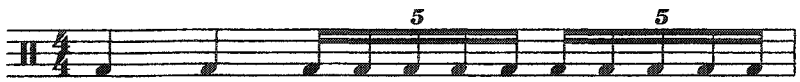
Ex. 2-8 ♩ = 60

Combining quintuplets with other note values

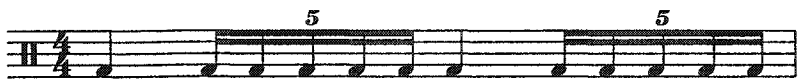
The following exercises combine quintuplets with elementary rhythms. Use the simple rhythms as mental resting points; you will be moving back and forth from the

previously learned elementary rhythms to the newly learned quintuplets. Where the quintuplet is preceded by a quarter note as in Example 2-9a and 2-9b, you may silently perform the quintuplet during the quarter note as a preparation.

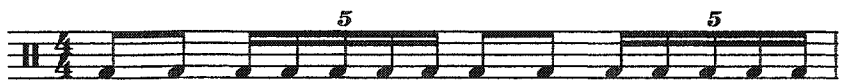
Ex. 2-9a



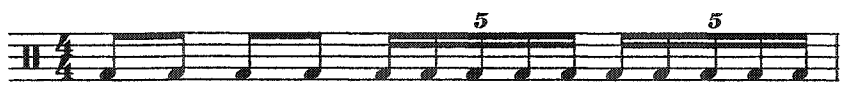
Ex. 2-9b



Ex. 2-9c

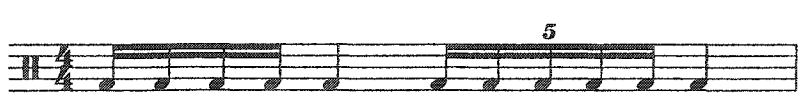


Ex. 2-9d



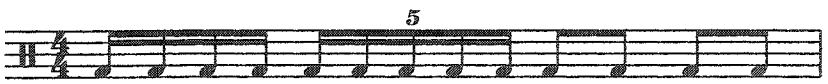
Ex. 2-9e

Ex. 2-9f



Ex. 2-9g

Ex. 2-9h



Example 2-9i is one of the most difficult to perform accurately because there may be a tendency to run the sixteenths into the quintuplet and accelerate to fit five notes into that beat.

Ex. 2-9i

The opposite tendency may occur when moving back to sixteenths from the quintuplet (beat 3), this time "putting on the brakes" to accommodate only four notes in the beat. It is very difficult to ascertain whether you are performing it correctly when practiced at the faster tempos of ♩ = 60-72. For this reason you should first perform this exercise at ♩ = 54, 56, and then at ♩ = 58. At these tempos the mind can process and accurately perceive the change from 4 notes per beat to 5 notes per beat and vice versa. Speed is not the goal; in fact, in this instance it is a

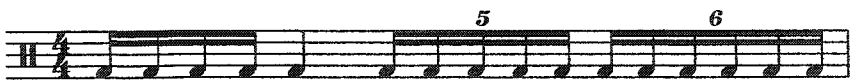
hindrance to learning.

The next step is to perform quintuplets combined with additional tuplets, now adding sextuplets and triplets.

Adding sextuplets

Perform the following exercises at the moderate tempo of ♩ = 58. If you are having difficulty, you may double or quadruple the value of the individual rhythms in Example 2-10a, thereby performing a full bar of sixteenth notes, a full bar of quarter notes, and so on, as a preparatory exercise. You may apply this expansion technique to any of these exercises where you find it necessary. Do not increase the tempo from ♩ = 58.[5]

Ex. 2-10a ♩ = 58, not faster .



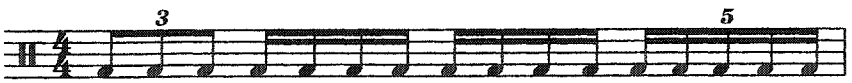
Ex. 2-10b

[5] There is no advantage in performing these exercises at tempos faster than ♩ = 58; the sole task of these exercises is to be become confident in shifting from one irregular group to another. Performing faster is actually a hindrance to learning; the perception of accurate performance is more easily accomplished at moderate tempos, neither too slow nor too fast.

Ex. 2-10c

Adding triplets and sextuplets

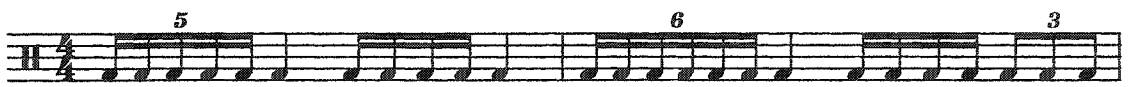
Ex. 2-11a



Ex. 2-11b

Ex. 2-11c

Ex. 2-11d

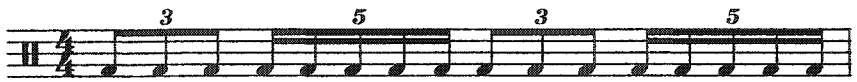


Ex. 2-11e

Ex. 2-11f

Ex. 2-11g

Ex. 2-11h



Ex. 2-11i

Augment these exercises by creating new exercises that focus on a particular, challenging situation. For instance, you might find shifting from triplets to adjacent quintuplets difficult, as found in Ex. 2-11h. Create an exercise that puts a quarter note between the triplet and the quintuplet in order to overcome this difficulty, as shown in Ex. 2-11j. Then return to Ex. 2-11h.

Ex. 2-11j

Mastery of these exercises comes only through constant repetition. The execution of a quintuplet should become second nature and require no more thought than the execution of four sixteenth notes.

Septuplets

Many of the same processes used to master quintuplets will be used when studying septuplets. As with quintuplets (Ex. 2-4), one erroneous way to attempt to perform a septuplet, besides guessing, is to combine a quadruplet group with a triplet group, as shown in Examples 2-12.

Ex. 2-12. Erroneous attempt Desired rhythm

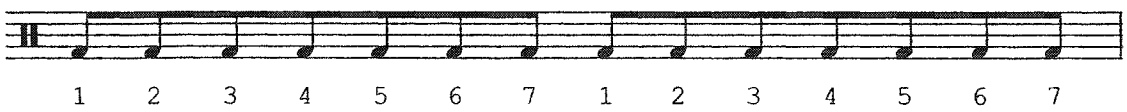
As before, this produces only a weak approximation of the desired rhythm. It is not a septuplet; it is merely two individual groups within an eighth-note pulse. It is of no help in learning the septuplet.

The same progressive steps used in studying quintuplets (Ex. 2-5a through Ex. 2-5g) will be used to learn the septuplet.

Preliminary exercises

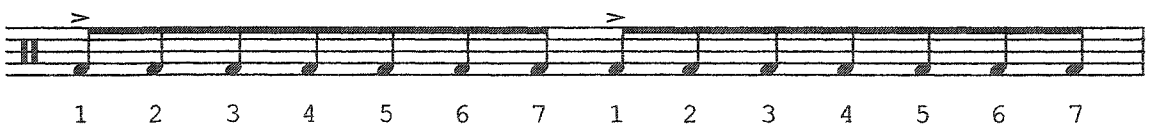
Start by performing a steady stream of notes and divide this stream into groups of seven simply by counting 1234567 repeatedly. This is illustrated in Example 2-13a. Pronounce only the first syllable of the number seven: "se". (An alternative way to count the seven notes is 1234123. If you use this latter method, you must take care not to apply any false sense of phrasing by accenting the beginning of the group of three, numbers are used only because they are familiar syllables, they possess no musical implication.) Perform these and all exercises in a detached mechanical fashion. All syllables should receive the same duration, stress, and articulation.

Ex. 2-13a



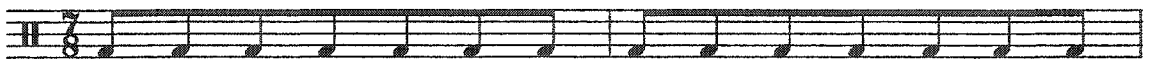
Now accent the beginning of every group of seven as shown in Ex. 2-13b.

Ex. 2-13b



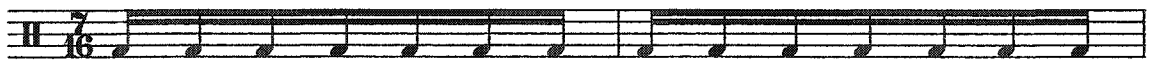
Rewrite this group of seven notes in standard notation using 7/8 meter, as shown in Ex. 2-13c.

Ex. 2-13c ♩ = 168



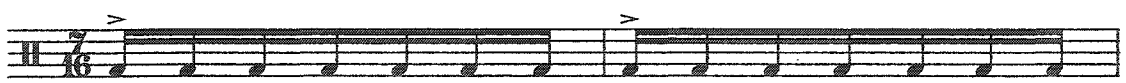
This initial moderate tempo will not produce the desired perception of seven notes in the space of one beat; rather, each eighth note will be perceived as an individual beat. The next step is to increase the tempo to ♪ = 208 and practice the exercise at this tempo. At this point rewrite the exercise in 7/16, as it would be more commonly notated at that tempo (Ex. 2-13d).

Ex. 2-13d ♪ = 208



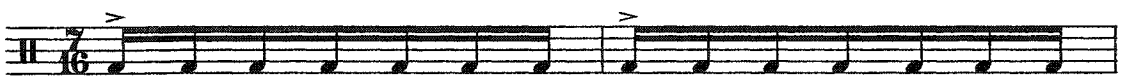
Replace the numerals with the syllable ta (Ex. 2-13e), eliminating the unevenness inherent in the pronunciation of the numerals and at the same time abandoning the crutch of counting to seven. Accent the first note of each measure.

Ex. 2-13e ♪ = 208 on ta



Clap your hands on the on the first sixteenth note of each measure of Ex. 2-13e to reinforce the accent while vocalizing on the syllable ta. Transfer your concentration from the perception of the individual note as the basic pulse to the accented beginning of each measure, using the accent to perceive the whole measure as a single beat. Now increase the tempo to ♪ = 280 (Ex. 2-13f). At this point the accented first note of the beginning of each measure will be equal to ♩+♪ = 40, an easily perceivable pulse.

Ex. 2-13f ♪ = 280 or ♩+♪ = 40



Rewrite Ex. 2-13f as a septuplet (Ex. 2-13g), the duration of the previous whole measure of Ex. 2-13f now equaling

that of the individual pulse in Ex. 2-13g.

Ex. 2-13g ♩ = 40 Rewritten as a septuplet

The next step is to practice Ex. 2-13f and 2-13g together, as shown in Ex. 2-13h and Ex. 2-13i. Perform Ex. 2-13h and

then look at Ex. 2-13i. At this point you will be performing a septuplet correctly while perceiving it in standard notation.

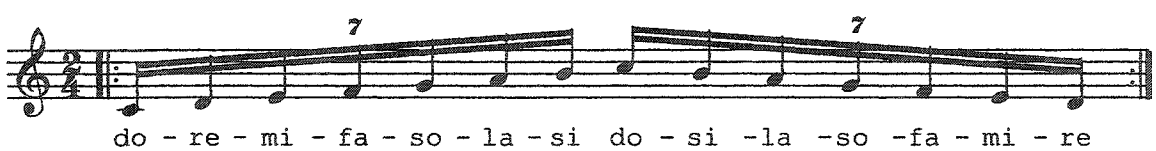
Ex. 2-13h ♪ = 280 or ♩+♪ = 40

Ex. 2-13i ♩ = 40 (♪ = 280)

Using scales to learn septuplets

The major scale is a perfect tool to help learn septuplets. For this exercise vocalize solfeggio syllables as shown in Ex. 2-14a. The scale shape produces a natural model for the septuplet, with the top and bottom tonic note functioning as the first note of the septuplet.

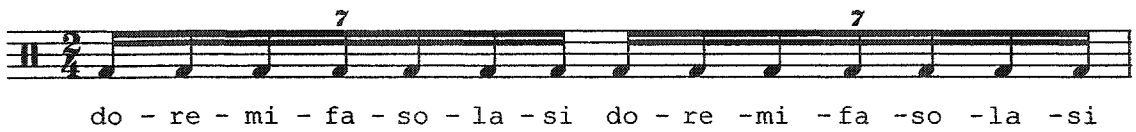
Ex. 2-14a ♩ = 58



It is also a good idea to use the solfeggio syllables without singing the pitches. They make a very fluid set of

syllables to use as a purely rhythmic word training aid (Ex. 2-14b). Set your metronome to ♩ = 54. With this as your basic pulse, vocalize the syllables on one pitch. Remember to enunciate each syllable clearly.

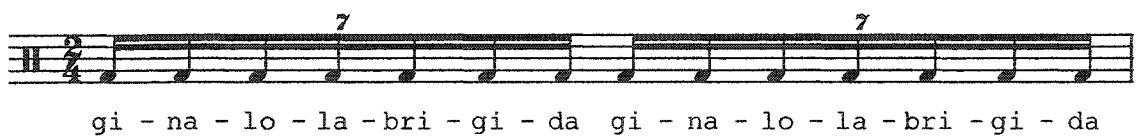
Ex. 2-14b



Use of rhythmic words

A rhythmic word that can be used as an aid in learning septuplets is "Gina Lolabrigida" (Ex. 2-15a). As before when learning quintuplets, simply say the word repeatedly in a strict tempo, allotting equal time value, stress, and articulation for each syllable.

Ex. 2-15a

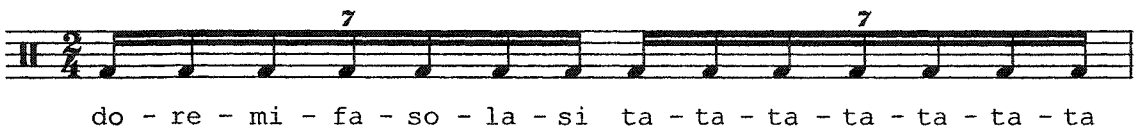


After performing Ex. 2-14b and 2-15a replace the syllables of "Gina Lolabrigida" (or "do-re-mi-fa-sol-la-si") with the syllable ta (Ex. 2-15b).

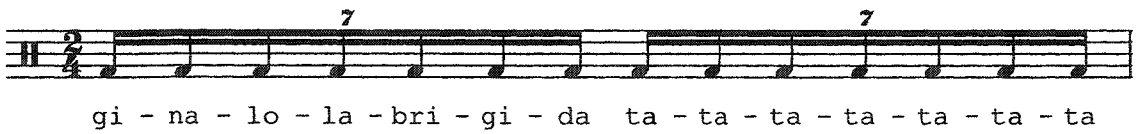
Ex. 2-15b On ta

If this is difficult, go back and forth between the words and the performance syllable ta, performing one beat using "Gina Lolabrigida" (or "do-re-mi-fa-sol-la-si") and then one beat using ta, alternating between the two (Ex. 2-15c and 2-15d).

Ex. 2-15c



Ex. 2-15d



By this time you should be performing septuplets correctly, albeit in an isolated setting. As with quintuplets, the goal is to internalize completely the septuplet relationship to a single pulse. Without complete mastery of this most basic task, it is fruitless to move on to more complex rhythms and subdivisions.

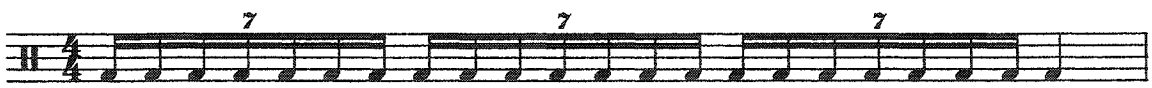
The learning process presented here always involves

moving from one learned skill to the next. If you find a particular exercise frustrating, it is probably because you have not yet completely mastered the previous step. Review that step before proceeding further. With these exercises you are being asked in a sense to start over in rhythmic training, using simple tools to accomplish sophisticated goals. Absorbing tuplets takes time and is only accomplished through repeated practice.

Exercises employing septuplets

First practice septuplets by themselves as shown in Ex. 2-16a. Repeat the exercise several times. If you are having difficulty, repeat the previous process to establish the septuplet.

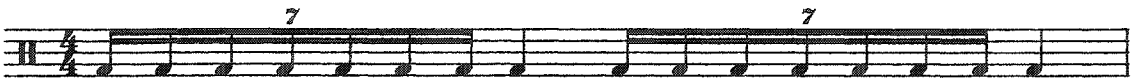
Ex. 2-16a ♩ = 58



As the tempo increases, it becomes more difficult to use the syllable ta and you will need to use syllables that flow easily at fast tempi. Ex. 2-16b is based on syllables found in the oral tradition of Indian music where rhythms are taught using onomatopoeic syllables: ti-ka-ti-ka-ti-ka-ti-ta. These syllables work very well for any exercise

where the septuplet is followed by a held note, with the held note being represented by ta. This is a good exercise for developing speed.

Ex. 2-16b ♩ = 58-88



ti - ka - ti - ka - ti - ka - ti TA ti - ka - ti - ka - ti - ka - ti TA

You may want to create or use your own syllables to vocalize with, discovering additional syllables that work well. For the student whose first language is not English, these syllables may be difficult and end up providing an added unnecessary challenge. This would contradict the intention of using word memory aids, which is to use a previously learned skill to accomplish a new one. If you find these syllables difficult to remember, choose words and syllables that you find natural and memorable.

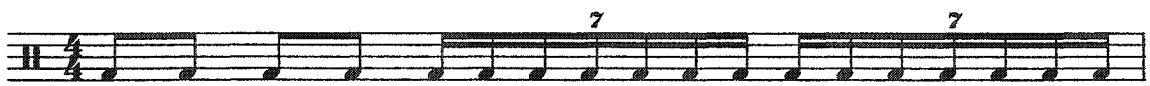
The next step is to combine the septuplet with other rhythms. The following examples are less artificial and more likely to be found in an actual musical setting, where the septuplet is combined with other rhythms. These examples limit the septuplet to its simplest form: 7 notes in the space of one beat (a quarter note), with no inner subdivisions.

Combining septuplets with quarter, eighth and sixteenth notes

The following exercises combine septuplets with elementary rhythms. As before, use the simple rhythms as mental resting points. Where the septuplet is preceded by a quarter note as in Example 2-17a, you may silently perform the septuplet during the quarter note as a preparation.

Ex. 2-17a

Ex. 2-17b



Ex. 2-17c

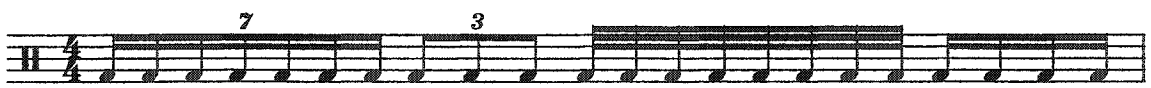
Ex. 2-17d

Ex. 2-17e

Adding triplets and thirty-second notes

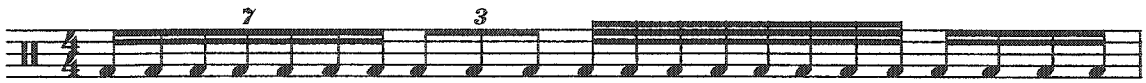
The following exercises present the added challenge of performing septuplets in combination with triplets and thirty-second notes. It is essential that you use a metronome as the grouping of seven notes per beat is performed almost at the same speed as eight per beat. These exercises demand a very high level of concentration. Perform these examples at ♩ = 54, then increase the tempo to ♩ = 60 and not faster. Faster tempos are not necessary and are not helpful in mastering these shifts from grouping to grouping.

Ex. 2-18a



Ex. 2-18b

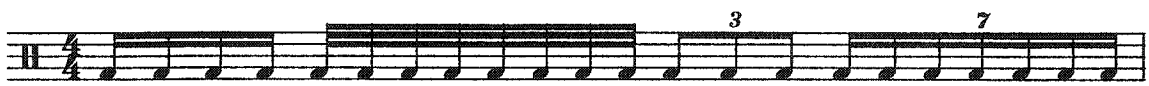
Ex. 2-18c



Ex. 2-18d

Ex. 2-18e

Ex. 2-18f



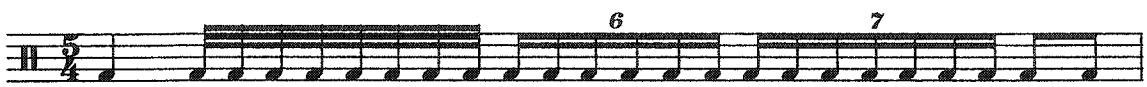
Adding quintuplets and sextuplets

The following exercises combine all of the previously studied groupings in combination. Perform these examples at ♩ = 54, then increase the tempo to ♩ = 60. Spend considerable time with each example. It is more important to master one exercise than to make your best effort at performing all the examples. If you can perform one exercise with conviction, then the others will be more easily conquered.

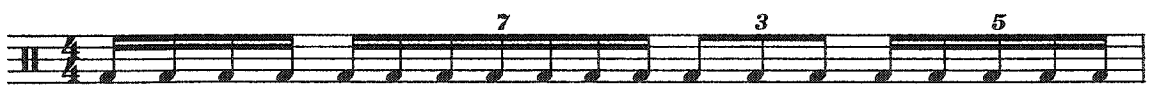
Ex. 2-19a

Ex. 2-19b

Ex. 2-19c

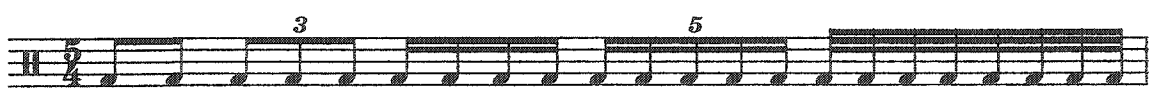


Ex. 2-19d

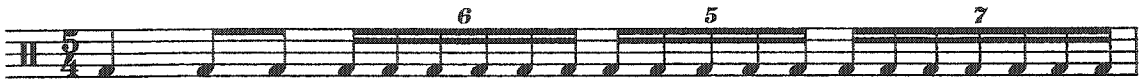


Ex. 2-19e

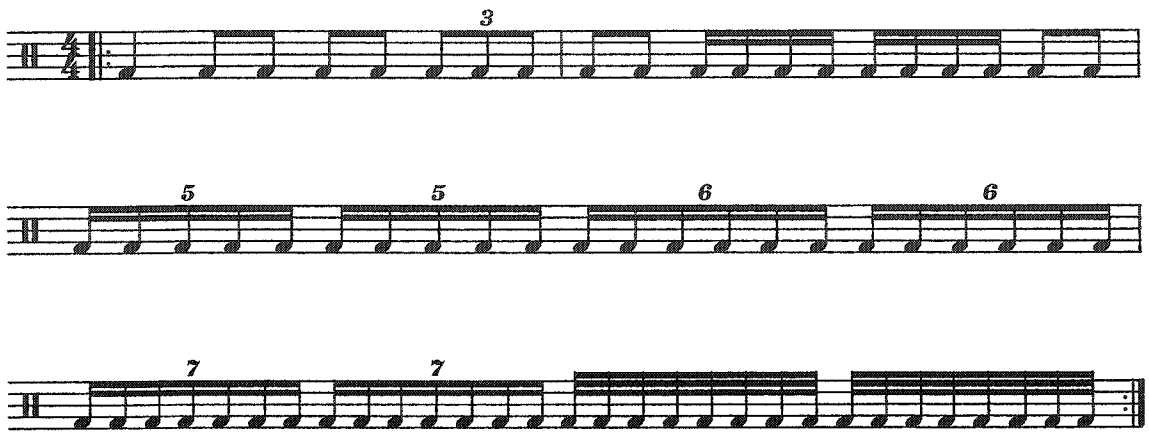
Ex. 2-19f



Ex. 2-19g



Ex. 2-19h



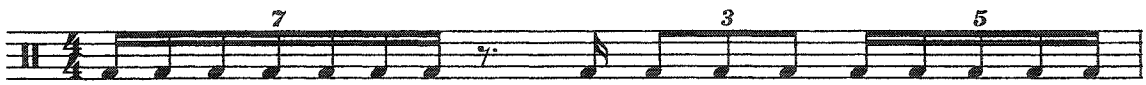
Adding common subdivisions of regular groupings

The following are more advanced examples combining all of the previously learned irregular rhythms with subdivisions of regular groupings. These examples are closer to an actual musical setting. Perform the examples within these tempos: ♩ = 54-60.

Ex. 2-20a

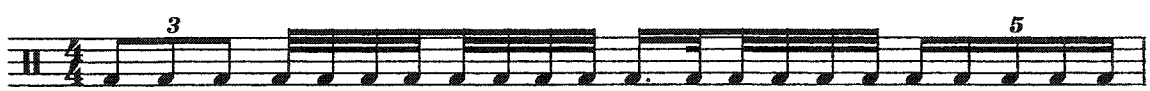
Ex. 2-20b

Ex. 2-20c



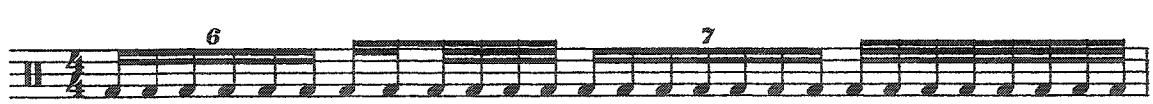
Ex. 2-20d

Ex. 2-20e

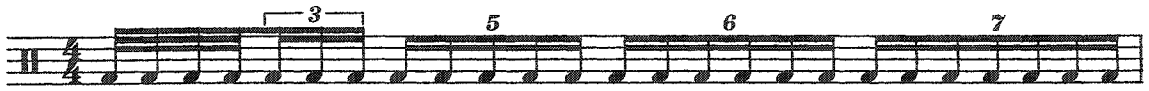


Ex. 2-20f

Ex. 2-20g

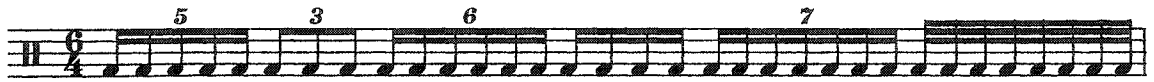


Ex. 2-20h

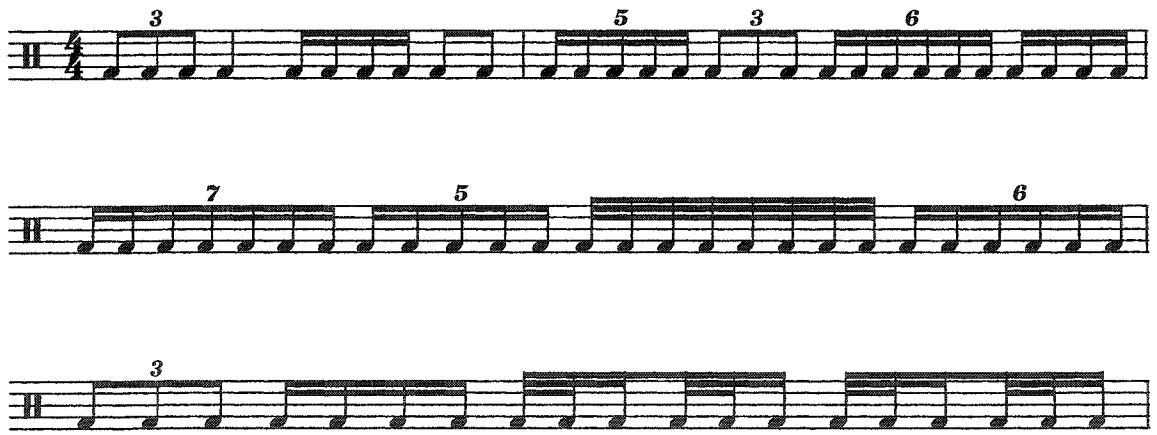


Ex. 2-20i

Ex. 2-20j



Ex. 2-20k



Tuplets of nine

The nonuplet is an irregular grouping consisting of nine notes in the place of eight. With the ♩ as the archetypal pulse, this translates into nine thirty-second notes in the space of eight thirty-second notes (Ex. 2-21).

Ex. 2-21 ♩ = 60

Though the nonuplet is a larger irregular grouping than the quintuplets or septuplets previously studied, it is not more difficult to perform. It is, in fact, easier to learn because of its clear relationship to the triplet.

In order to achieve an accurate rendering of the nonuplet, all that is required is to first think of triplets within the beat and then to add a second layer of triplets to each note of the first set of triplets. For the purposes of this study, I am designating the first set of triplets "first generation" and the second layer of triplets "second generation."[6] The step by step process is as follows:

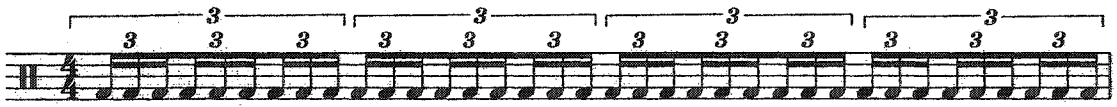
Step 1 At the same tempo of the nonuplet in Ex. 2-21, ♩ = 60, perform eighth-note triplets. (Ex. 2-22)

Ex. 2-22 ♩ = 60

[6] Gardner Read labels these groupings "dual irrational (irregular) figures." See Gardner Read, *Modern Rhythmic Notation* (Bloomington: Indiana University Press, 1978), p. 74. Another term used to describe these layered triplets is "nested."

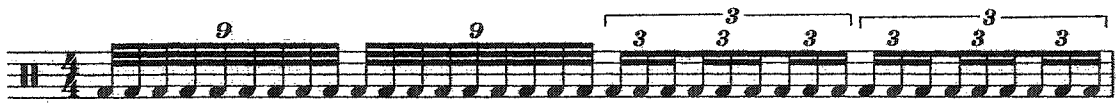
Step 2 Assign a second layer of triplets to each individual eighth-note triplet of Ex. 2-22 (the first generation triplets), producing a second generation triplet (Ex. 2-23). By doing so, you have now achieved a correct rendering of the nonuplet within a ♩ pulse.[7]

Ex. 2-23 ♩ = 60



Ex. 2-23 is the rhythmic equivalent of Ex. 2-21, but it is simply written in a different manner as a learning tool.[8] Example 2-24 presents both versions together.

Ex. 2-24 ♩ = 60

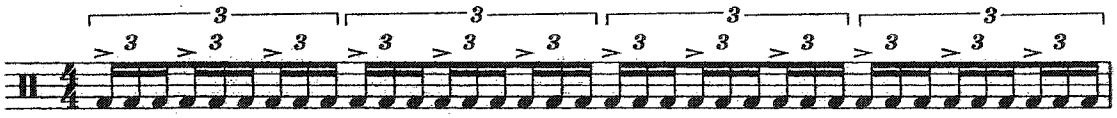


[7] Ex. 2-23 is also to be found in literature, for example in Ingolf Dahl's *Duettino Concertante*. It is an alternative method of notating the nonuplet; however, one could argue that it is redundant and over-notated, serving only to clutter the page. On the other hand, the composer might have intended for the subdivisions of the beat to be stressed, however subtly, subdividing the beat into three. The performer should consider the performance-practice issues of such notation.

[8] The note values of the nonuplet are 32nd notes while the note values of the rewritten example are 16th notes (triplets). This is because the irregular group of Ex. 2-23 (the second generation triplets) is created in relation to eighth-note triplets, therefore requiring only second division note values.

There may be a tendency to perceive each individual eighth-note triplet from Ex. 2-22 as an individual pulse when you add the second layer of triplets; in the initial stages of the learning process, you may use that internal pulse as a crutch to articulate the nonuplet, applying a slight accent if necessary (Ex. 2-25). This procedure must be abandoned as soon as possible; it is only to be used as an elementary aid. Once the nonuplet has been established, shift your concentration back to the quarter-note pulse, using a metronome to reinforce it.

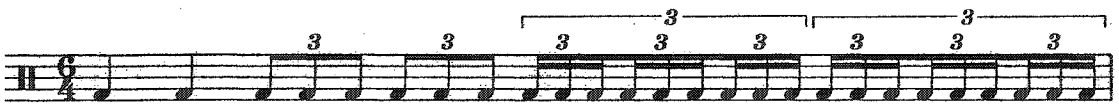
Ex. 2-25 ♩ = 60



Ex. 2-26 is an elementary exercise moving from the ♩ to eighth-note triplets to sixteenth-note triplets layered on top of the eighth-note triplets, reinforcing the above procedure. Repeat several times at ♩ = 60 until you can perform the exercise without any hint of triplet subdivision in the nonuplet. This exercise is only a rudimentary tool to establish that you are correctly performing the nonuplet. It may be referred back to as a guide while practicing. Ultimately the performance of the

nonuplet should become second nature, and recognizable and executable in standard notation without the first generation triplet reference.

Ex. 2-26 ♩ = 60



The following exercise is another way to think of and study the nonuplet. Rewrite Ex. 2-22 as four measures of 3/8 with each measure containing three eighth notes (Ex. 2-27). The ♩ pulse of the first example will be equal in duration to a full measure of the latter. (This is very natural because the pulse of a 3/8 measure might often be thought of as being in "one.") Following the same two-step process as outlined in Ex. 2-22 and 2-23, assign sixteenth note triplets to each of the eighth notes in the 3/8 measure (Ex. 2-28).

Ex. 2-27 ♩. = 60 or ♪= 180

If you are thinking of the eighth-note pulse in Ex. 2-28 you must shift your concentration to the beginning of

each 3/8 measure in order to perceive each *full measure* as an individual pulse. Again, use a metronome (♩. = 60) to mark the pulse of the complete measure, eliminating one of the perceptual tasks necessary to the performance of this exercise. You may also find it helpful to add a slight accent to the beginning of each measure.

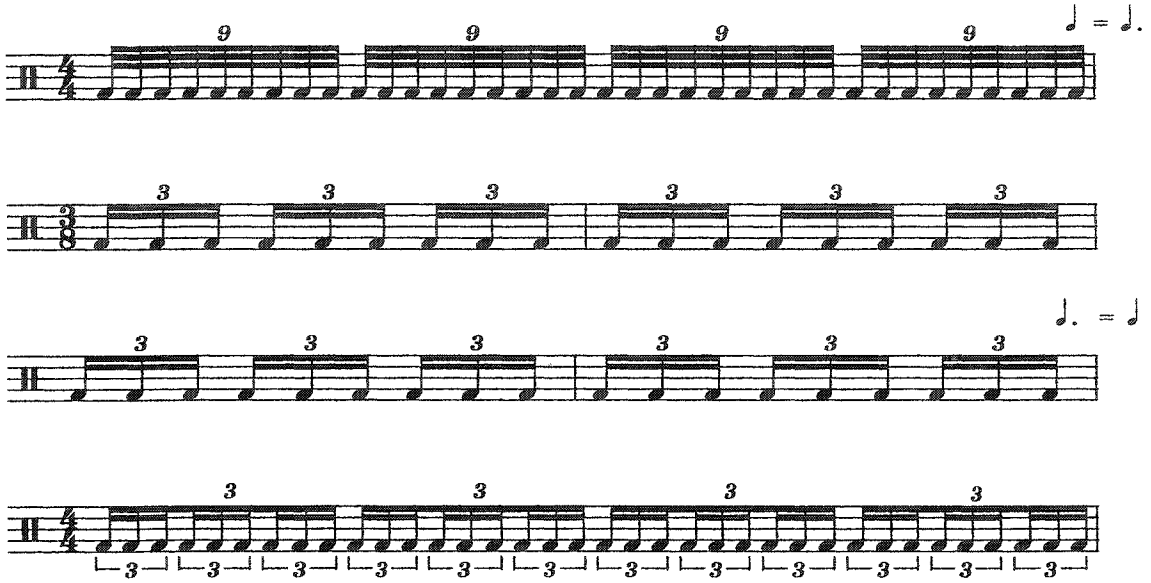
Ex. 2-28 is the rhythmic equivalent of Ex. 2-23 and Ex. 2-21, but rewritten in 3/8 meter.

Ex. 2-28 ♩. = 60

By keeping the pulse of these examples the same (that is, ♩ = 60 in Ex. 2-21 and 2-23, and ♩. = 60 in Ex. 2-28), you get the exact same rhythm at the same tempo, but written in two different meters and utilizing different tuplets (Ex. 2-29).[9]

[9] To have the examples coincide in terms of the note values used, Ex. 2-28 could as easily have been written as four bars of 3/16, therefore notating it as thirty-second-note triplets.

Ex. 2-29 ♩ = 60



These are two ways that the nonuplet can be rewritten and considered for purposes of study. Realize that this figure in its rewritten or reconceived form is an artificial abstraction of the original figure. The goal is to be able to perform nine notes in the space of a given pulse: it does not matter whether the pulse is thought of as a quarter note in 4/4 time or as full measures of 3/8 or 3/16. Once again, you are mastering a problem by relying on previous knowledge.

Note that nonuplets are written at slow tempos; they have a limited span of tempos in which they can function since there are so many notes to fit into one beat. They become impossible to perform at faster tempos. Exercises employing subdivided nonuplets will be presented in Chapter 3.

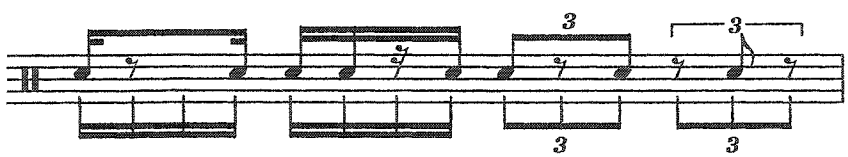
Chapter 3: Subdivision of Tuplets

The next step in the study of tuplets is to master subdivisions within one beat. In order to perform a simple ♪ ♪ rhythm, you must accurately perceive the underlying subdivision of four sixteenth notes. Likewise, when performing a subdivided rhythm within an tuplet, you must perceive the underlying subdivision.

Rhythmic grids

Ex. 3-1a illustrates simple duple and triple subdivided rhythms with the underlying subdivisions. For the purposes of this study, I will refer to this underlying source subdivision as the *rhythmic grid.*[1] The rhythmic grid will be notated with stems down on the first space of the staff, without the use of noteheads. This helps to distinguish the notation of the rhythm from the rhythmic grid.

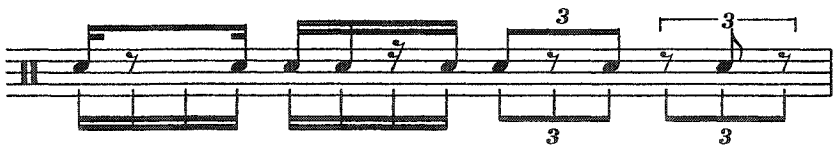
Ex. 3-1a Rudimentary duple and triple subdivisions with the underlying source subdivisions.



[1] Morris Lang introduced this idea to me with his concept of the "rhythmic key." It is also presented in Robert Starer's *Rhythmic Training* (Miami: Warner Bros. Publications, 1999), chapters V through X.

This underlying subdivision is of course never written out in music, but for the purposes of this study it is a useful and effective learning tool. Perform Ex. 3-1b while keeping a sense of the rhythmic grid.

Ex. 3-1b ♩ = 72 Rudimentary subdivisions with their corresponding rhythmic grids.

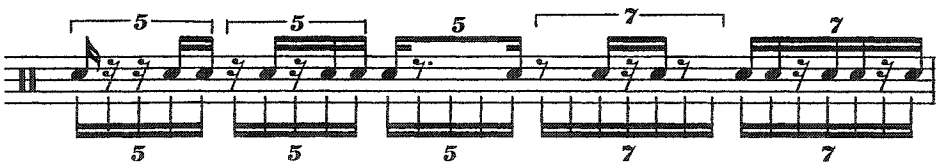


You probably did not need to refer to the *written* rhythmic grid in Ex. 3-1b in order to perform it correctly. What occurred, however, is that you automatically referred to a mental paradigm of the necessary subdivision. Elementary rhythms and their corresponding rhythmic grids require no additional written reference or separate mental step. They are internalized; you "own" them through years of repetition.

When you are performing subdivisions of tuplets, it is essential to think of rhythmic grids. The reason grids are so necessary is that tuplets have not been studied extensively - certainly not to the point where they have been internalized. After repeated practice, however, irregular rhythmic grids will also be perceived automatically, in the same way regular subdivisions are

perceived without a separate mental step. Example 3-2 illustrates various subdivided tuplets - the correct placement of the subdivided notes is made clear by the rhythmic grids.

Ex. 3-2 Irregular subdivisions of the beat with their corresponding rhythmic grids.



Rhythmic grids may be utilized in two ways: as a written analytical aid to clarify where the subdivided notes fall within the beat, and/or as a mental aid while performing subdivisions. The mental rhythmic grid is either automatic (the "internalized" grids mentioned in Example 3-1b), or requires a conscious mental step. Consciously or unconsciously, rhythmic grids are always employed in accurate performance.

Irregular subdivisions with rhythmic grids

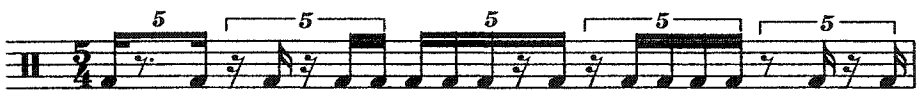
The following are examples and exercises that illustrate the performance of subdivided quintuplets and septuplets. At this point, you should already have mastered the performance of quintuplets and septuplets within a single beat, in order to proceed with this study. Without

this preparation there will be no secure frame of reference for establishing the rhythmic grid.

Subdivisions of quintuplets

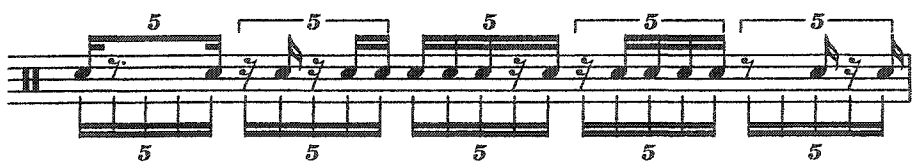
There are three stages to studying and performing subdivided quintuplets (and other tuplets): (1) analysis of the rhythm, (2) performance of the rhythm while performing the rhythmic grid, and (3) performance of the rhythm without written or aural aids. Example 3-3 contains several different quintuplet subdivisions.

Ex. 3-3 Quintuplet subdivisions



Stage 1 requires analysis of Example 3-3; it is presented in Ex. 3-4a, with the addition of the corresponding rhythmic grids.

Ex. 3-4a Quintuplet subdivisions with corresponding rhythmic grids.



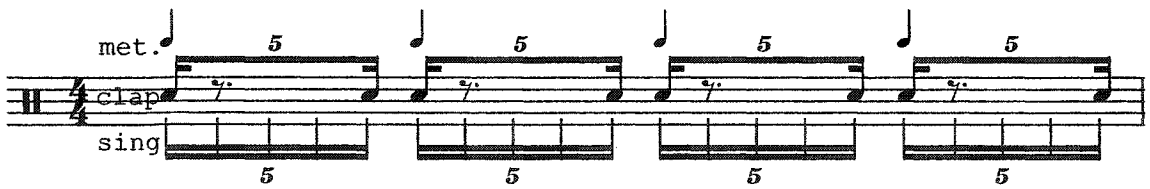
Analyze the subdivisions using the rhythmic grids to make clear where the notes fall within the quintuplet. In beat

one it is on the 1st and 5th note of the quintuplet. In beat two it is the 2nd, 4th and 5th; and so forth.

Ex. 3-4b isolates the rhythm from the first beat of Ex. 3-4; examples 3-4c though 3-4f respectively present rhythms from the remaining beats. You are now at stage 2, performing rhythms with their corresponding rhythmic grids.

First perform the rhythmic grid of Ex. 3-4b. With the metronome set to ♩ = 60 or slower, sing quintuplets on ta.[2] Next, clap only on the first and fifth quintuplet, thereby producing the exact rhythmic location of the attack.[3]

Ex. 3-4b ♩ = 60



You are now performing both the rhythmic grid and the rhythm while the metronome is defining the beat. Make sure to synchronize the three elements.

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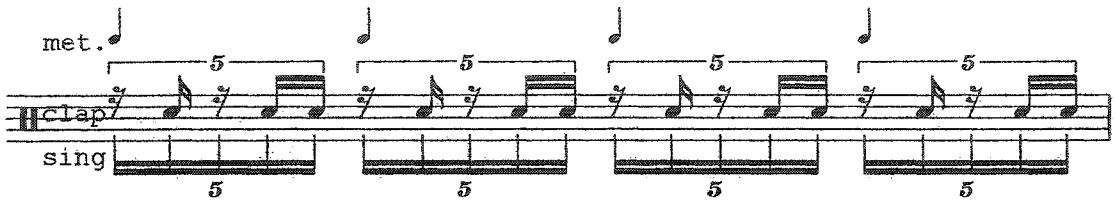
[2] It is easier to perceive this rhythm at a slower tempo. At faster tempi this figure could easily be confused with sixteenth note-eighth rest-sixteenth note. The difference is subtle even at slower tempi; it is completely obfuscated at faster ones.

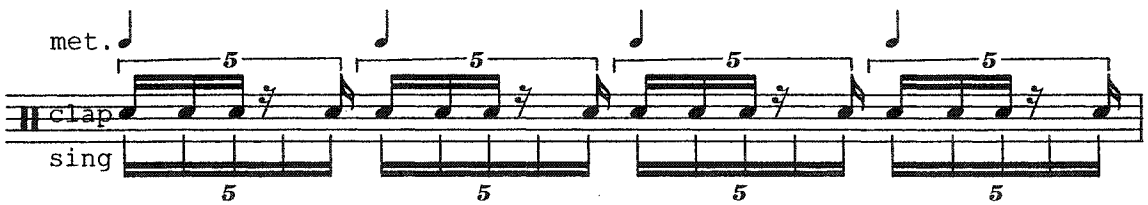
[3] Though handclapping can only produce a note of short duration it is sufficient for this exercise; the accuracy of the attack (albeit along with correct duration) is what most determines the rhythmic integrity of a performance.

Perform all the following examples using the above process. Keep the tempo at ♩ = 60 or slower.

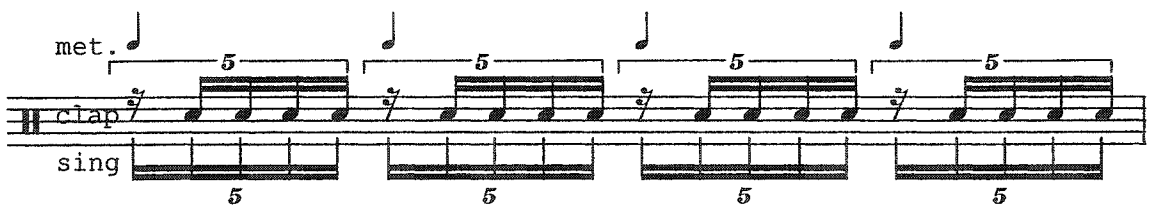
Ex. 3-4c



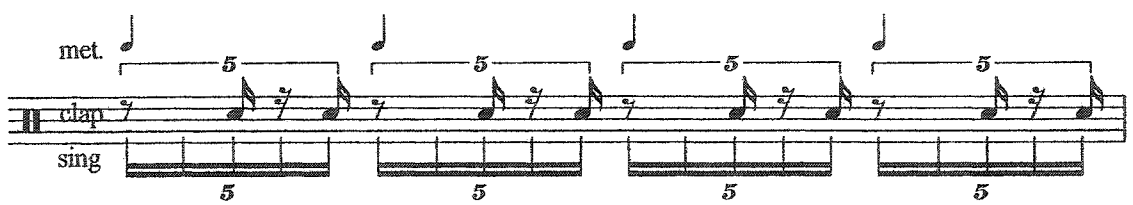
Ex. 3-4d



Ex. 3-4e

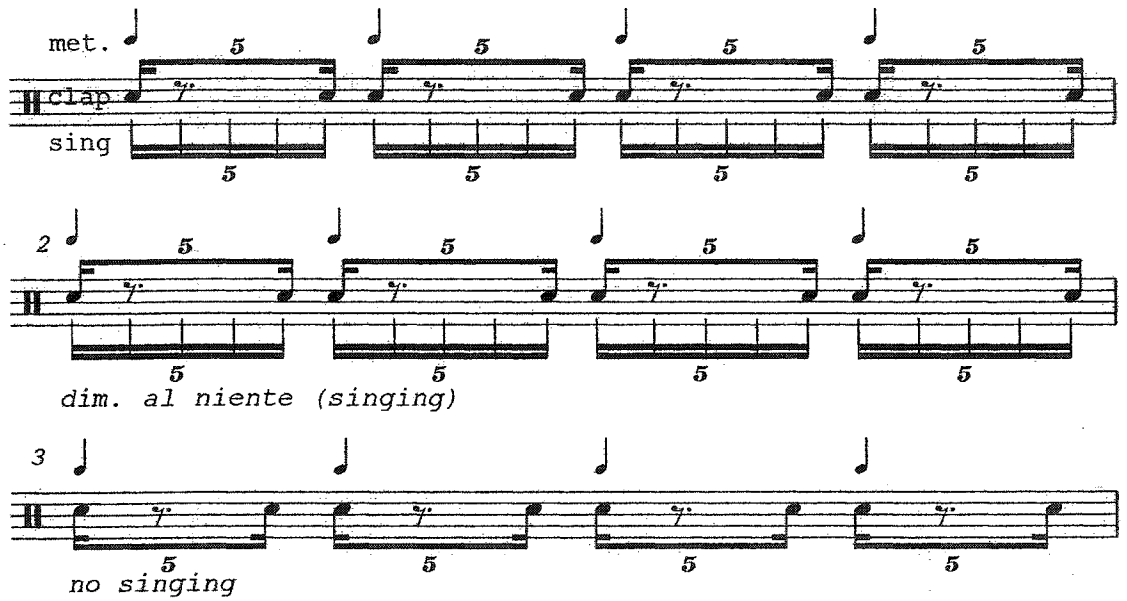


Ex. 3-4f



The last stage is to eliminate the aural articulation of the rhythmic grid. Example 3-5a presents the first quintuplet rhythm, Ex. 3-4b, along with the metronome guide and the rhythmic grid.

Ex. 3-5a ♩ = 60

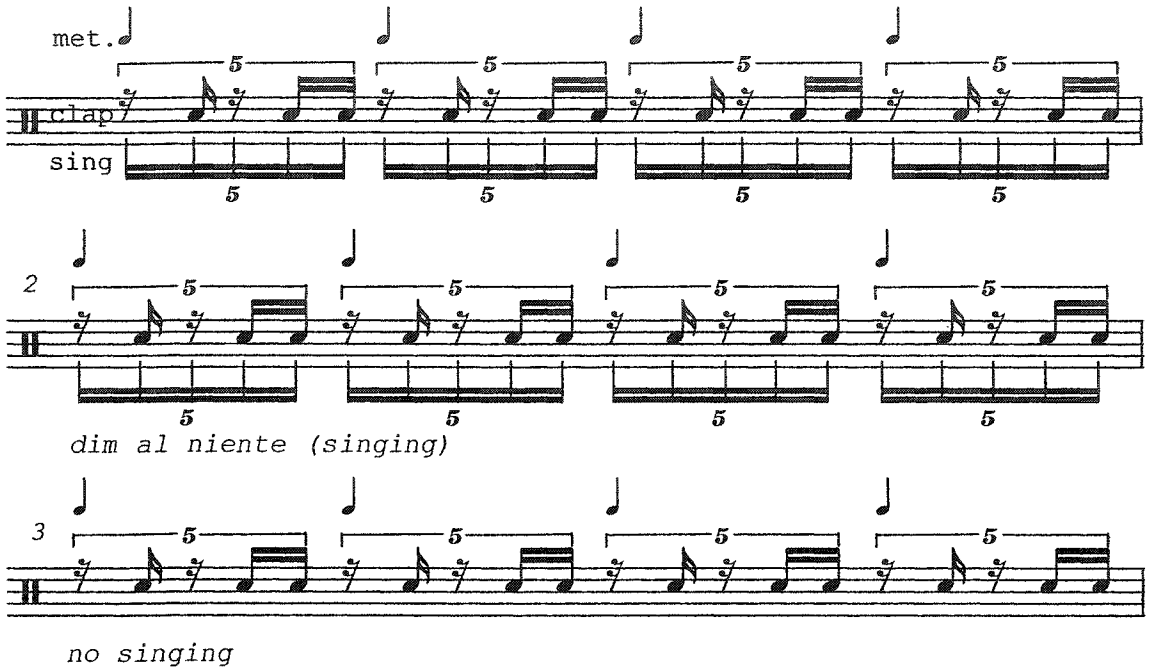


Perform Ex. 3-5a. At m. 2 decrease the dynamic level of your vocalizing until it is inaudible, focusing your mind on the written figure. As the vocalization becomes ever more quiet, it is absorbed and transferred to an inner ear articulation of the rhythmic grid.

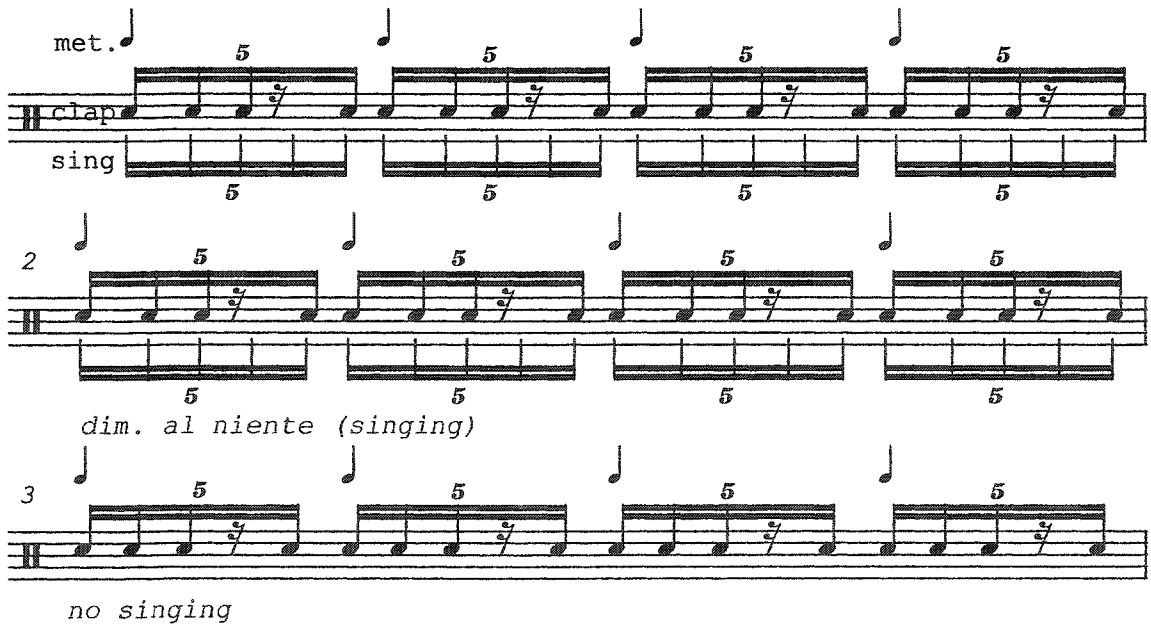
Even though the rhythmic grid is no longer articulated aurally, you still must synchronize the three elements: the metronome, the rhythm, and the mental articulation of the rhythmic grid.

Apply the above process to the following examples, Ex. 3-5b through 3-5e.

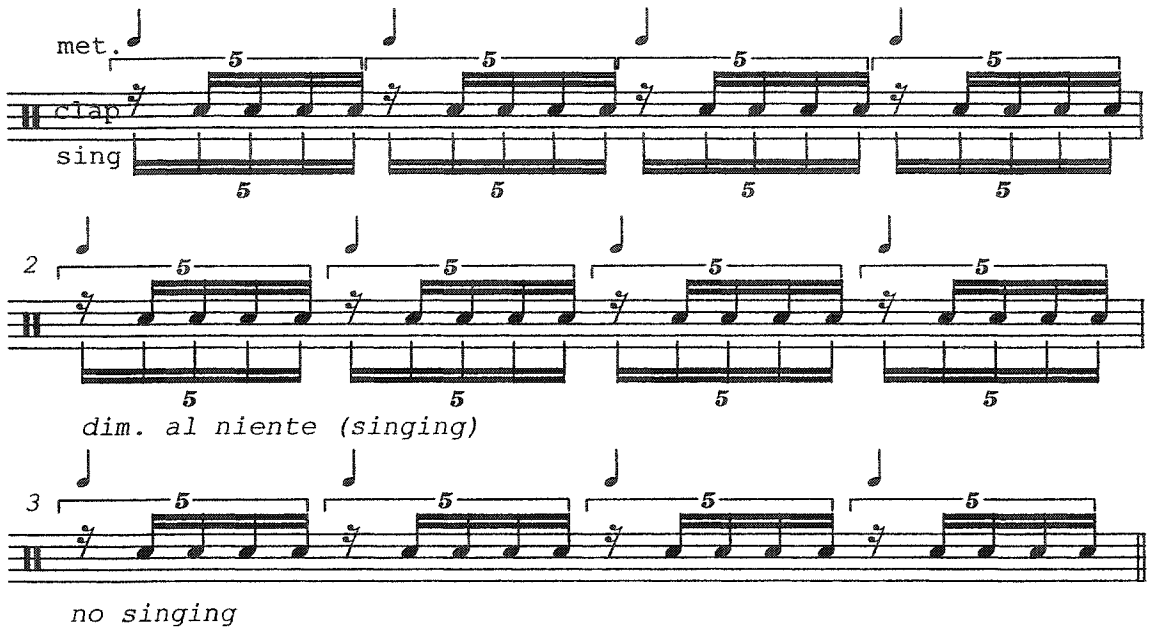
Ex. 3-5b ♩ = 60



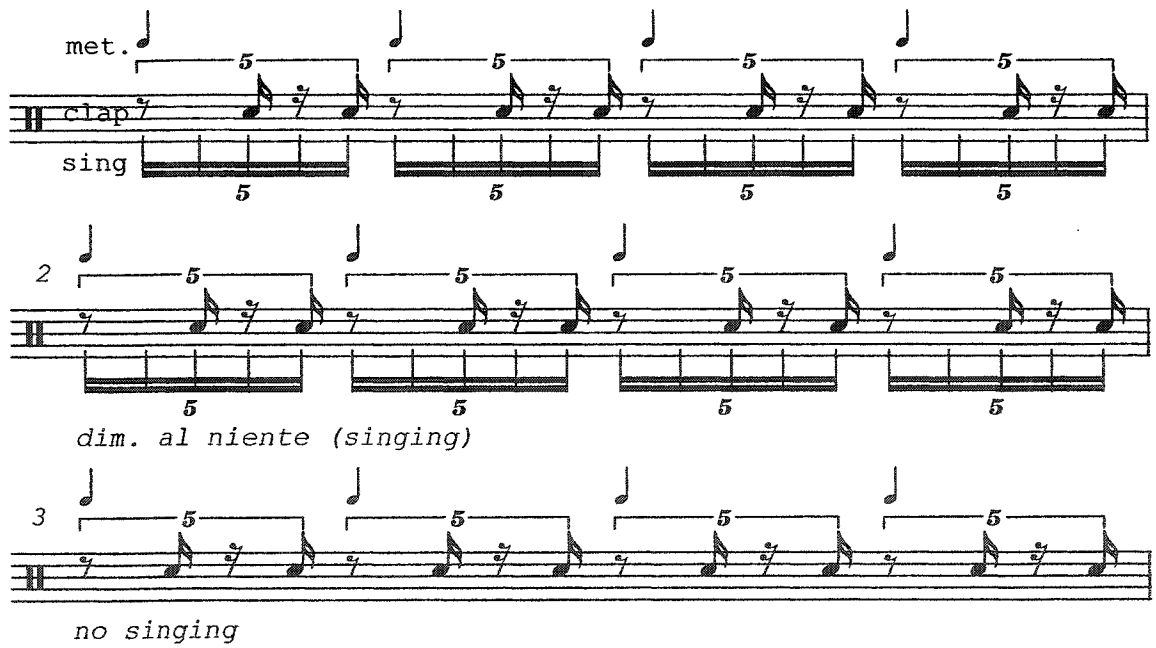
Ex. 3-5c ♩ = 60



Ex. 3-5d ♩ = 60



Ex. 3-5e ♩ = 60



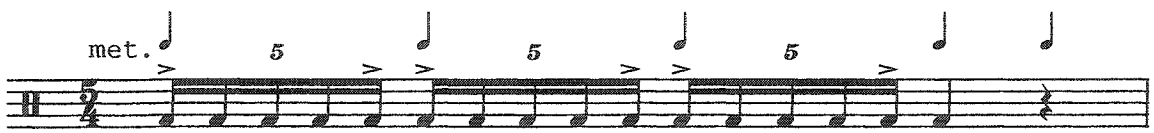
At the completion of the preceding exercises you will have achieved the correct rendering of subdivided

quintuplets. By this point you should also have garnered a new sense of confidence in performing tuplets. It should now be evident that even the most challenging subdivided irregular rhythm can be mastered through these three steps: (1) analysis, (2) performance with a graphic aid, and finally, (3) performance without written aid.

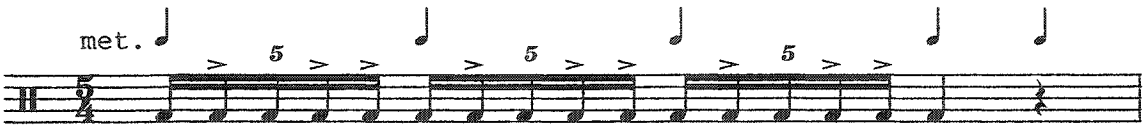
Alternate technique for performing subdivisions

Another technique to learn proper placement of irregular subdivisions is to sing both the rhythmic grid and the subdivision at the same time, while accenting the subdivided notes. This is a similar technique to the previous one; i.e., you are performing the subdivision and the grid at the same time, with the metronome keeping the pulse. The clapping is eliminated; the rhythm is now delineated by accented and non-accented notes. Ex. 3-6a through 3-6e present this technique applied to the previously studied quintuplet subdivisions. A quarter note and quarter rest have been added to allow a breath before repeating. Perform the following examples on ta.

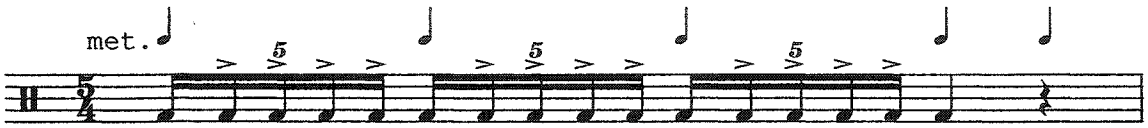
Ex. 3-6a ♩ = 54-60, on ta



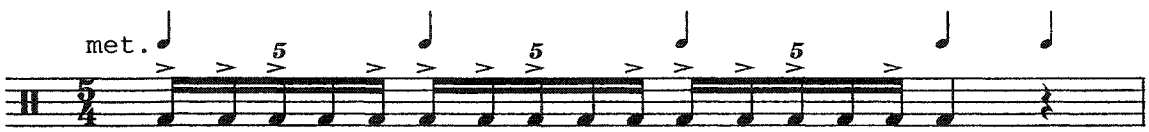
Ex. 3-6b



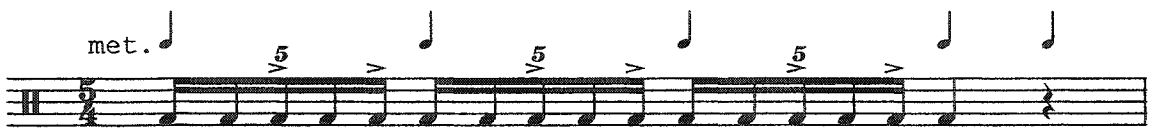
Ex. 3-6c



Ex. 3-6d



Ex. 3-6e

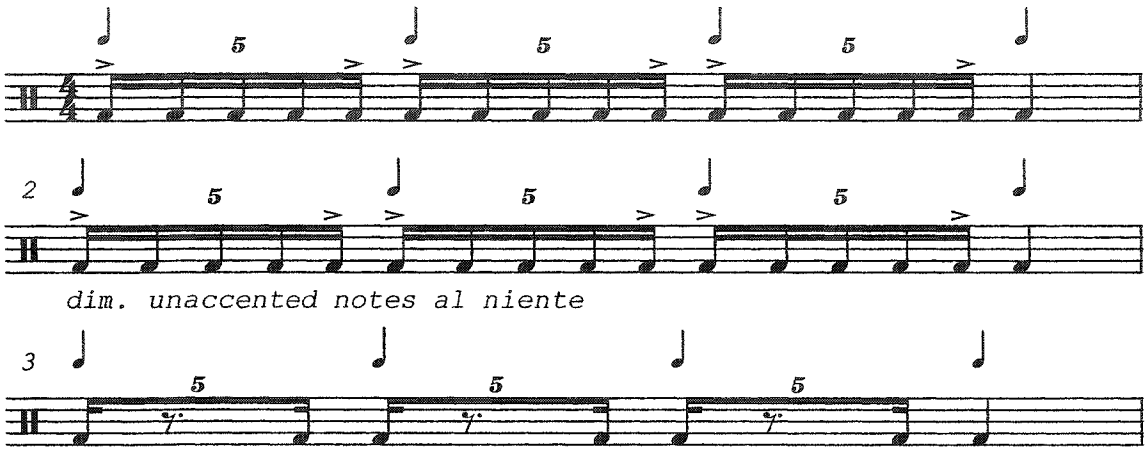


When you are comfortable performing Ex. 3-6a through 3-6e, proceed to the third and final stage: eliminating the aural articulation of the rhythmic grid.

Ex. 3-7a presents the initial quintuplet rhythm as found in 3-6a, along with the ♩ metronome guide. Perform Ex. 3-7a. Continue using the syllable ta as before. In m. 2

decrease the dynamic of the unaccented notes until they are no longer audible.

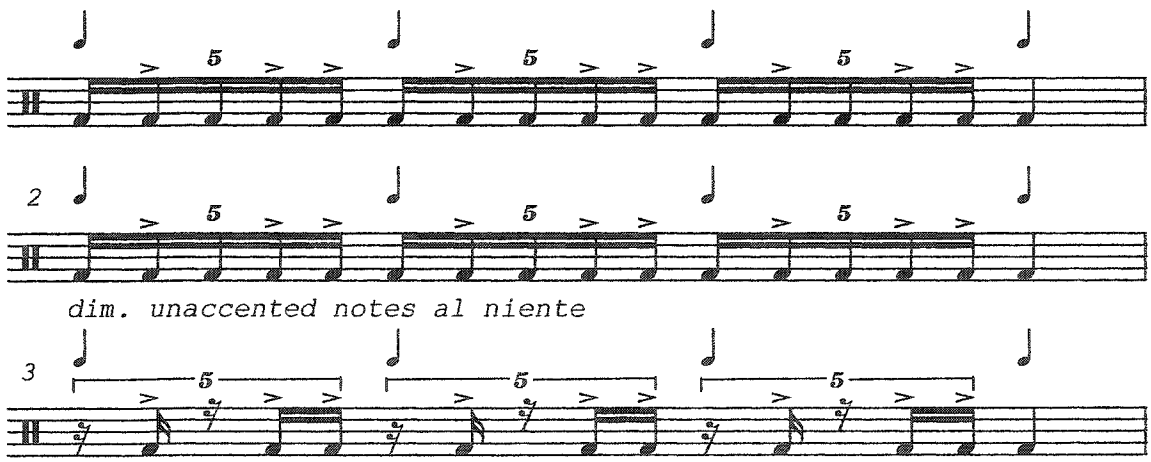
Ex. 3-7a ♩ = 54-60, on ta



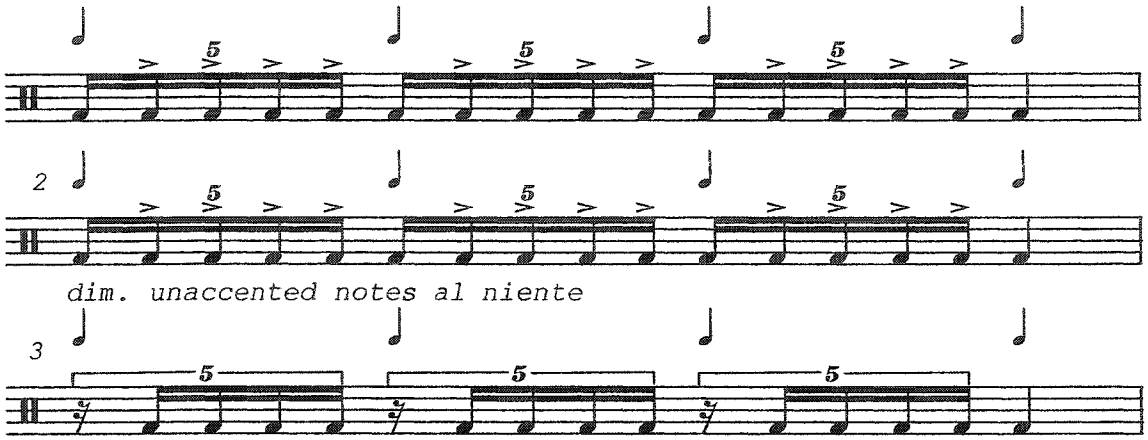
As before, the rhythmic grid is assimilated and articulated in the inner ear. You are now performing the rhythm without the crutch of written or aural aids.

Ex. 3-7b though Ex. 3-7e present the remaining quintuplets previously studied. Using the method outlined in Ex. 3-7a, perform the following exercises.

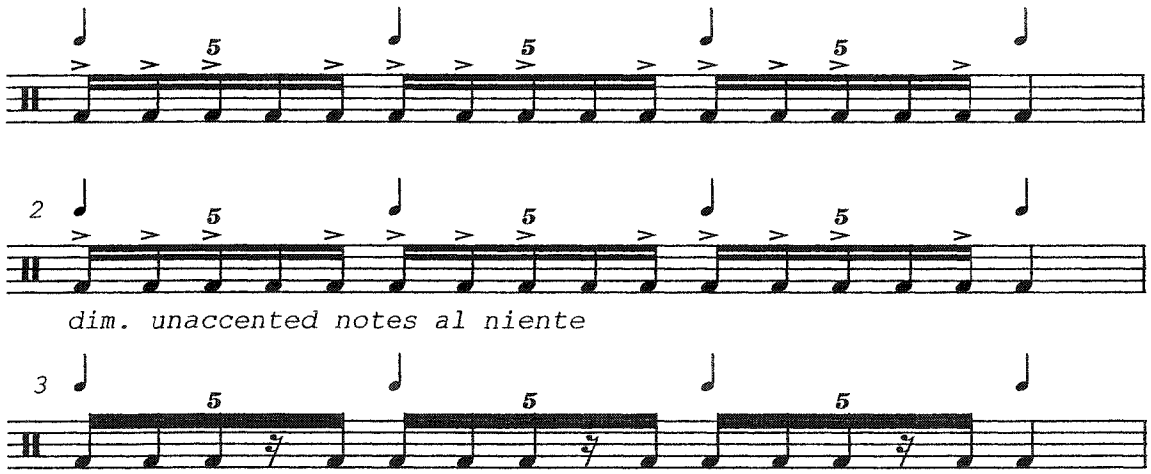
Ex. 3-7b ♩ = 54-60 on ta



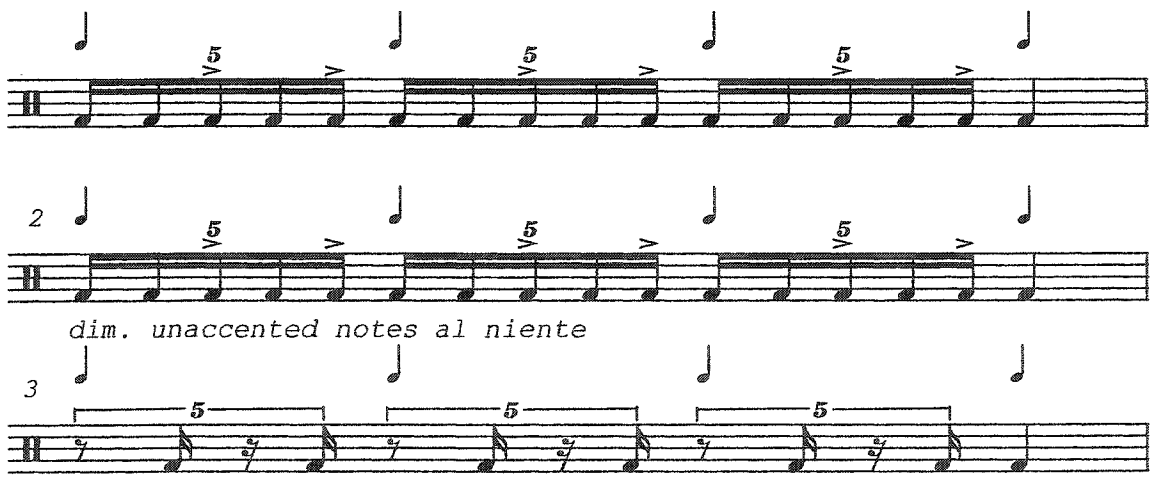
Ex. 3-7c



Ex. 3-7d



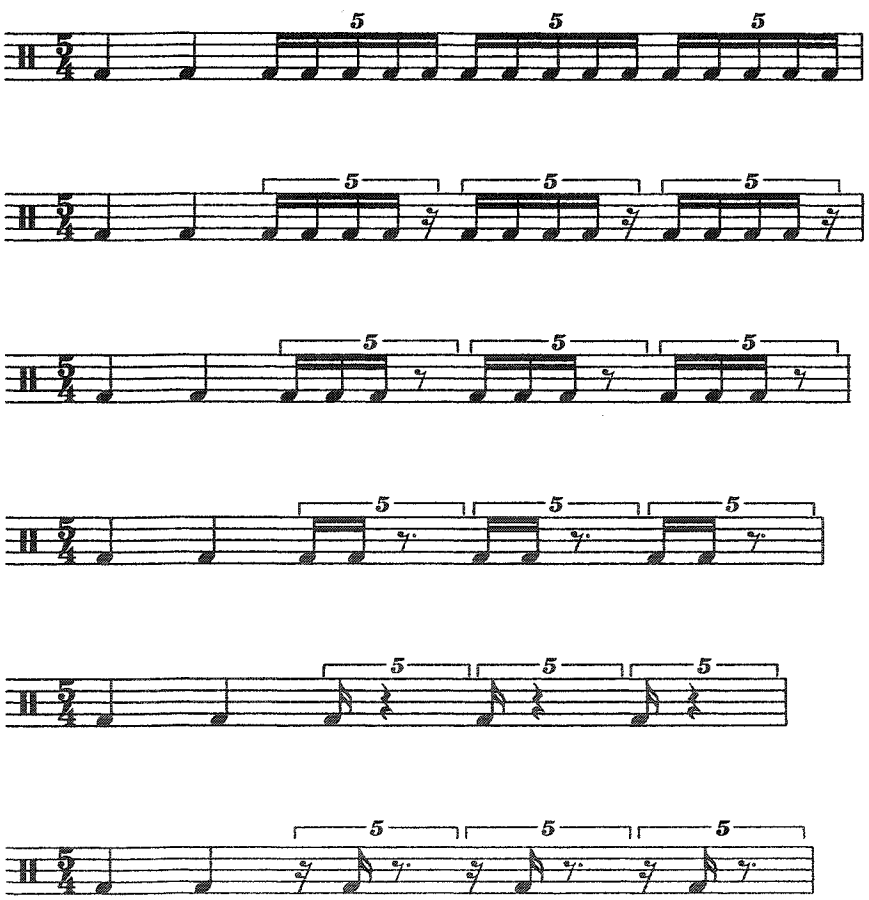
Ex. 3-7e

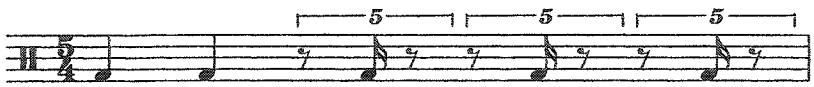
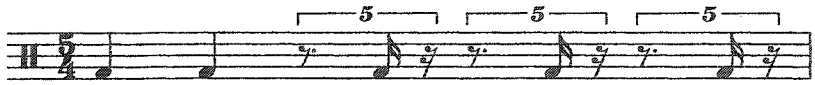
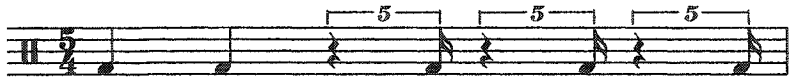
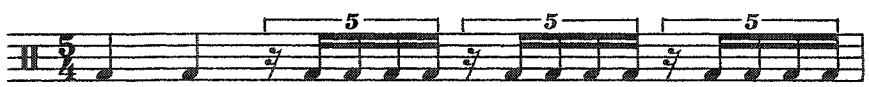


By following one or both of the above prescribed methods, i.e., with or without clapping, you should now be able to hear the rhythmic grids in your head; you should no longer need them articulated externally.

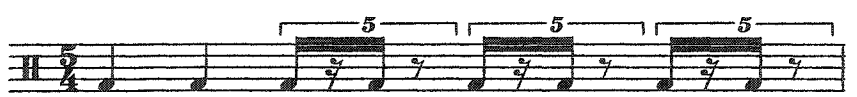
Ex. 3-8 presents all of the possible subdivisions of the sixteenth-note quintuplet. Two quarter notes precede each rhythm to allow for breath and synchronization with the metronome. Perform the following exercises on ta. If you find a particular subdivision to be challenging, extract it and apply one of the two previously discussed procedures.

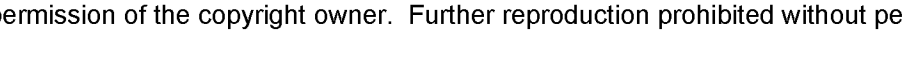
Ex. 3-8 ♩ = 54-60

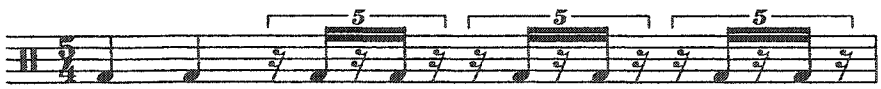
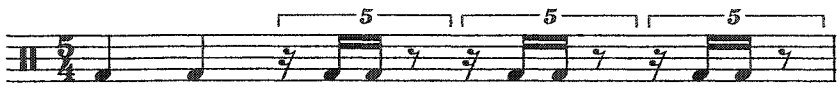


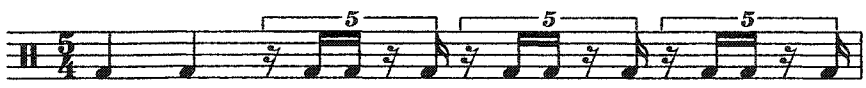
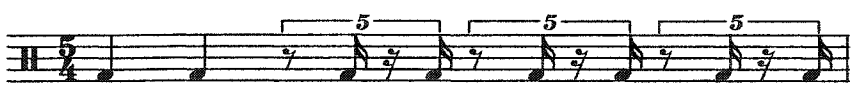
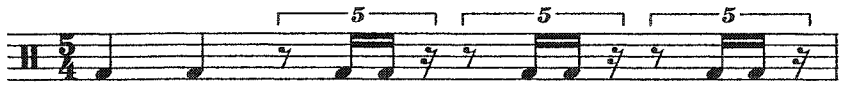
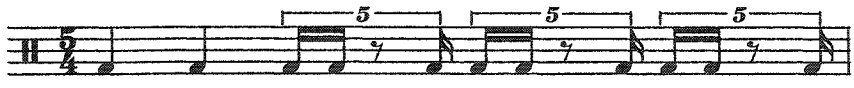





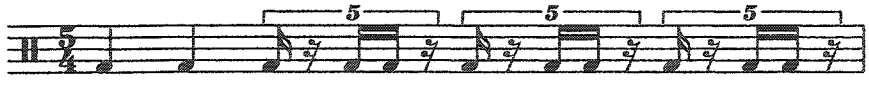
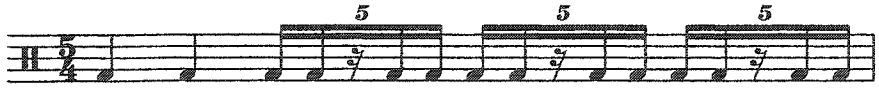


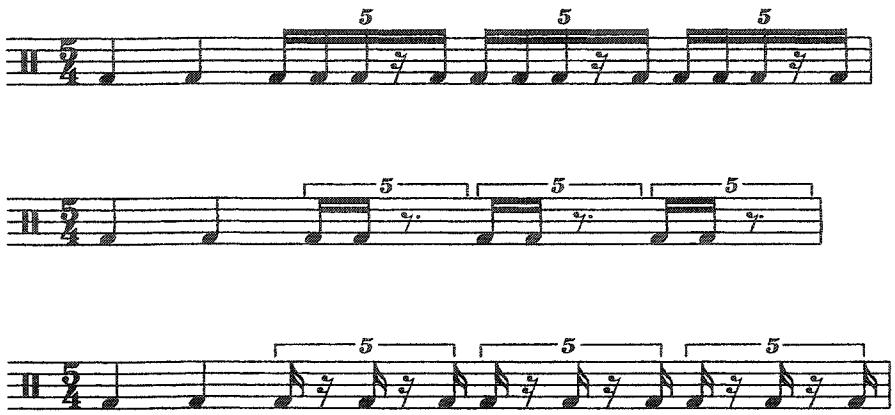





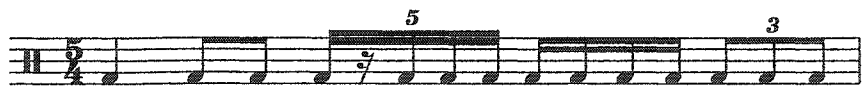





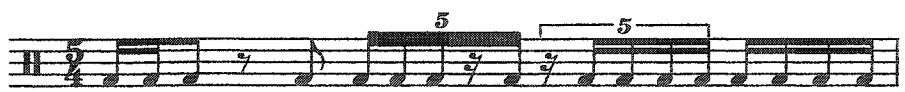
Subdivided quintuplets combined with other rhythms

Ex. 3-9a through 3-9i present subdivided quintuplets alongside other rhythms. These examples exercise your ability to constantly shift the internal rhythmic grid in order to accommodate successive tuplets. Always use a metronome to maintain a steady beat. Practice at a tempo of ♩ = 60.

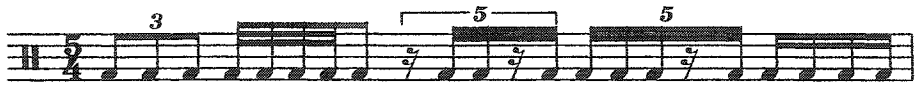
Ex. 3-9a ♩ = 60



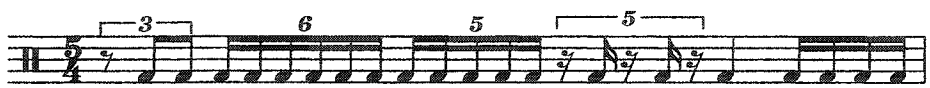
Ex. 3-9b



Ex. 3-9c



Ex. 3-9d



Ex. 3-9e

Ex. 3-9f

Ex. 3-9g

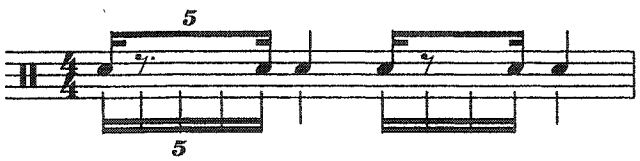
Ex. 3-9h

Quintuplet subdivisions with closely related rhythms

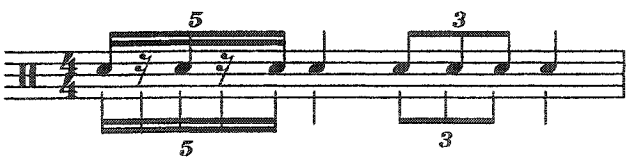
Ex. 3-10 through 3-12 present quintuplets alongside closely related rhythms, i.e., they look similar and the difference in realization is very subtle. These examples require the utmost concentration. These examples should be performed at a slow tempo, no faster than ♩ = 60.

In Ex. 3-10, the quintuplet and quadruplet grouping are similar in appearance. Not only do they look similar but they also sound very much alike. The subtle difference between these rhythms will not be evident without strict adherence to the underlying subdivision. The utmost attention must be paid to the respective rhythmic grids. Perform Ex. 3-10 through Ex. 3-12, clapping the rhythm while singing the rhythmic grid on ta.

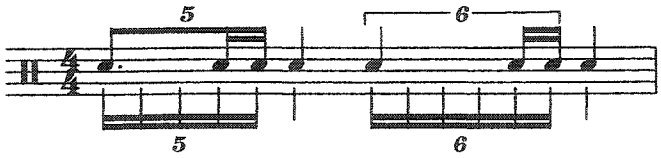
Ex. 3-10 ♩ = 54-60



Ex. 3-11 ♩ = 54-60

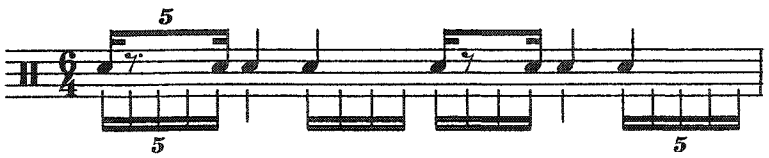


Ex. 3-12 ♩ = 54-60

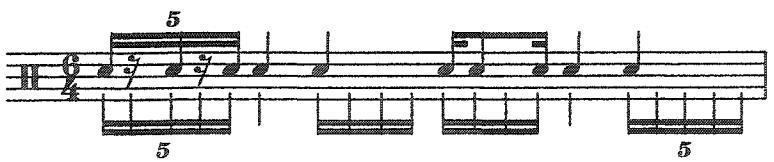


Use the following technique. If any of the preceding examples proves problematic, Examples 3-13 through 3-16 present the above examples with a ♩ inserted between the subdivided rhythms. On the second ♩ after each rhythm, perform the rhythmic grid (either aurally or mentally) of the upcoming rhythm. This gives you more time to adjust to the next subdivision. Examples 3-13 though 3-16 illustrate this process.

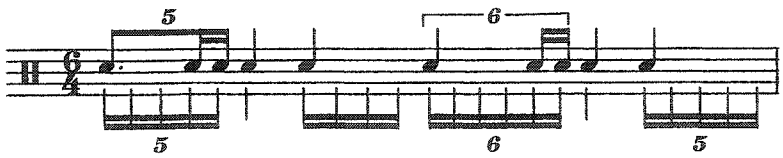
Ex. 3-13 ♩ = 54-60



Ex. 3-14 ♩ = 54-60

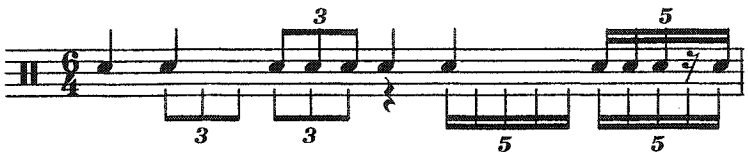


Ex. 3-15 ♩ = 60

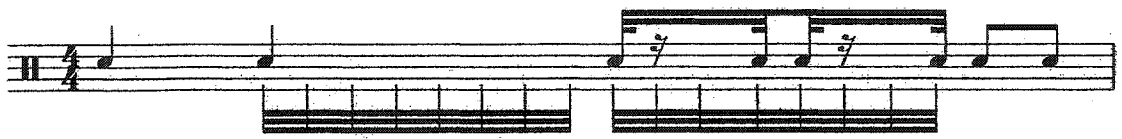


This technique can be used any time there is a held note or a rest before a grouping. Examples 3-16a and 3-16b illustrate this technique with different rhythms.

Ex. 3-16a ♩ = 54



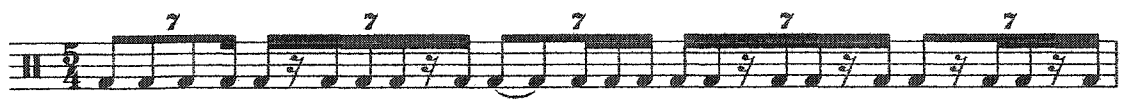
Ex. 3-16b



Subdivisions of septuplets

The three stages used to learn subdivided septuplets are the same as those used in learning subdivided quintuplets. Ex. 3-17 illustrates examples of septuplet subdivisions.

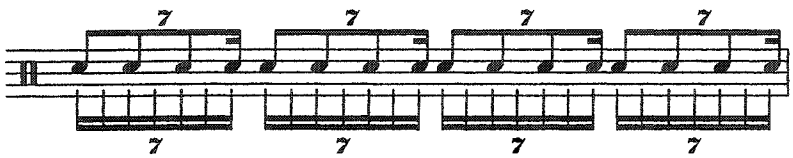
Ex. 3-17



Example 3-18a isolates the first beat of Ex. 3-17; Ex. 3-19 through 3-22 isolate the remaining beats.

First, analyze the rhythm in Ex. 3-18a, as before, the first stage in mastering subdivisions. The subdivided notes fall on the 1st, 3rd, 5th, and 7th sixteenth note; this is made clear by the rhythmic grid.

Ex. 3-18a

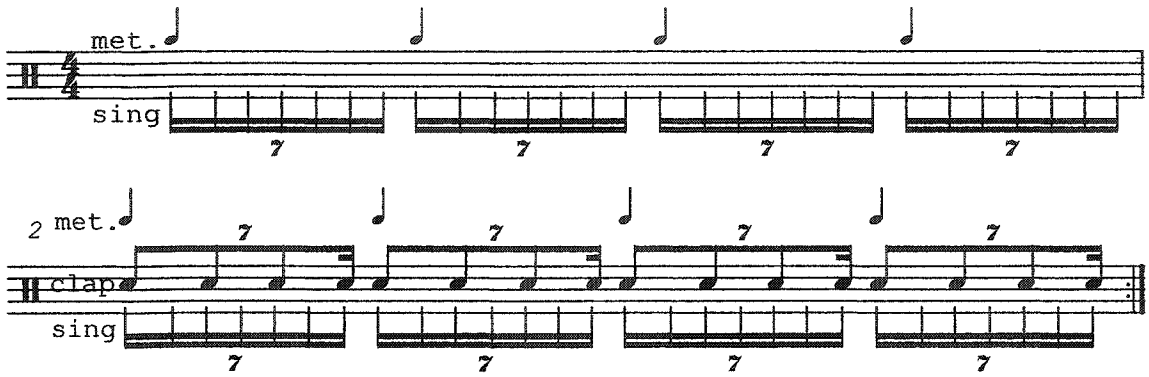


You are now at stage 2, performing rhythms with their corresponding rhythmic grids.

Before performing the above rhythm (and succeeding rhythms) you should sing the rhythmic grid by itself. Ex. 3-18b presents this rhythm combined with such a preparatory exercise. Set the metronome at ♩ = 54. Sing the rhythmic grid along with the metronome. (Use the syllable ta, or for faster tempos, "ti-ka-ti-ka-ti-ka-ti", as discussed in Chapter 2.) This preparation establishes a secure frame of reference before you attempt the subdivided rhythm. Next, clap the subdivision where it lands according to the rhythmic grid. You are now performing the subdivided septuplet against the rhythmic grid, while the metronome is maintaining the beat. Again, make sure that you synchronize

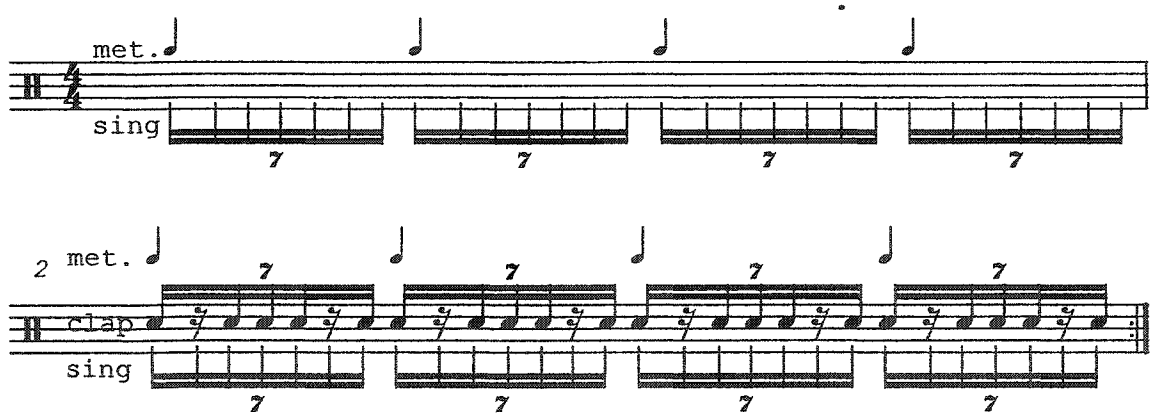
these three elements. If the tempo proves too fast, use a slower tempo and gradually increase it. This is stage 2 of mastering subdivisions.

Ex. 3-18b ♩ = 54

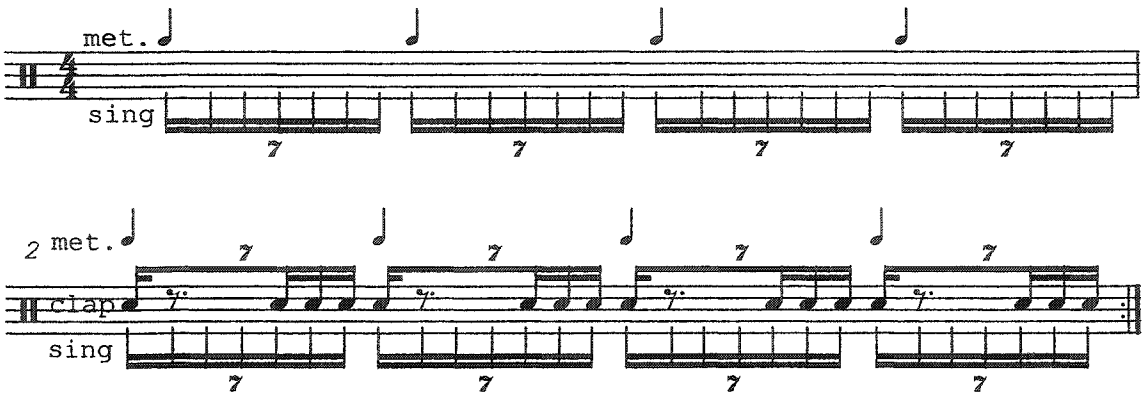


Perform examples 3-19 through 3-22, using the above process.

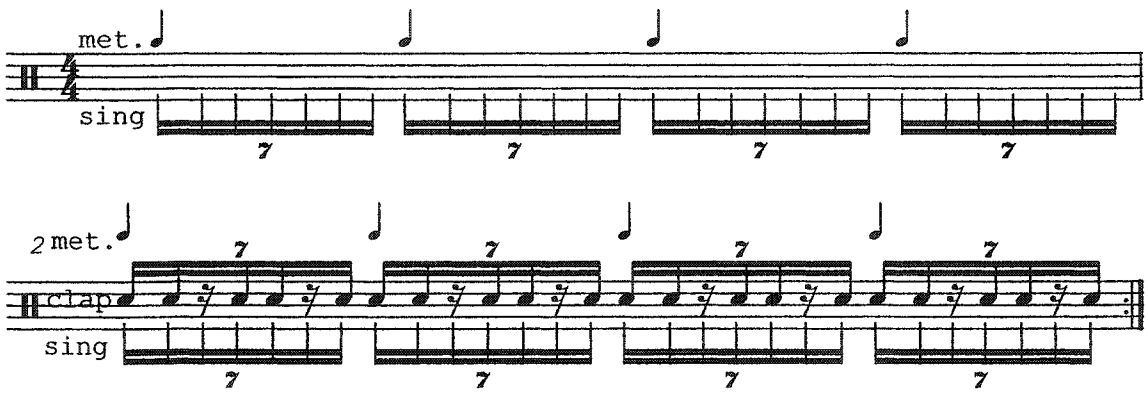
Ex. 3-19 ♩ = 54



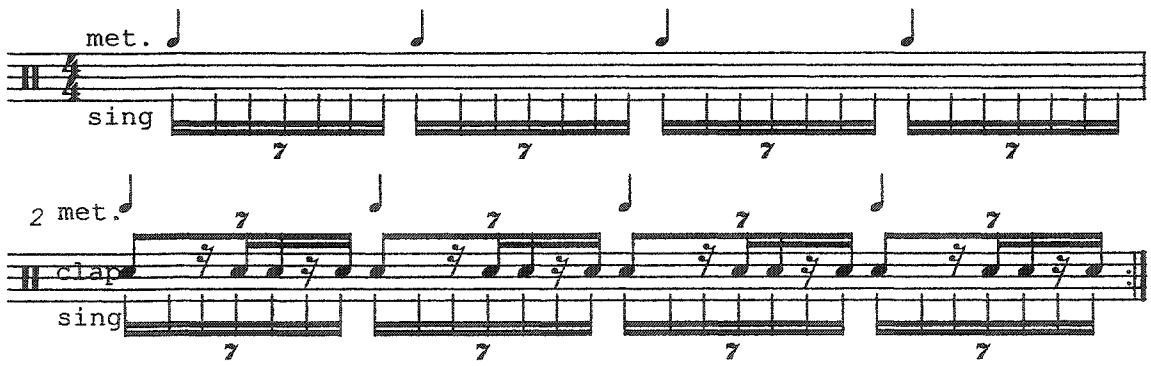
Ex. 3-20 ♩ = 54



Ex. 3-21 ♩ = 54

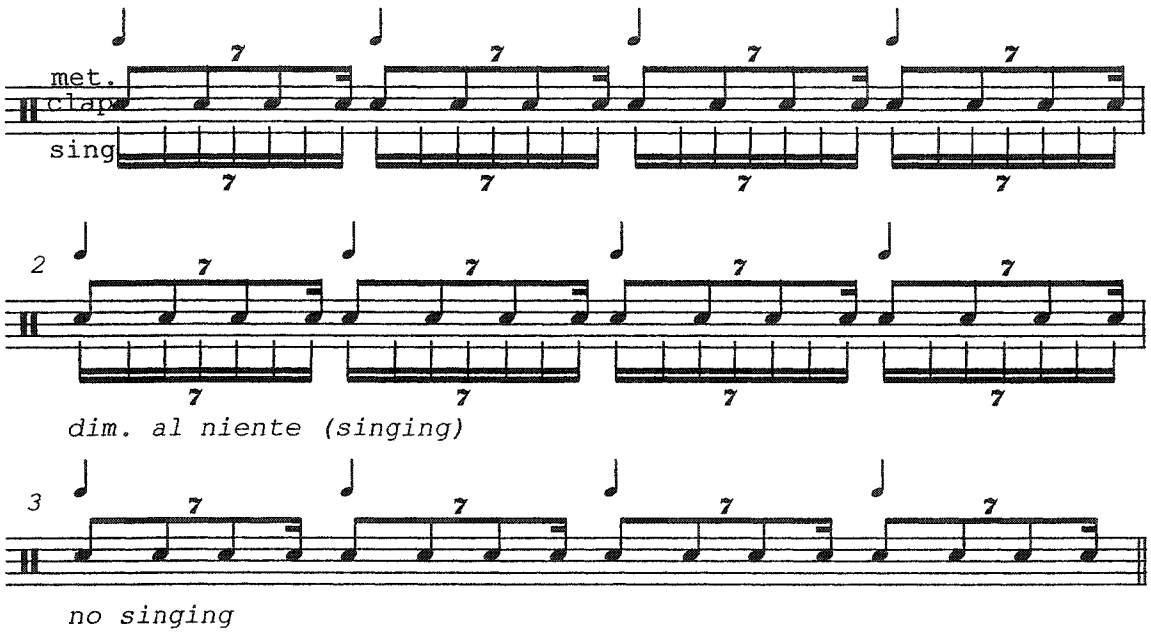


Ex. 3-22 ♩ = 54



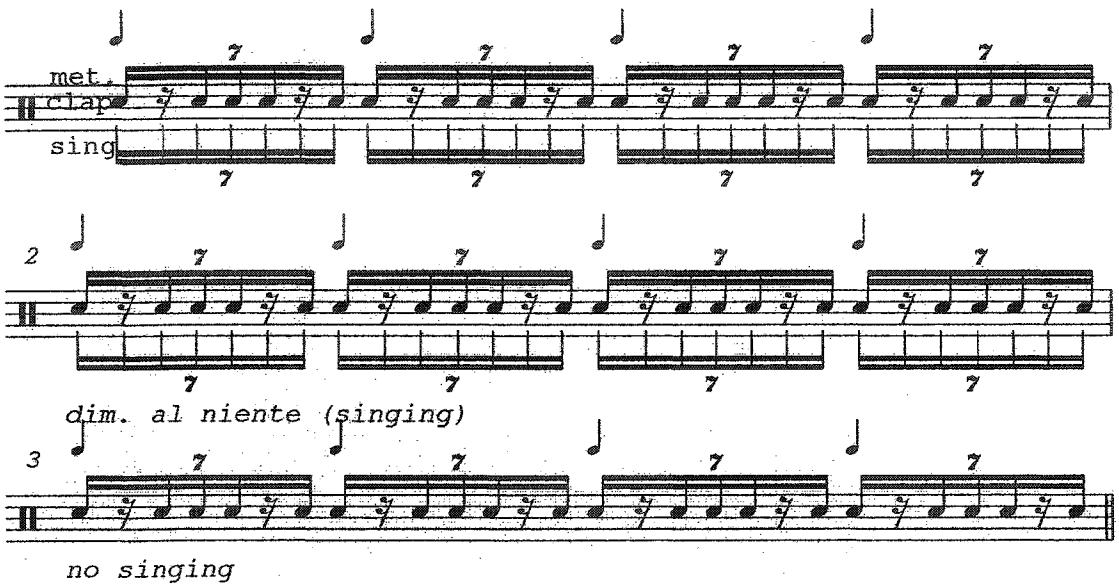
The last stage in our study of subdivided septuplets is to eliminate the aural articulation of the rhythmic grid. Example 3-23 presents the rhythm of Ex. 3-18. Perform Ex. 3-23. As before, the rhythmic grid makes a *diminuendo al niente* in the second measure and is transferred to the inner ear articulation.

Ex. 3-23

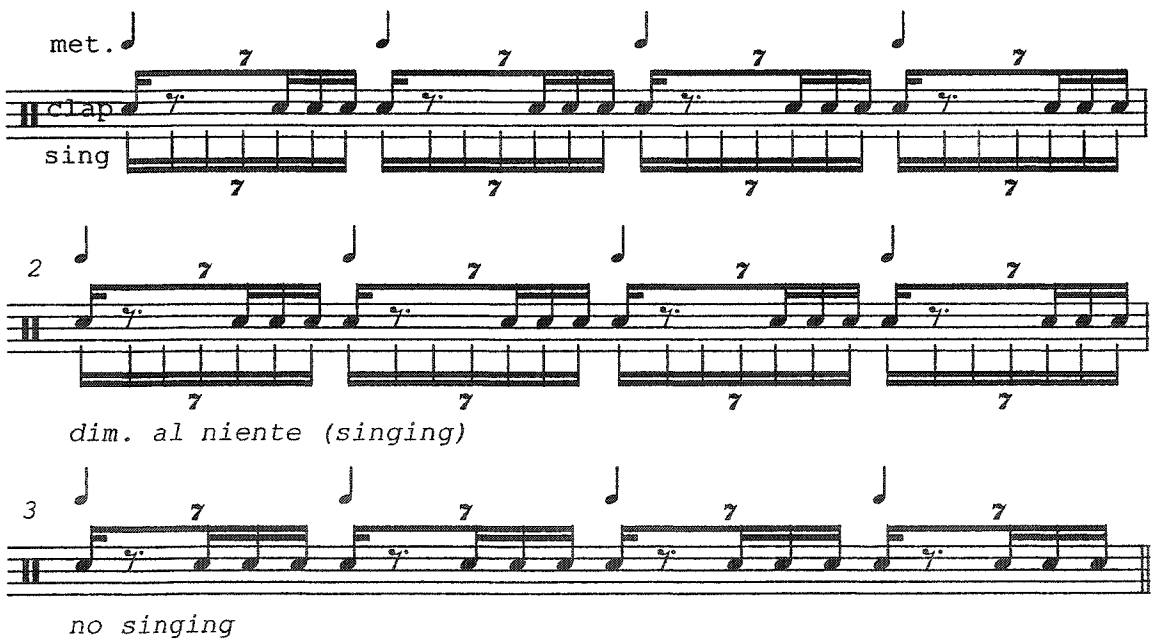


Continue the above process with the following examples, Ex. 3-24 through 3- 27.

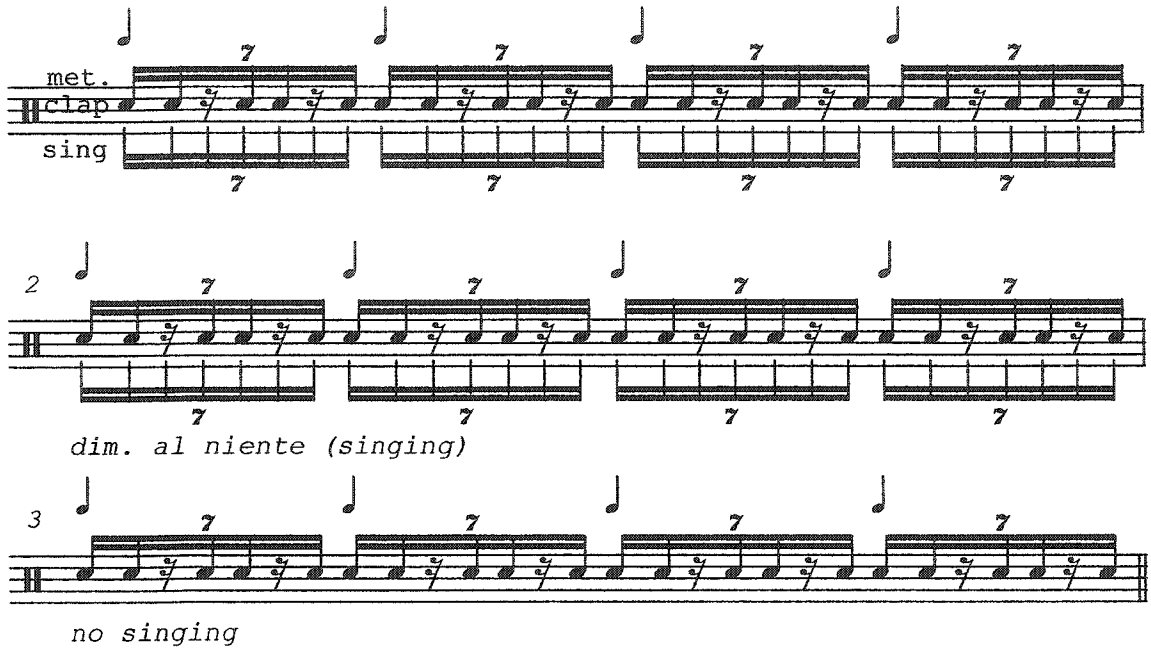
Ex. 3-24



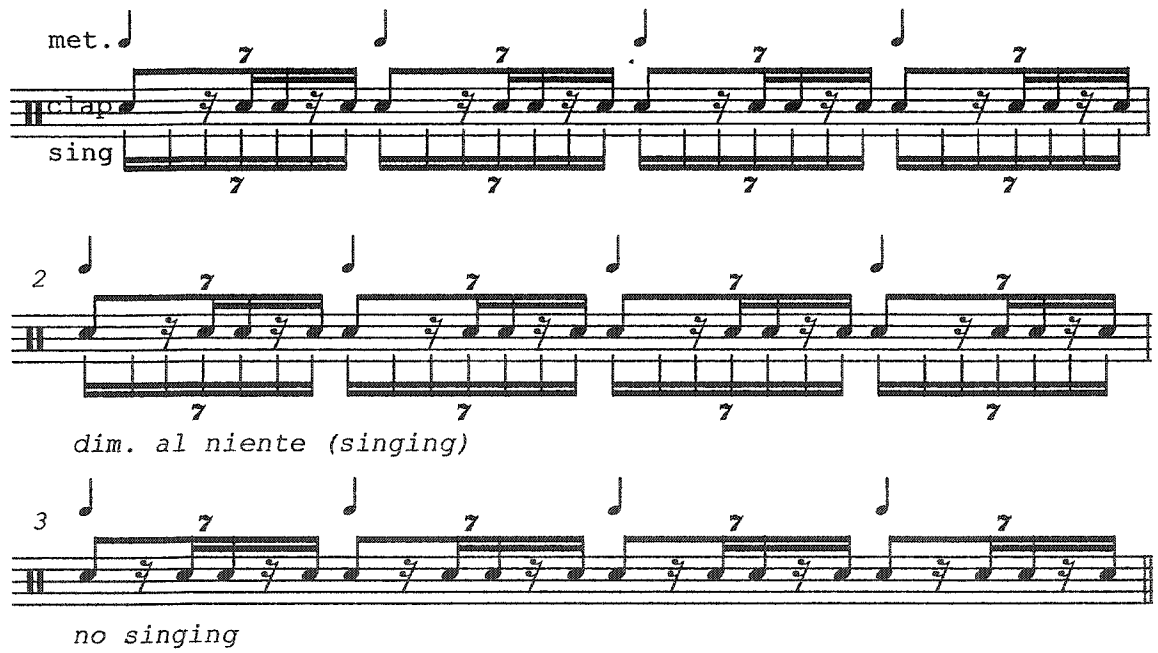
Ex. 3-25



Ex. 3-26



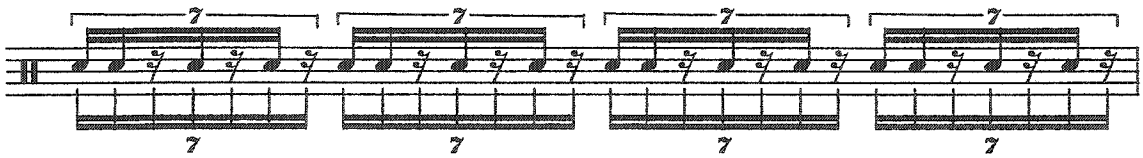
Ex. 3-27



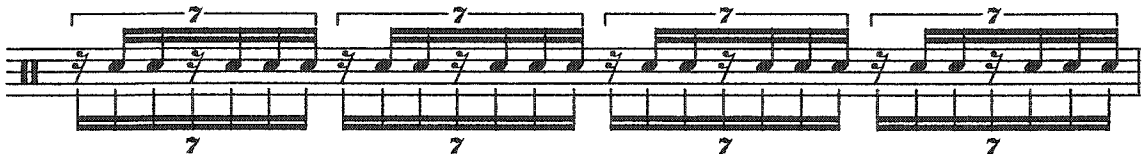
The following examples present various subdivided septuplets, with their corresponding rhythmic grids. Perform

examples 3-28 through 3-37, using ♩ = 54 or a slower tempo.

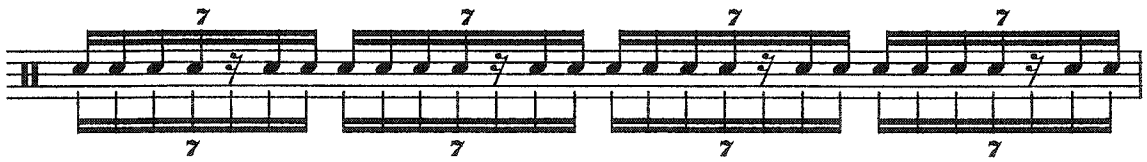
Ex. 3-28 ♩ = 54



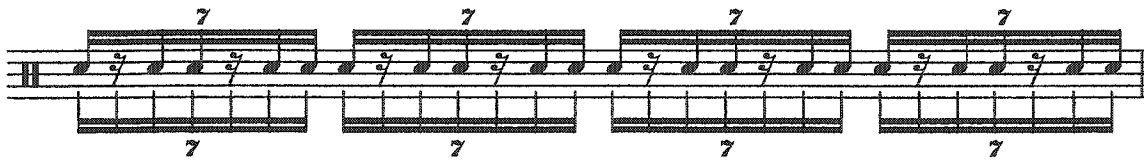
Ex. 3-29



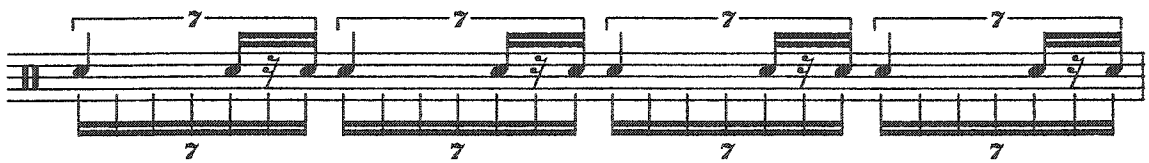
Ex. 3-30



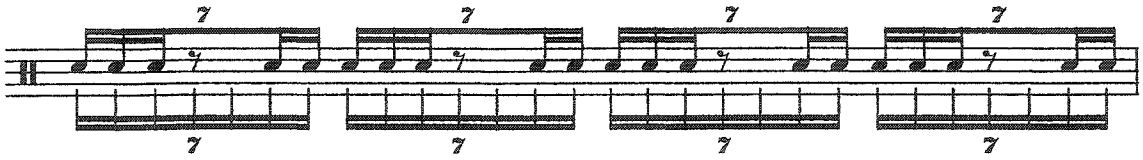
Ex. 3-31



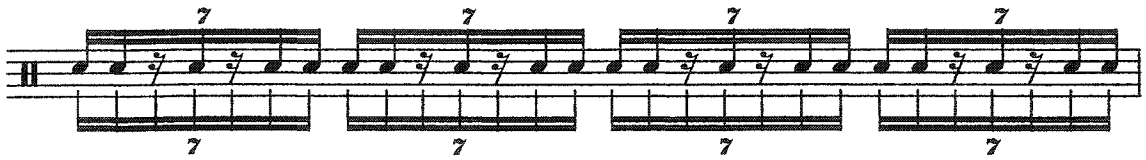
Ex. 3-32



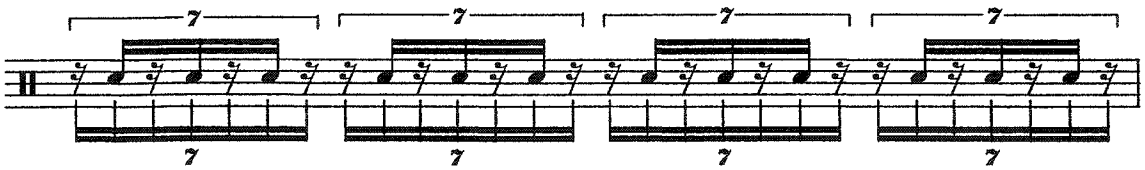
Ex. 3-33 ♩ = 54



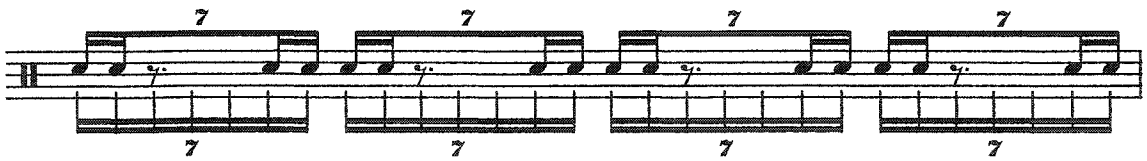
Ex. 3-34



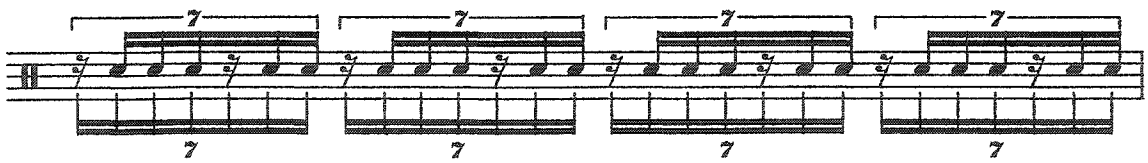
Ex. 3-35



Ex. 3-36



Ex. 3-37

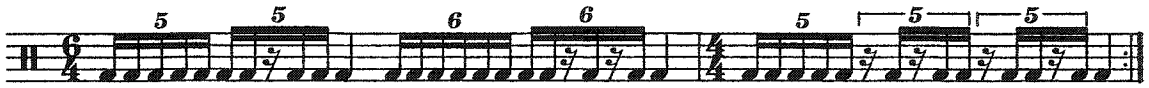


Subdivided septuplets in conjunction with other rhythms

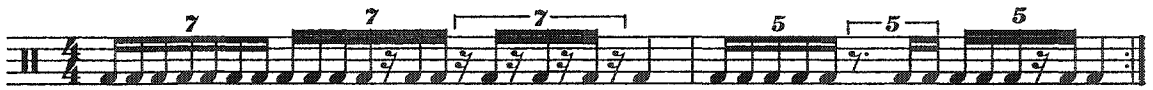
Ex. 3-38a through 3-38h present subdivided septuplets with other rhythms. They are graduated in difficulty; the initial ones present a full tuplet before its subdivision, with a ♩ between the different groups. This allows for time to recover from one underlying subdivision and prepare for the next one. Always use a metronome to maintain the beat.

Ex. 3-38a ♩ = 54

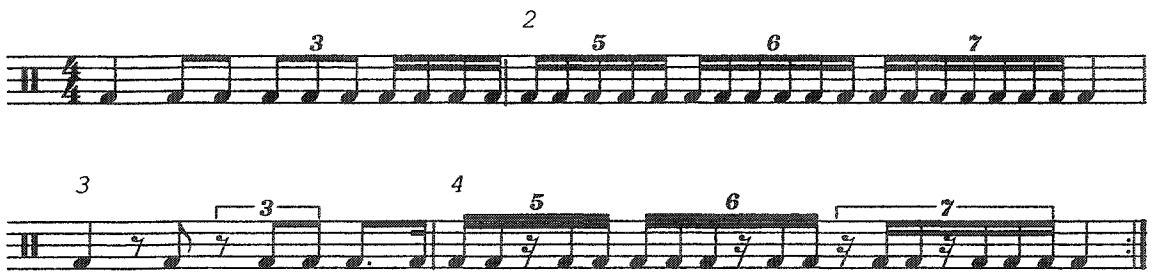
Ex. 3-38b ♩ = 54



Ex. 3-38c ♩ = 54



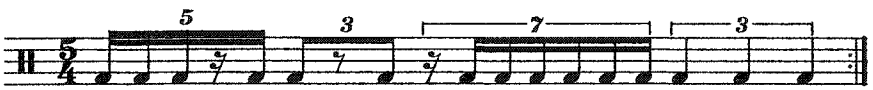
Ex. 3-38d ♩ = 54



Ex. 3-38e through 3-38h eliminate the ♩ preparation. These exercises are very challenging; they require the utmost concentration as you shift from one rhythmic grid to the next. If necessary, place the preparatory ♩ between each changing group, until the exercise can be performed without it. Always use a metronome to maintain the beat.

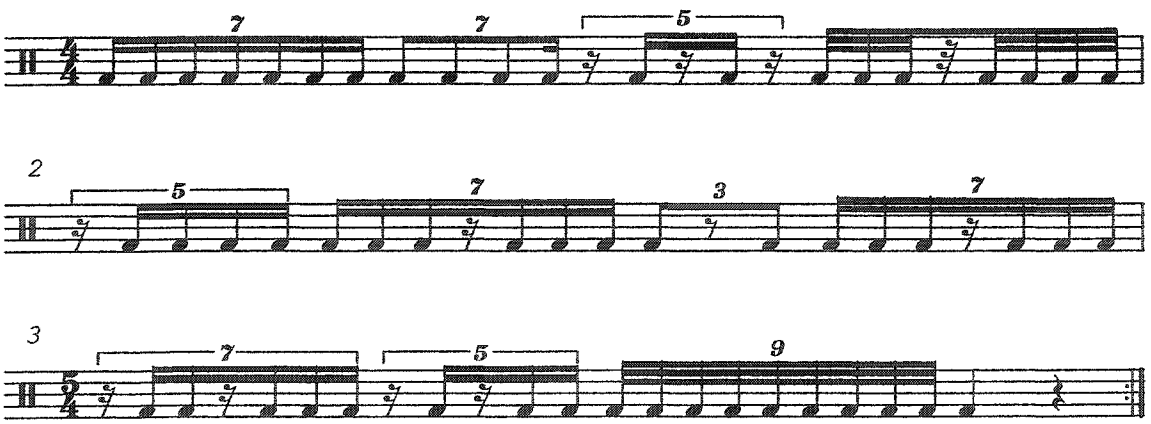
Ex. 3-38e ♩ = 54

Ex. 3-38f ♩ = 54



Ex. 3-38g ♩ = 54

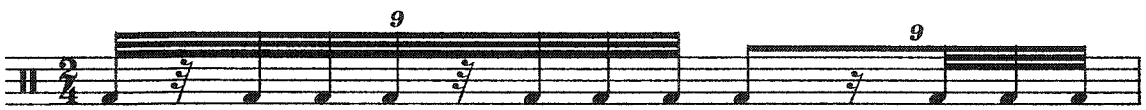
Ex. 3-38h ♩ = 54



Subdivided nonuplets and larger groups

Subdivisions of nonuplets and larger tuplets are infrequently encountered, for unusually slow tempos are required in order to make the larger subdivisions perceptible. In many cases composers choose to write the passage at a more standard tempo in a new meter. Ex. 3-39 presents subdivided nonuplets. In order for this to be performed the tempo cannot realistically exceed ♩ = 30.

Ex. 3-39 ♩ = 30



Many composers would simply rewrite this passage as two bars of either 9/16 or 9/8, shown in Examples 3-40a and 3-40b, respectively.

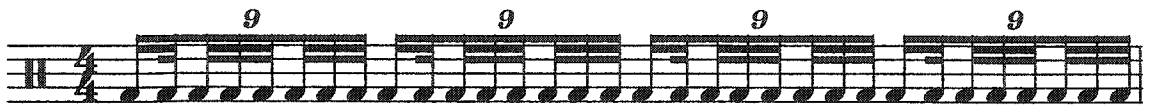
Ex. 3-40a ♪. = 90

Ex. 3-40b ♩. = 90

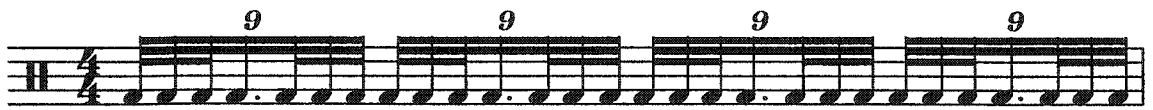
Exercises employing subdivided nonuplets

All of the following examples are to be initially performed at ♩ = 40 or 50, and then subsequently at faster tempos were possible.

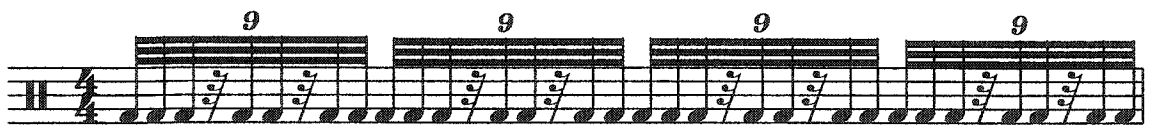
Ex. 3-41a



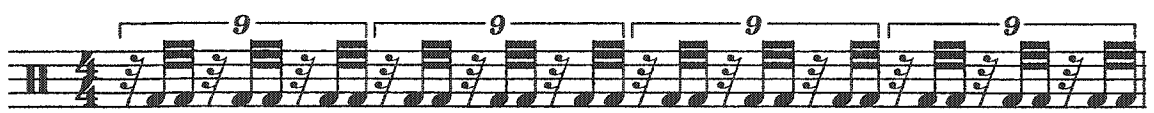
Ex. 3-41b



Ex. 3-41c

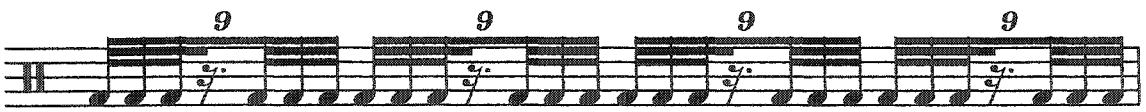


Ex. 3-41d

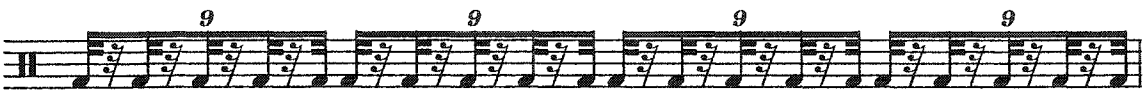


Ex. 3-41e

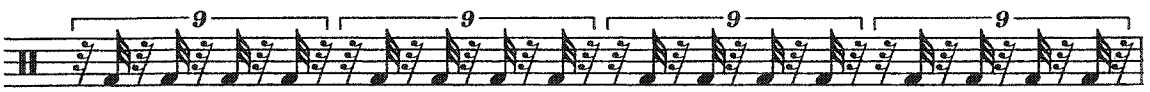
Ex. 3-41f



Ex. 3-41g

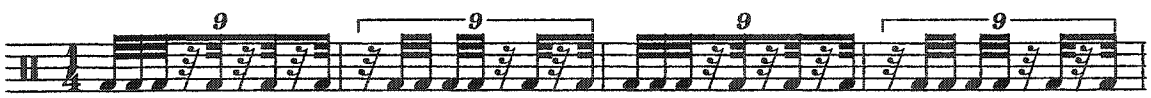


Ex. 3-41h



Ex. 3-41i

Ex. 3-41j



An ancillary use of rhythmic grids:

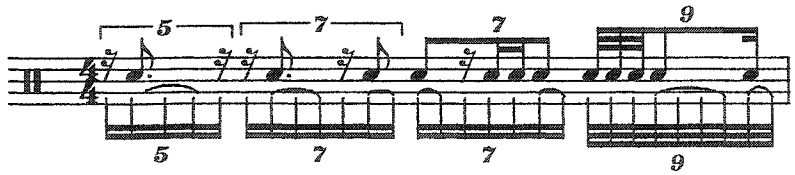
Perceiving duration within tuplets

Performance practice of twentieth-century music now often calls for a strict adherence to correct duration, along with disciplined accuracy in all other aspects of rhythm. A twentieth-century composer may be now thinking of duration as an integral part of the structure of the melody and/or the overall composition, and the duration of individual notes may be systematically derived and related to the melodic material and form.

With common-practice duple and triple rhythms, the perception of the underlying subdivision from which the rhythm in question is derived is second nature. Perceiving durations within tuplets calls for the same disciplined use of rhythmic grids as you applied to the previous exercises in this chapter.

Example 3-42 illustrates several tuplets utilizing notes of different durations. In this example there are notes that are longer in duration than the individual units of the rhythmic grid. To delineate the duration of these longer notes, tie the units of the grid to equal the time value of the notes in question. Ex. 3-42 presents several rhythms that make use of rhythmic grids in this manner.

Ex. 3-42 ♩ = 54



In beat 1 of Ex. 3-42 there is a sixteenth-note rest, a dotted eighth-note, and then a sixteenth-note rest within the quintuplet. In previous exercises we used the rhythmic grids to ascertain correct attack (also, these exercises were limited to rhythms of equal value to the rhythmic grid; in actual music there is much more variation). Use the rhythmic grid to perceive correctly the duration of the dotted eighth note. As shown by the rhythmic grid you must stop the note on the fourth quintuplet. For beat 2 you must stop the dotted eighth note on the fourth septuplet, and so forth.

You must sing or play the rhythm in this exercise, since it is impossible to achieve the correct duration by clapping. In previous examples in this chapter you sang the rhythmic grid while clapping the rhythm. Switch the previously assigned roles of singing and clapping. Sing the rhythm while you clap the rhythmic grid. This produces the correct attack and duration. At a necessarily slow tempo (because of the speed limitations of clapping seven or nine times within one beat), it is more difficult to perceive the

pulse. This coordination of singing and clapping tuplets at a very slow tempo can be quite difficult, but is well worth the time and effort. In performance you will rely not on clapping but on the internalized mental articulation of the rhythmic grid. This procedure should be applied to any subdivided quintuplet or septuplet rhythm that contains durations longer than the single units of the rhythmic grid.

The concept of rhythmic grids can be applied to any duration of a subdivided rhythm, regular or irregular, when the correct placement of the subdivision is not immediately apparent.

Chapter 4: Meter

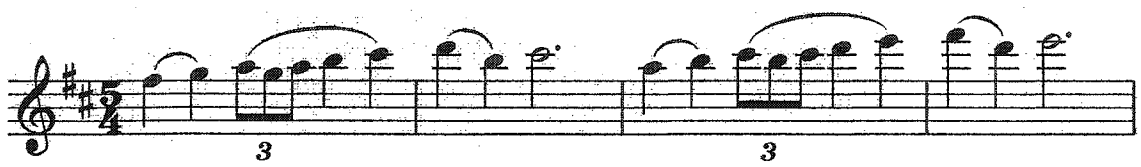
One of the most pervasive innovations found in twentieth-century rhythms is the expanded use of meter. No longer is meter relegated to the constant repetition of patterns based on multiples of two and three. Composers now use odd meter, changing meter, alternating meter, composite meter, polymeter, and fractional meter. In addition, there are those composers who favor no meter at all, presenting another type of challenge to the performer.[1] Of particular interest to the contemporary performer is the ability to perform odd and changing meter. These are by far the two most important and omnipresent innovations of meter in the twentieth century.

Most Western music is founded on duple or triple meter and multiples thereof; this does not change until the twentieth century. There are a few works from the nineteenth century that make use of odd meter, but these are isolated examples that offer none of the complexities of meter usage found in the twentieth century. These works, based on folk melodies with simple thematic material fitting neatly into the time signature, did not present any

[1] Works that utilize graphic or proportional notation could be considered non-metrical. There are also compositions that are clearly metrical, but do not use the conventions of standard notation, i.e., barlines and/or time signatures.

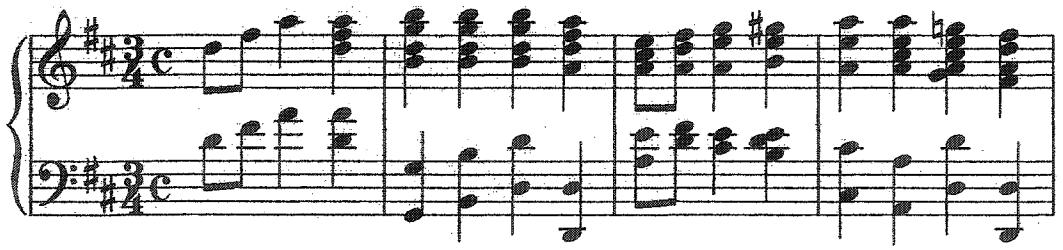
particular rhythmic challenge different from the music of their contemporaries. For example, the second movement from Tchaikovsky's 6th Symphony is in 5/4, but the tempo is slow and the melodic line is of simple structure, presenting little challenge to the performer, no more than other works contemporary with this work (Ex. 4-1).

Ex. 4-1 Tchaikovsky, Symphony No. 6, mvt. II, woodwinds, mm. 9-12



Another instance of odd meter usage from the nineteenth century can be found in Brahms' Variations for piano, op. 21, no. 2; the thematic material quotes a 7/4 Hungarian theme, notated in alternating meter (Ex. 4-2).

Ex. 4-2 Brahms, Variations for piano, op. 21, no. 2, mm. 1-4



As the twentieth century unfolds, meter takes on a whole new meaning; Stravinsky's *L'Histoire du Soldat*

(1918) and particularly *The Rite of Spring* (1913) contain many revolutionary, influential metrical innovations. His use of odd and changing meter, compounded with cross metrical writing and polymeter, presents challenges for the performer to this day, and his influence on composers' use of rhythm is pervasive. Examples abound in twentieth-century works where composers have used odd and changing meter as a defining element; this practice is widespread.[2]

Odd Meter

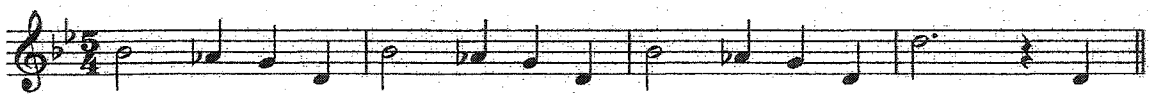
The term "odd meter" requires qualification: there is nothing inherently odd about meters such as 5/4 or 7/8; they have been labeled odd because of their lack of relative use compared to the meters found in the common practice period. Western common practice music is built on duple and triple meter, when other meters were introduced

[2] Odd meter is also found in popular music, including the pop hit by Pink Floyd, *Money*, in 7/4; *Seven Days*, by Sting, in 5/4, and *Love is Stronger Than Justice*, in 7/4, also by Sting. As early as 1968 Jack Bruce's innovative writing for Cream utilized a 5/4 introduction in their hit *White Room*, and an alternating 4/4 - 7/4 pattern on the more esoteric *Deserted Cities of the Heart*. Even Southern Rock did not escape the influence of odd meter; the Allman Brothers' famous blues, *Whipping Post*, features an introductory motive in 11/8 which returns throughout the song. Odd and changing meter also found a foothold in jazz, and became an integral part of so-called "fusion" music of the seventies. Brubeck's *Take Five* of 1959 was a landmark recording for jazz composition and performance in odd and changing meter; that same recording featured *Blue Rondo A La Turk*, written in 9/8 in a 2-2-2-3 pattern influenced by Turkish dance rhythms. In 1971 the Mahavishnu Orchestra used complex odd and changing meter along with cross-meter melodies on their debut release, *Inner Mounting Flame*, bringing the new style of "fusion" music to the forefront.

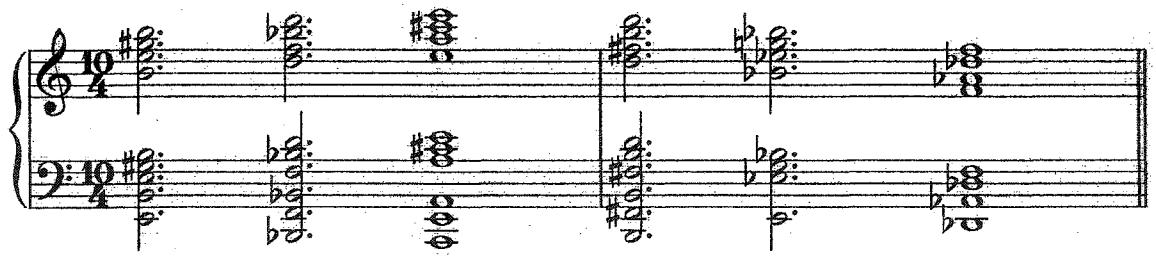
in the early part of the twentieth century, they might well have been thought of as odd. That perception is no longer valid, but the term "odd meter" remains in common use.

Examples 4-3 through 4-5 illustrate the use of odd meter in an unchanging setting; in these excerpts the melodic material fits clearly within the time signature.

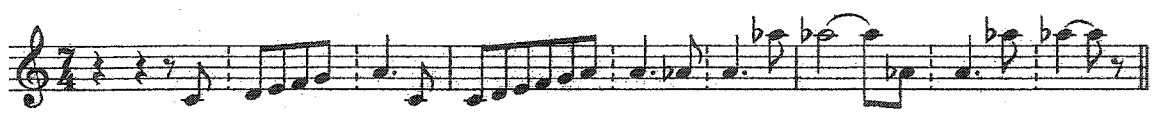
Ex. 4-3 Britten, *Ceremony of Carols*, no. 8, mm. 3-6



Ex. 4-4 Hovhaness, *Mysterious Mountain*, mm. 1-2

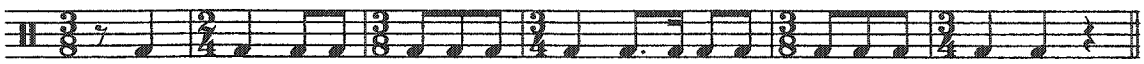


Ex. 4-5 Berg, *Wozzeck*, Act II, mm. 560-568

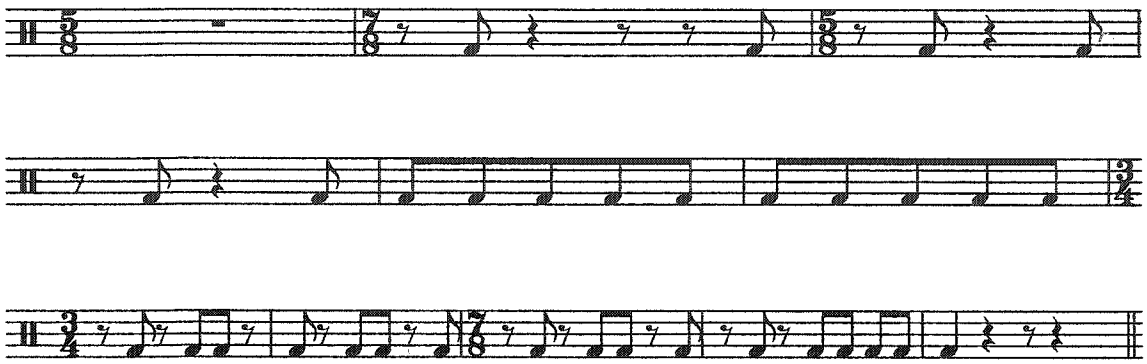


Example 4-6 shows Stravinsky's use of odd meter in a changing setting in his *Marche du Soldat* from *L'Histoire du Soldat*, and Ex. 4-7 presents Walter Piston's use of the same from his Fourth Symphony.

Ex. 4-6 Stravinsky, *L'Histoire du Soldat*, rehearsal 10

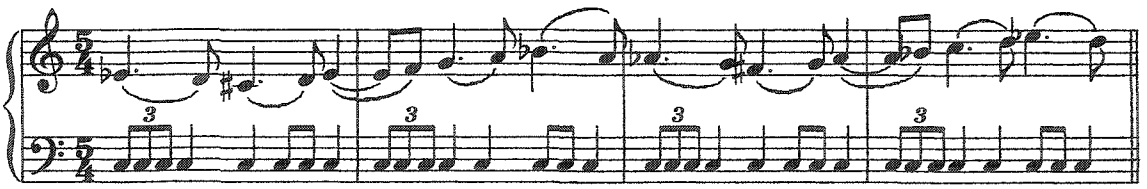


Ex. 4-7 Piston, Fourth Symphony, mm. 95-105

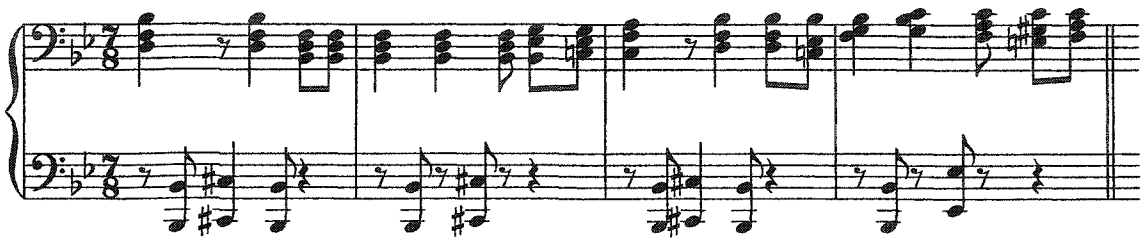


Most works that utilize odd meter in an extended work utilize changing meter by default. Static usage of meter is unusual in a large-scale work that employs odd meter; it is relatively rare that a work or movement will stay in an odd meter throughout. When it does, the meter clearly is defining the musical character or rhythmic makeup of the work. Ex. 4-8 and 4-9 illustrate two such cases: Holst's use of 5/4 throughout "Mars, Bringer of War," from *The Planets* (Ex. 4-8), and Prokoviev's Seventh Piano Sonata, third movement (Ex. 4-9), which utilizes 7/8 meter throughout.

Ex. 4-8 Holst, "Mars, Bringer of War," from *The Planets*, mm. 141-144



Ex. 4-9 Prokofiev, Seventh Piano Sonata, third movement, mm. 1-4



These examples are more the exception than the norm. Changing odd meter (most often in combination with regular meter, i.e., duple and triple) is much more prevalent amongst twentieth-century composers.

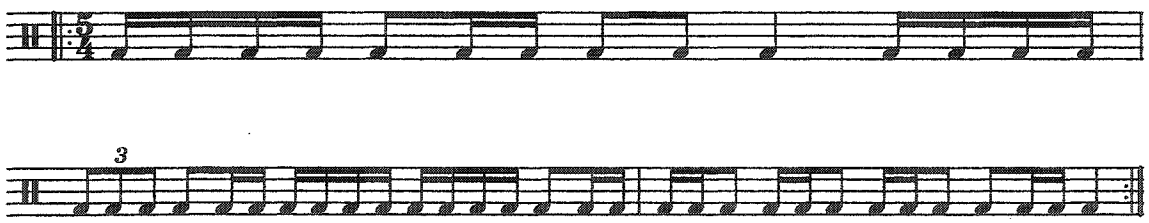
Performing Odd and Changing Meter

In order to learn to perform odd and changing meter, two skills are necessary: the ability to count, and the ability to conduct basic patterns, which will be discussed later. The first, the ability to count, may seem obvious, but it should not be considered as such. Many musicians consider counting a skill utilized by only beginning

musicians - however, the professional realizes that it is of the utmost importance, particularly when it comes to performing changing meter. When performing these exercises make sure to count out loud and in a strong and confident manner; this manner of counting will make it easier to perform the exercises. It is important to use a metronome not only to set the tempo but also to maintain an unwavering beat.[3]

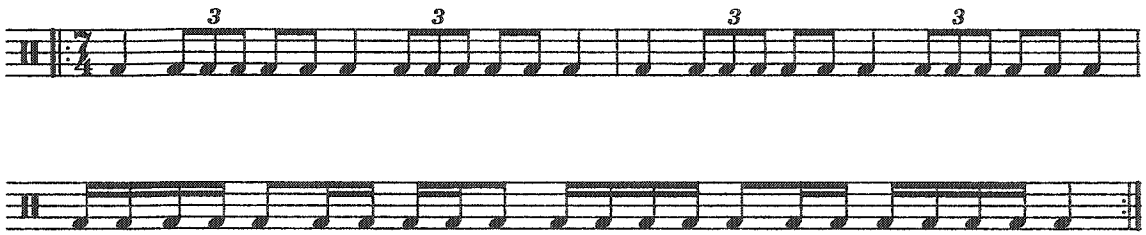
Examples 4-10 and 4-11 present elementary odd meter exercises written in 5/4 and 7/4 respectively. Perform the following by clapping the rhythms and counting out loud, ♩ = 90.

Ex. 4-10 ♩ = 90



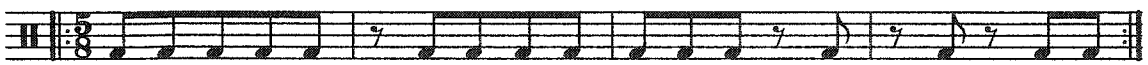
[3] Higher end metronomes such as Dr. Beat by Boss feature the ability to accent odd meter patterns, thereby providing a great learning aid. Some will also speak the count; but this feature should only be used as an aid, not to supplant the ability to count.

Ex. 4-11 ♩ = 90



Exercises 4-12 and 4-13 utilize 5/8 and 7/8. (Meters of five and seven are the most often used odd meters). Perform the following examples, clapping the rhythm while counting. When counting seven at faster tempos, use the syllable se to replace the two-syllable word "seven."

Ex. 4-12 ♪ = 180-200

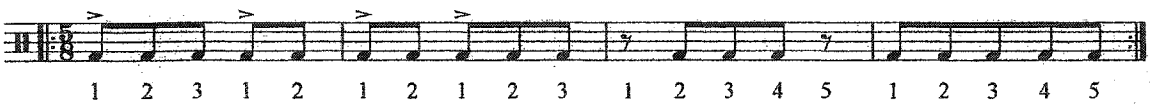


Ex. 4-13 ♪ = 180-200

Composers use different beaming patterns either to make the rhythm easier to read (particularly in 7/8), or to imply different groupings. Ex. 4-14 presents 5/8 meter with different beamings. This example may also be counted according to their grouping. The counting by grouping is

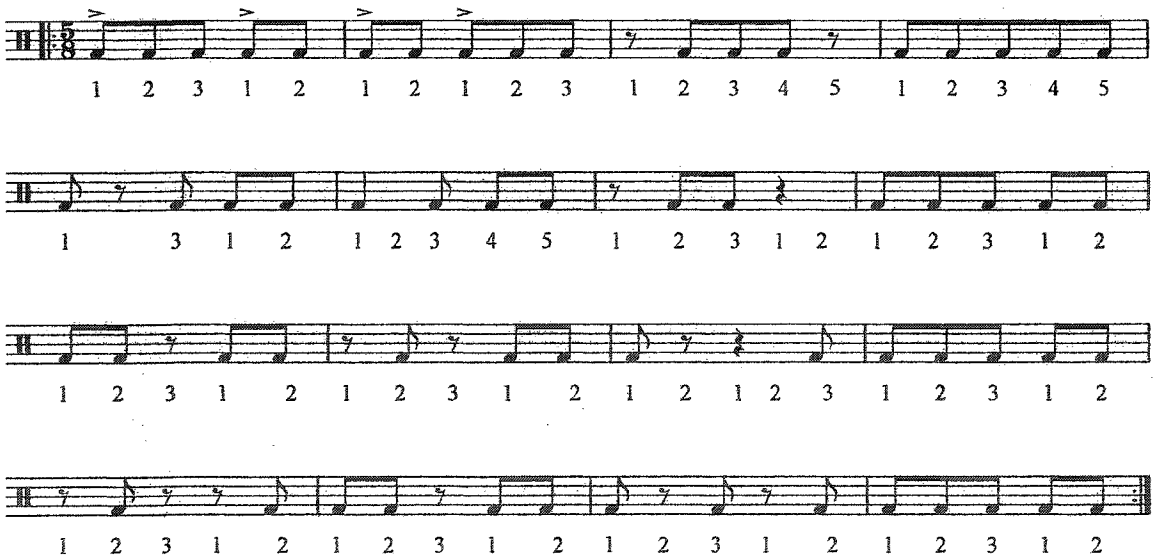
shown below the staff. First practice these exercises by counting the patterns alone, then clap the accented rhythm while you are counting. You may also practice each measure several times before proceeding to the next as a separate exercise. You should be able to perform this exercise at the fastest tempo indicated of ♪ = 276.

Ex. 4-14 ♪ = 240-276



Ex. 4-15 presents variations of Ex. 4-12 utilizing the same metric groupings. This example should be counted in five as well as 2+3 and 3+2.

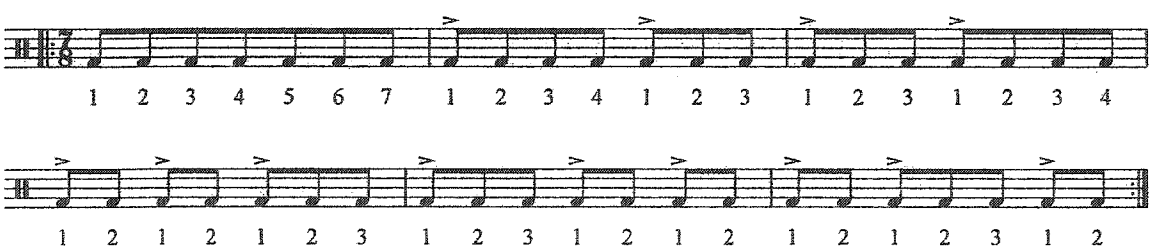
Ex. 4-15 ♪ = 240-276



This example illustrates many of the possible permutations of five notes in a measure; when you have mastered this exercise, you will be able to confidently tackle many of the challenges you will encounter when performing 5/8 (and to a large extent, 5/16) meter. Do not rush through this exercise. Perform it at several different tempos, counting both 1-5 and also the 2+3 groupings where applicable. If you are hesitant at any point, stop, slow the tempo, and review the exercise. It is crucial that this exercise is mastered. Use a metronome to insure that the beat does not waver.

Ex. 4-16 presents 7/8 meter with different beamings. This example may also be counted according to their grouping. The counting by grouping is shown below the staff. As before, first practice by counting the patterns alone, then clap the accented rhythm while you are counting.

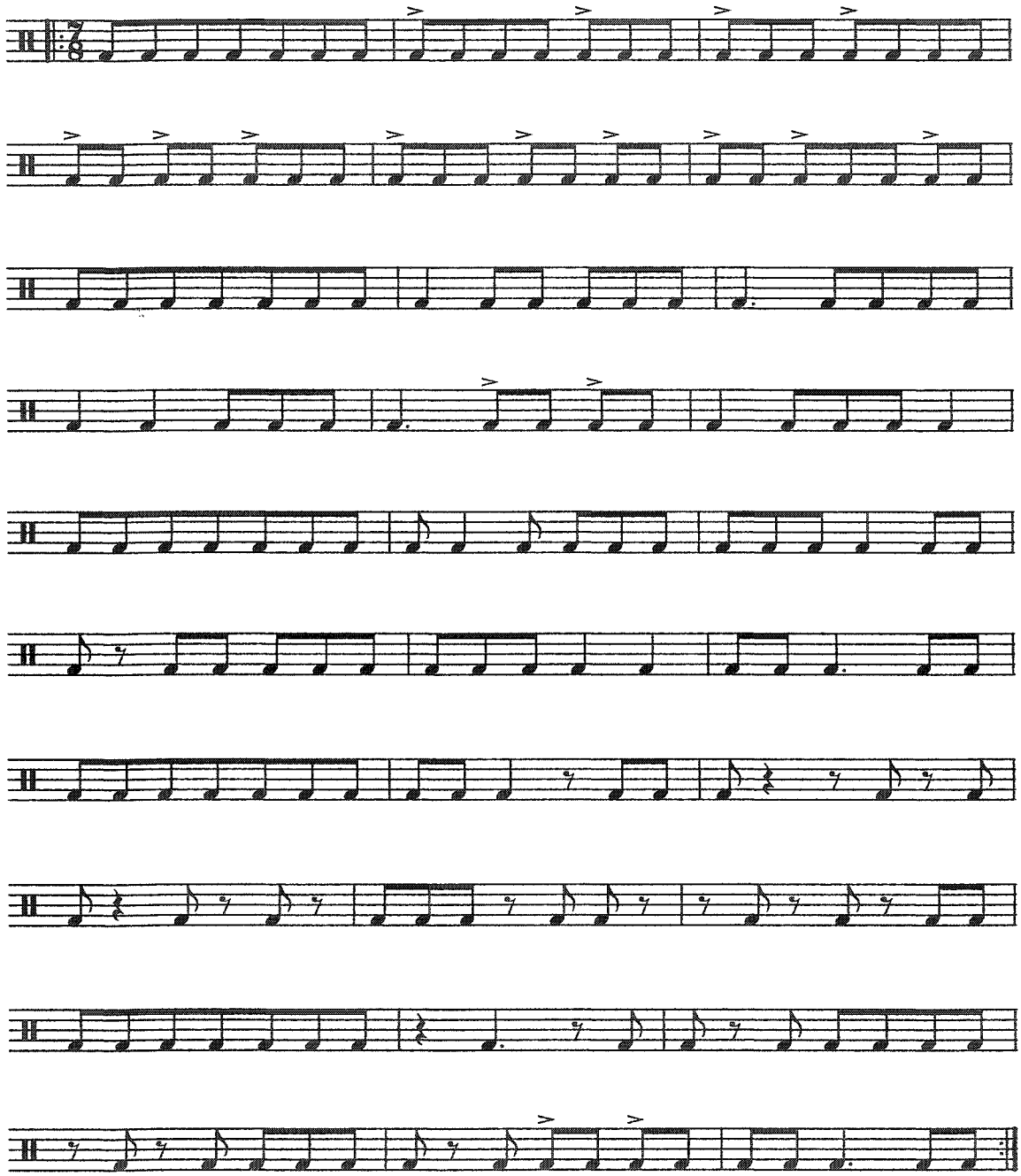
Ex. 4-16 ♪ = 240-276



Practice each measure several times before proceeding to the next as a separate exercise. You should be able to perform this exercise at the fastest tempo indicated of ♪ = 276 before moving on.

Ex. 4-17 presents a variation of Ex. 4-16 utilizing the same internal groupings. First practice by counting the patterns alone, then clap the accented rhythm while you are counting. This example should be counted in seven as well as in patterns of 2+3 as dictated by the barring. Ex. 4-17 presents many of the possible permutations of 7 notes in a measure. The caveat of the 5/8 variations of Example 4-15 applies: do not rush through this exercise. Perform it at several different tempos, counting both 1-7 and also the 2+2+3 and 4+3 groupings where applicable. If you are hesitant at any point, stop, slow the tempo, and review the exercise. Do not proceed to additional exercises until you master this exercise.

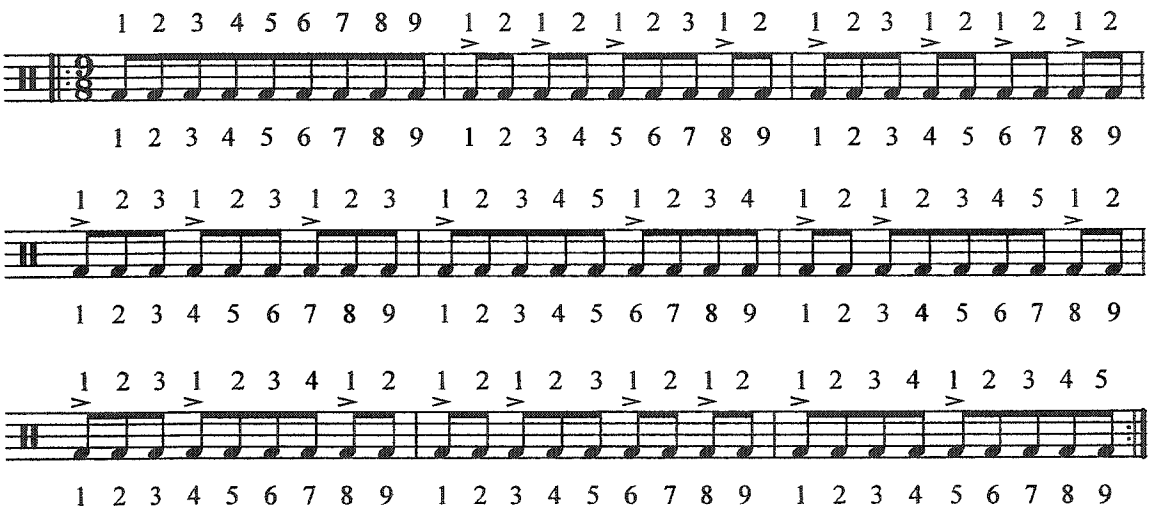
Ex. 4-17 ♪ = 240-276



Examples 4-18 through 4-22 present additional meters utilizing an eighth-note pulse, 9/8, 10/8, and 11/8. Ex. 4-16 is in 9/8, but is not be thought of as a traditional 9/8 compound meter, where the music is in three with

triplet subdivisions of the beat. It is more clearly understood, counted, and performed by following the beaming; this practice is typical of 9/8 meter in twentieth-century writing. Perform Ex. 4-18, counting both the groupings and, as an exercise, the individual beats at the slower tempo.

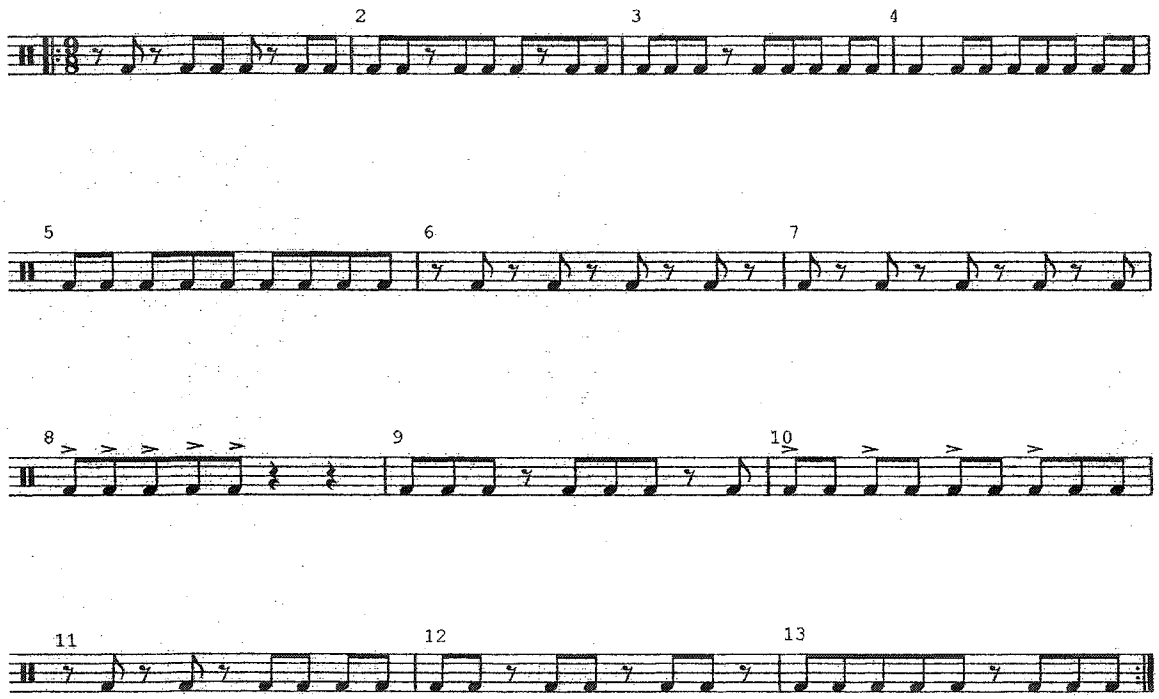
Ex. 4-18 ♪ = 240-276



Example 4-19 presents intermediate rhythms set in 9/8. In this example the groupings are sometimes not made clear by the beaming because of the rests. Analyze each measure and make your own decision as to what the groupings should be; there is no hard and fast rule how each measure should be

grouped or counted.[4] M. 1 could be grouped 3+3+3 or 3+4+2. In m. 2, the rests are included in the beaming so the grouping is clear. M. 3 could be grouped 4+5 or 4+3+2, and so forth. Each situation must be dealt with individually.

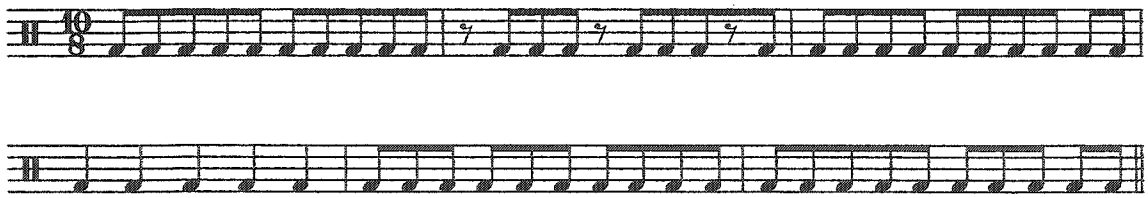
Ex. 4-19 ♪ = 240 - 276



Example 4-20 presents an exercise in 10/8. This may be counted 5+5 or by groupings defined by the beaming. It is unwieldy to count 1-10 in performance, though it is a good practice exercise at slower tempos. Perform exercise 4-20.

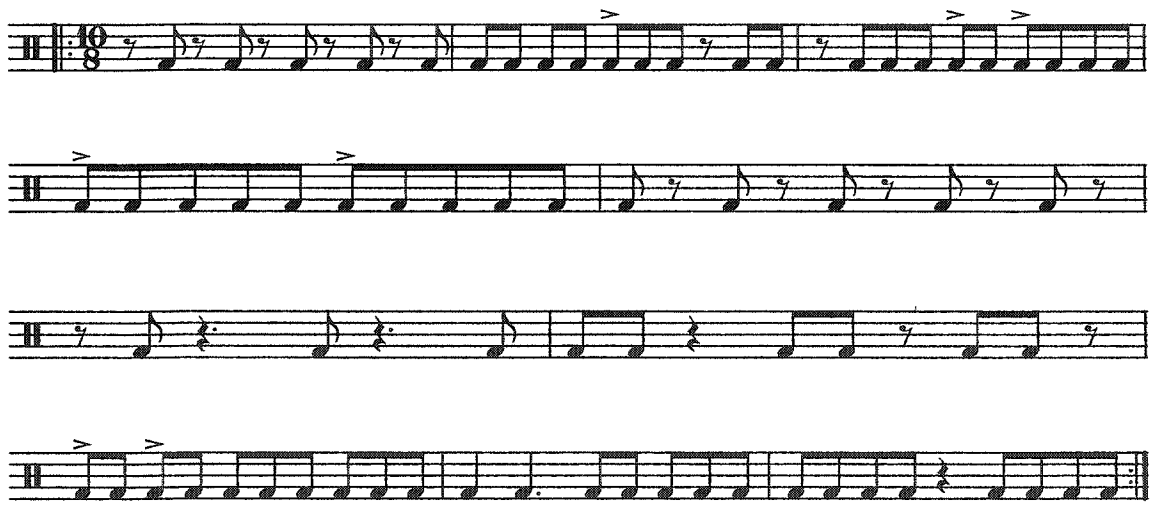
[4] Your first attempt at grouping might be in groups of three, the default grouping of common-practice 9/8 meter. In twentieth-century music this is not necessarily a reliable strategy. Analyze the music and see if there is one grouping that works for the whole piece or if you must decide the groupings on a measure by measure basis.

Ex. 4-20 ♪ = 240 - 276



Example 4-21 presents intermediate rhythms set in 10/8 meter.

Ex. 4-21 ♪ = 240-276

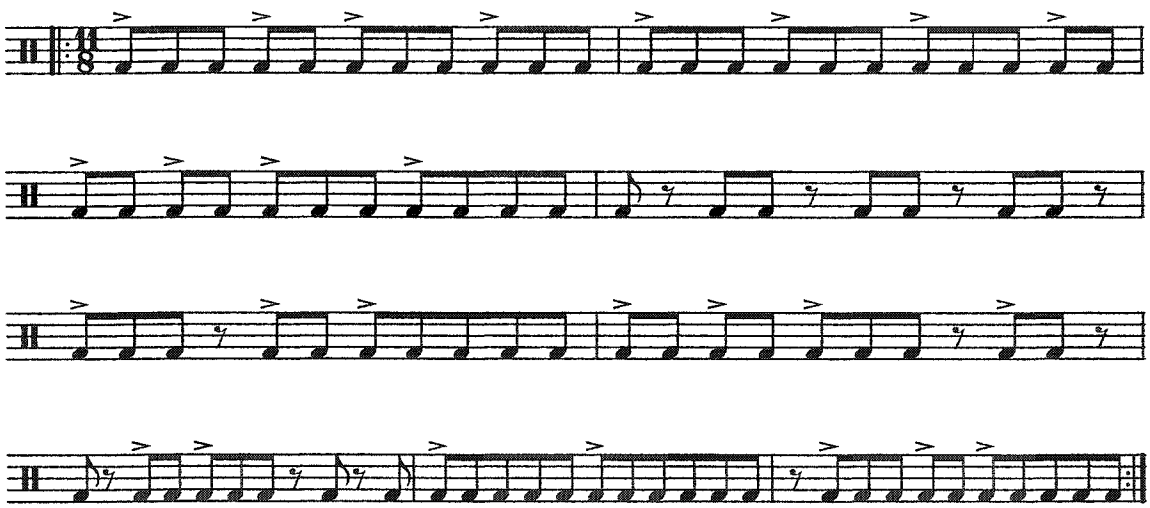


Example 4-20 and 4-21 could have been written in 5/4 (most likely with different beaming); there is no clear reason why it should not be written in the perhaps easier 5/4. Time signatures should have some valid musical reason for their use; in practice they may or may not. You will encounter many instances where the composer's rationale for metrical choices is questionable and/or indiscernible;

don't spend any more time pondering the notation than necessary. It is your job to play the rhythm correctly; if the composer has done his or her job well, the musical intent will be evident.

Example 4-22 presents an exercise in 11/8. Perform Ex. 4-22, clapping the rhythm while counting the groupings outlined by the beaming.

Ex. 4-22 ♪ = 240-276

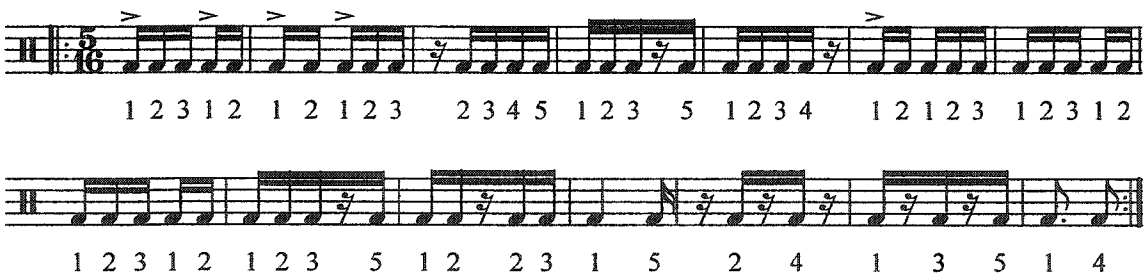


At this point it should be evident that meters of five, seven, nine, eleven (and larger odd meter groups), are most easily understood by breaking them into smaller internal groups, and this is often made evident from the composers beaming. At times it may seem that the barlines corresponding to the meter are arbitrary, since the beaming shows the meter. Either way, you are now armed with tools

of counting and perceiving the different groups that exist within odd meter, thereby facilitating your performance of odd and changing meter.

Ex. 4-23 and 4-24 now present meters with the sixteenth note as the basic note value. These exercises utilize materials similar to the 5/8 and 7/8 studies of Ex. 4-15 and 4-17, rewritten in sixteenth-note values. Perform Ex. 4-23, clapping the rhythm while counting. Also perform on the syllable ta.

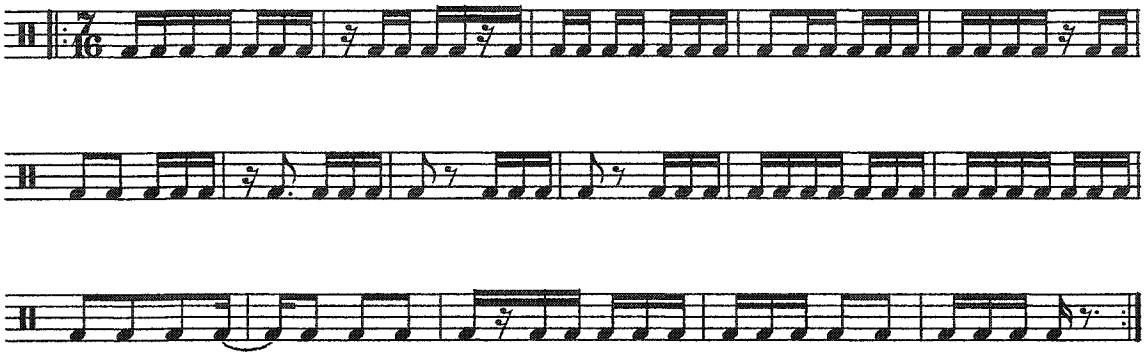
Ex. 4-23 ♪ = 240-276



Meters employing the sixteenth note as the basic value are less frequently seen, and appear more often in changing meter settings. Measures of 5/16 are often not broken into groups of 2 and 3 and are best counted 1-5. They are usually conducted in 1.

Ex. 4-24 presents 7/16 meter. Follow the beaming to help count this exercise where possible. Perform by first clapping the rhythm, then using ta.

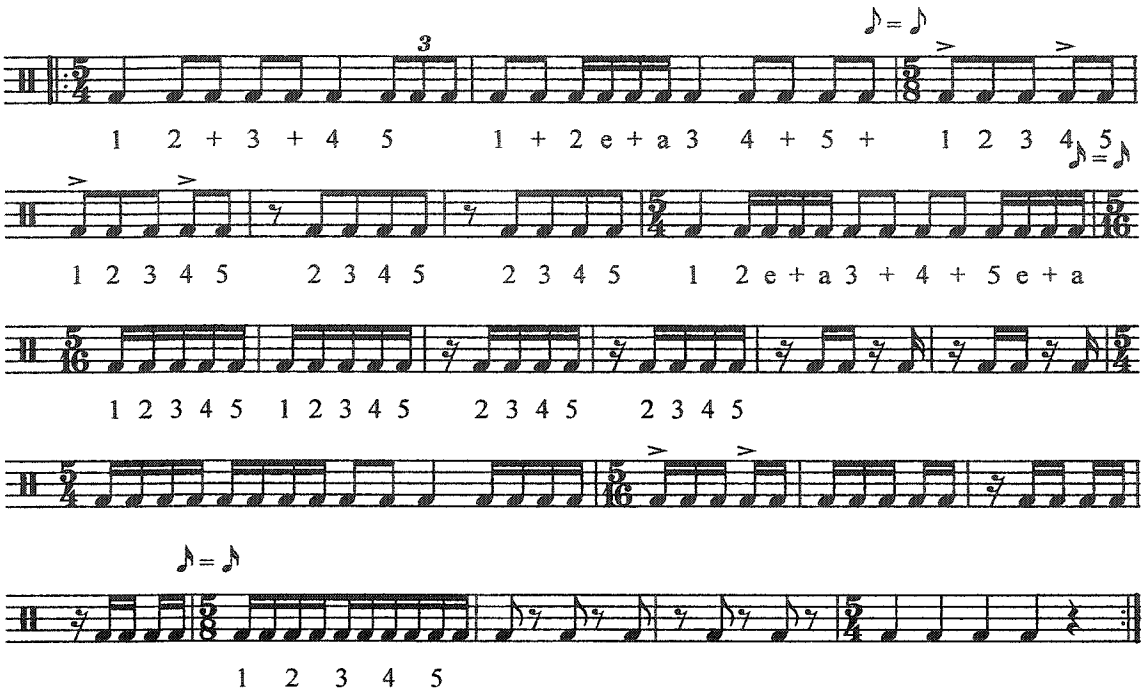
Ex. 4-24 ♪ = 240-276



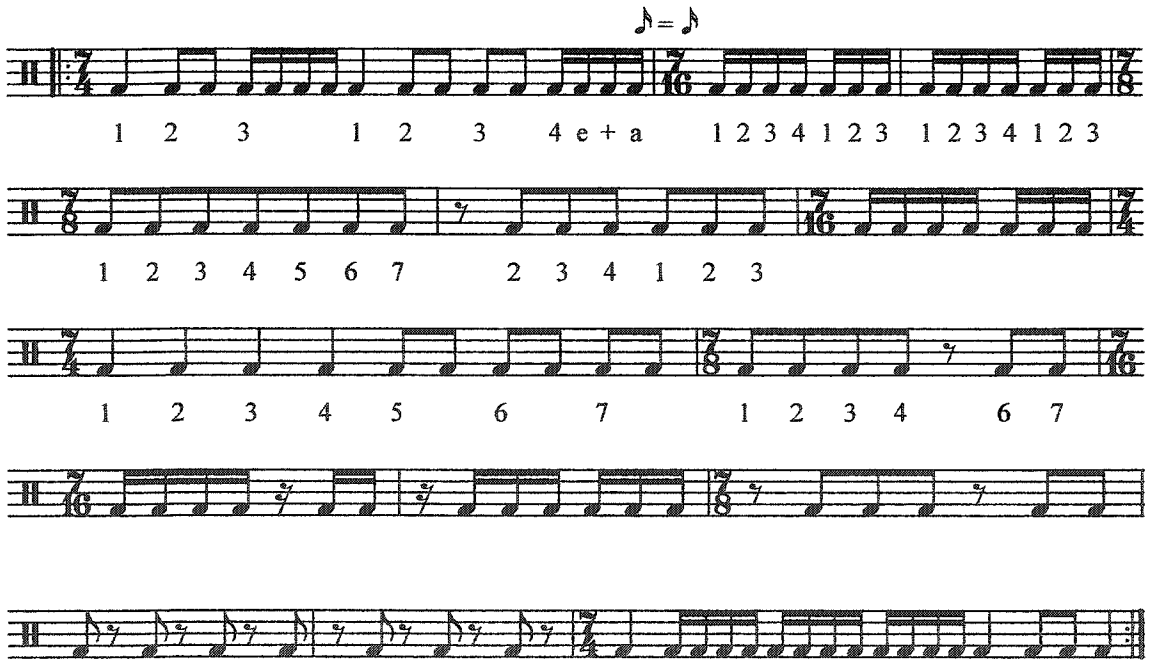
Examples 4-25 and 4-26 combine all the previously studied meters based on 5 and 7: 5/4, 5/8 and 5/16; and 7/4, 7/8 and 7/16, respectively. The eighth note and sixteenth note remain constant throughout. These exercises function as a precursor to the study of changing meter and conclude the study of odd meter.[5]

[5] Usually changing meter indicates a change to the number of beats per measure, not the value of the unit that receives one best, though this may also often occur.

Ex. 4-25 ♩ = 60-68, no faster



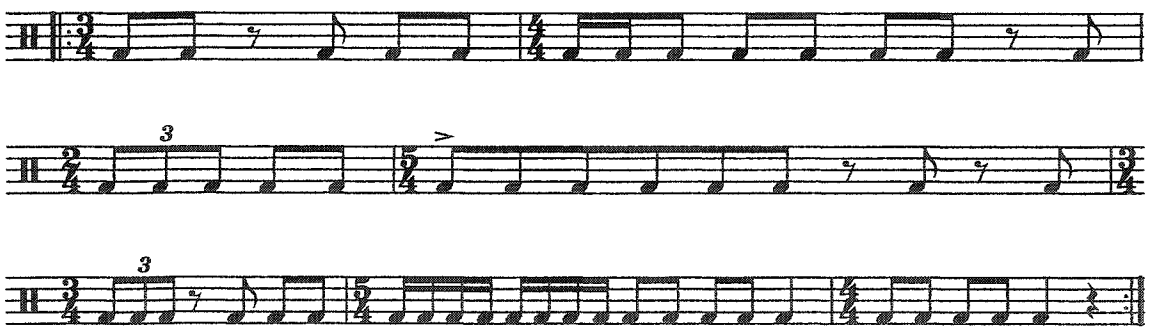
Ex. 4-26 ♩ = 60-68, no faster



Changing Meter

The first step to learning changing meter is to study and perform exercises where the basic note value does not change. In Ex. 4-25 and 4-26 you performed changing note values while the number of beats per measure remained the same; now you will keep the note value constant as the number of beats per measure changes, which is the characteristic element of changing meter. Example 4-27 illustrates elementary rhythms set in changing meter, with the quarter note as the unchanging pulse. Perform Ex. 4-27 at ♩ = 120, clapping the rhythm while counting the meter out loud. It is always helpful to use a metronome as an aid as you focus on the new challenges before you.

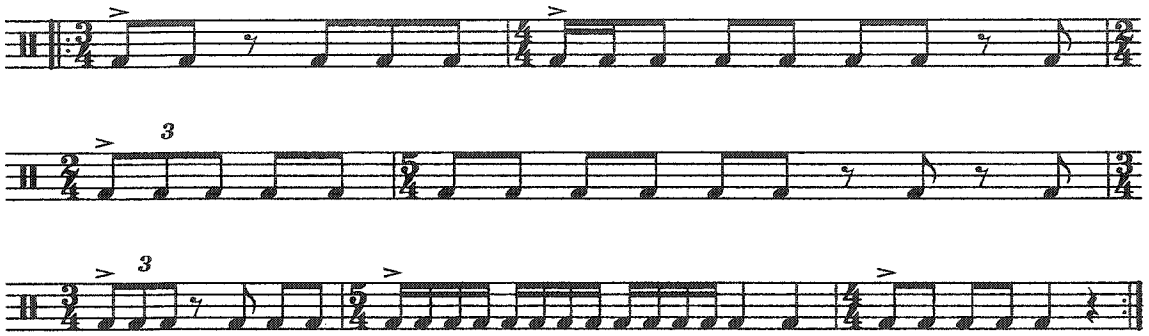
Ex. 4-27 ♩ = 120



Accenting the beginning of each measure will give you a better feel of the changing meter. Now perform Ex. 4-28.

This example rewrites Ex. 4-27 with accents added to the first note of each measure.

Ex. 4-28 ♩= 120



If Ex. 4-28 is performed without accents, it is difficult to perceive the changing meter, as the rhythms do not necessarily outline the meter. This is often the case. Bear in mind that there may or may not be a perceivable musical reason for changing meter.[6]

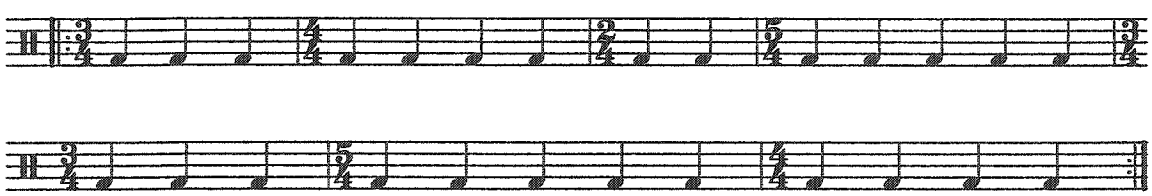
The ability to count through changing meter is a fundamental skill necessary to learn and perform changing meter. The second most important skill to learn changing meter is the ability to conduct. It takes minimal effort to learn the basic conducting patterns; you should have at

[6] The rhythmic material within changing meter can function in three ways: it can clearly follow the meter; it can seemingly have nothing to do with the meter; or it can intentionally go against the written meter. Many works are made up of a combination of all three; through analysis you will identify the different settings and thereby the challenges within.

least a rudimentary working knowledge of this skill. There are many conducting texts available; all describe the basic conducting patterns you will need for any of the exercises presented here.[7] Though counting is the foremost tool used in performing changing meter, conducting is a skill that must not be overlooked.

Since you are adding the action of conducting while attempting to perform changing meter, the rhythmic content of Ex. 4-27 has been reduced to simple quarter notes as rewritten in Ex. 4-29a. The rhythms then progress to repetitive subdivisions, as shown in Ex. 4-29b-d. By practicing this way you are isolating the challenge of conducting changing meter, and progressively adding more difficult rhythmic material to the metrical pattern. First conduct the changing meter pattern alone of Example 4-22, as rewritten in 4-29a. Then perform using the syllable ta while conducting. Conduct from here on.

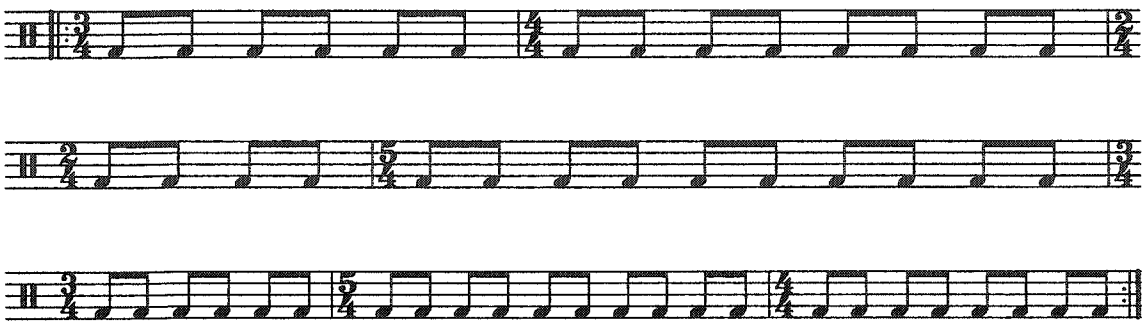
Ex. 4-29a ♩ = 100



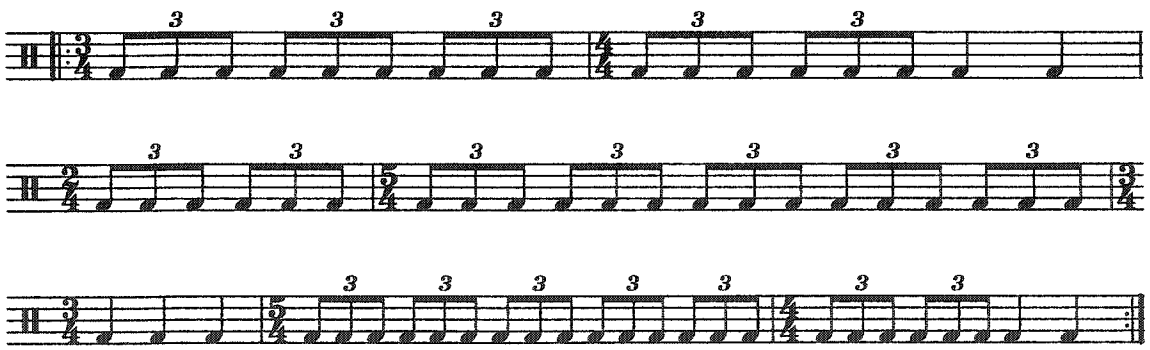
[7] I recommend *The Grammar of Conducting* by Max Rudolf (New York: G. Schirmer, 1969). It contains clearly written instructions with many examples, and excellent diagrams for conducting patterns.

Now perform this same metrical pattern while conducting, replacing the rhythm of Ex. 4-27 with eighth notes, eighth note triplets, and finally sixteenth notes, as shown in Examples 4-29a through 4-29c. Quarter notes have been added to allow for a breath.

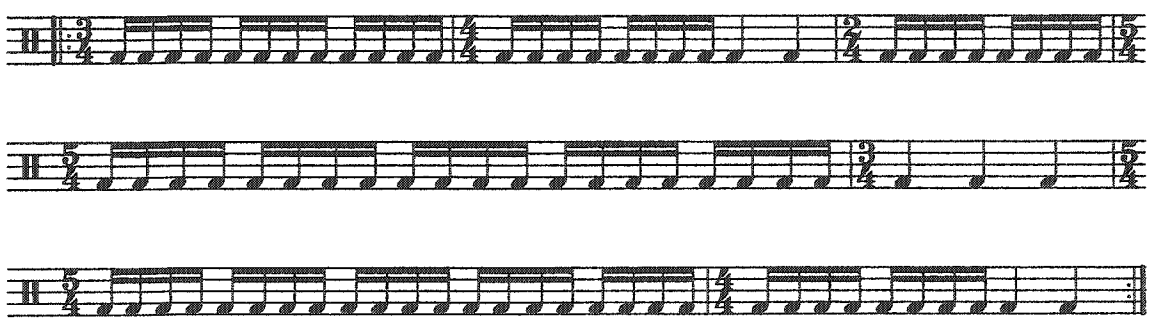
Ex. 4-29b ♩ = 100



Ex. 4-29c ♩ = 100

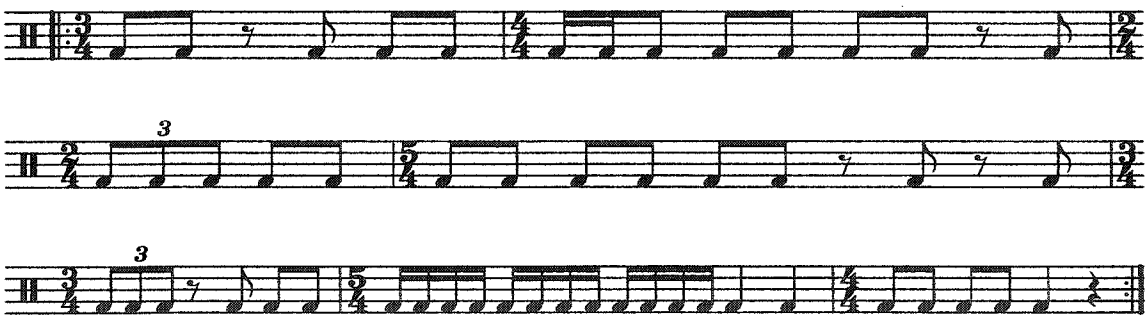


Ex. 4-29d ♩ = 100



By performing these elementary subdivisions while conducting this pattern of changing meter, you should have no trouble returning to the original example of 4-27 and performing it while conducting, as shown in Ex. 4-30. It is no longer necessary to accent each measure to perceive the meter since you are exercising your newly acquired skill of conducting.

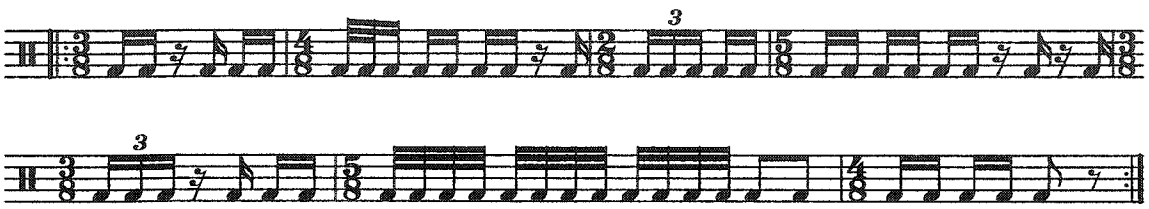
Ex. 4-30 ♩= 100 Perform while conducting, on ta



Example 4-31 presents Ex. 4-30 rewritten in smaller note values. By practicing this example you will now learn to conduct and perform changing meter with the eighth note as the unchanging pulse. This should not be difficult, for the sole challenge is to perceive the rewritten note values of an already familiar example. The performance sounds no different, nor does the conducting pattern change in any way. (As will be illustrated later, at faster tempos these eighth-note based meters will require different conducting

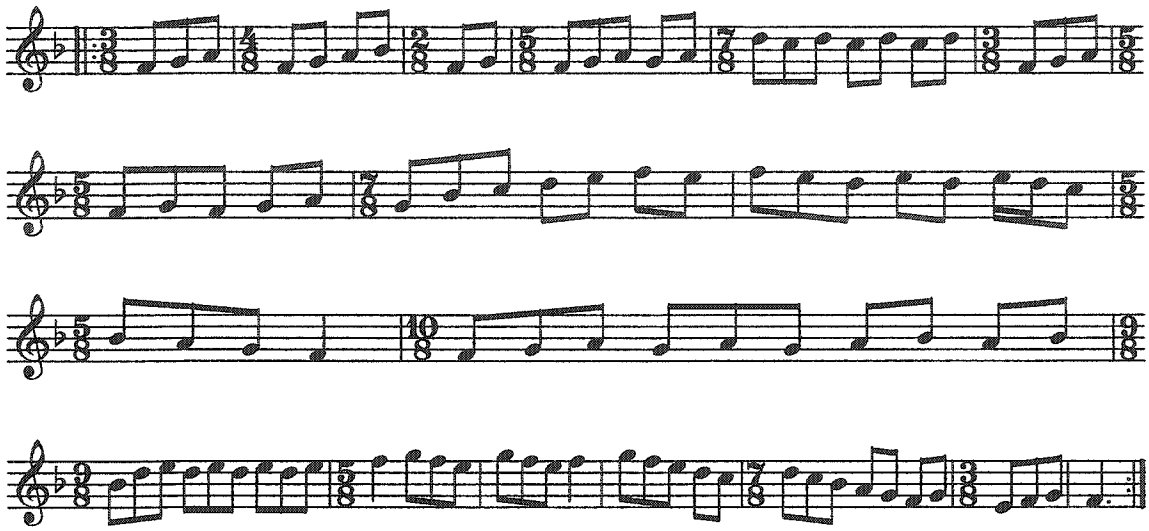
patterns.) As you conquer this stumbling block you are well on your way to becoming fluent in changing meter. Perform Ex. 4-31 at ♪ = 132. If this tempo proves too fast, start at a slower tempo. Repeat this exercise several times.

Ex. 4-31 ♪ = 132



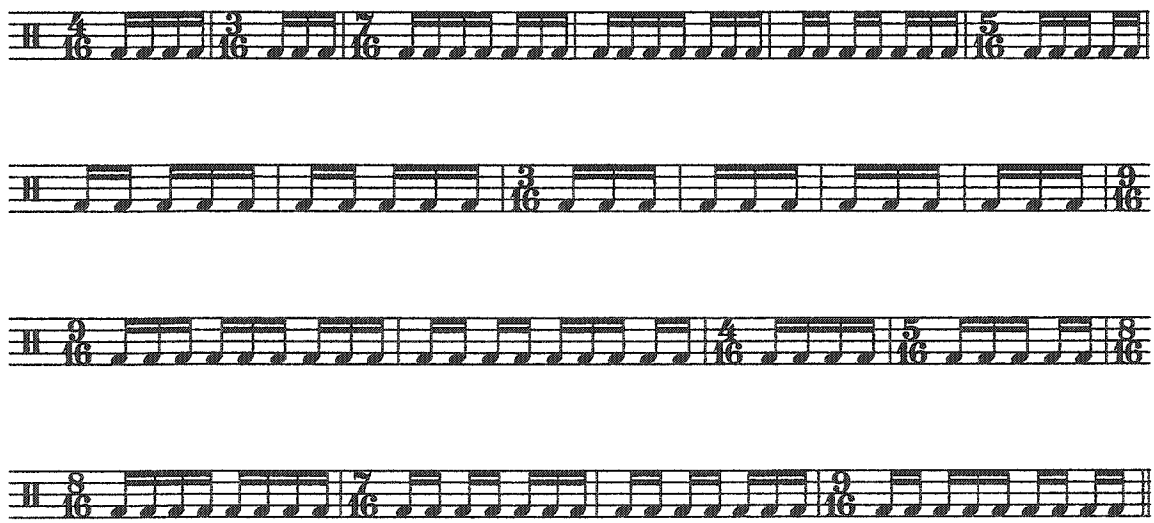
Ex. 4-32 illustrates the use of scale passages to help learn changing meter, using the eighth note as the unchanging pulse. The pitch material is very easy to sight sing. Use solfeggio syllables or sing on <u>la</u>, or play it on your instrument. The scale patterns use the beamed groupings of the meter, further assisting you in the performance of changing meter. Make up your own additional exercises that target areas that you find challenging.

Ex. 4-32 ♪ = 240



Ex. 4-33 presents different patterns of changing meter utilizing the sixteenth note as the basic value. First conduct Ex. 4-33. Once you have mastered this perform the exercise on ta while conducting.

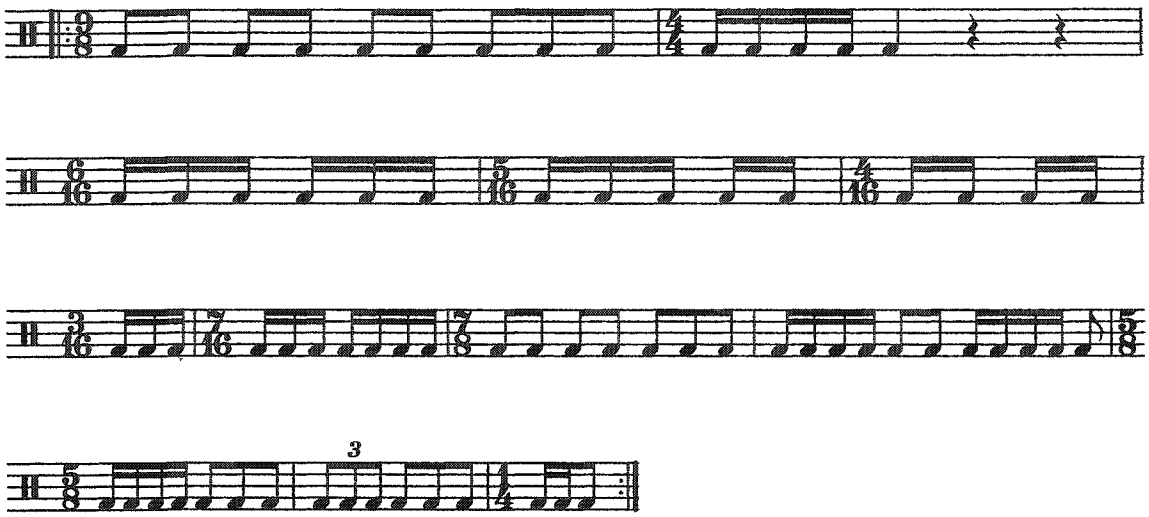
Ex. 4-33 ♪ = 240-276



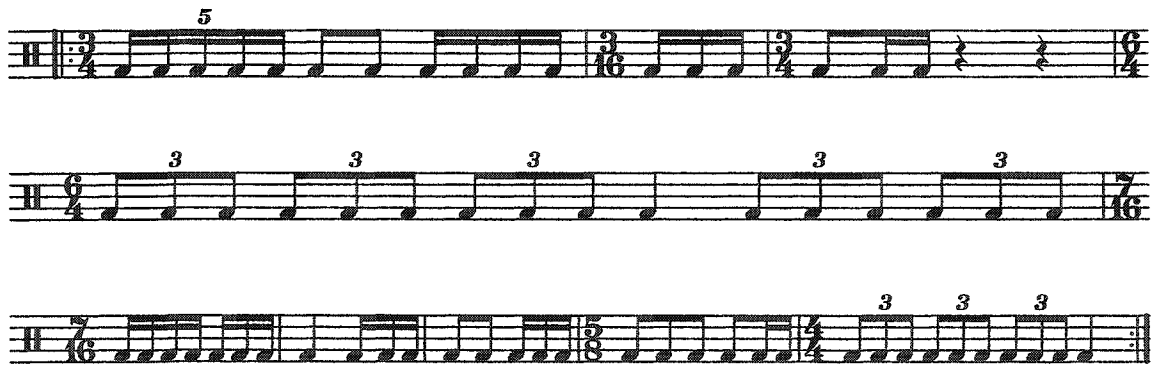
The 3/16 bars are conducted in one. For 5/16 and 7/16 bars grouped 4+3 or 3+4, you must use a modified two pattern. This is because the tempo is too fast to conduct individual beats. Similarly, no conductor beats every beat of a 6/8 (unless the tempo is very slow), but rather the compound meter of 2. Where the 7/16 bars are grouped 2+2+3, 2+3+2, or 3+2+2, a modified pattern of three will be used. The above rules also apply to odd meter notated in eighth notes as the tempo becomes too unwieldy to conduct every beat. This rule is carried forth into fast 9/8 or 9/16 meters: grouped 3+3+3 you have a common practice compound meter utilizing a three pattern, but a typical contemporary grouping of 9 such as 2+2+3+2 would requiring the use of a modified four pattern. Hence, these meters become compound odd meters at faster tempos. (At very fast tempos the 5/16 should be conducted in one.)

The next step in learning changing meter is to introduce changing note values combined with changing meter. This is the essence of twentieth-century metrical writing. Example 4-34 though 4-37 present different metrical combinations of 2, 3, 4, 5, and 7, utilizing note values of quarter, eighth, and sixteenth. These are the most common materials you will see in twentieth-century writing.

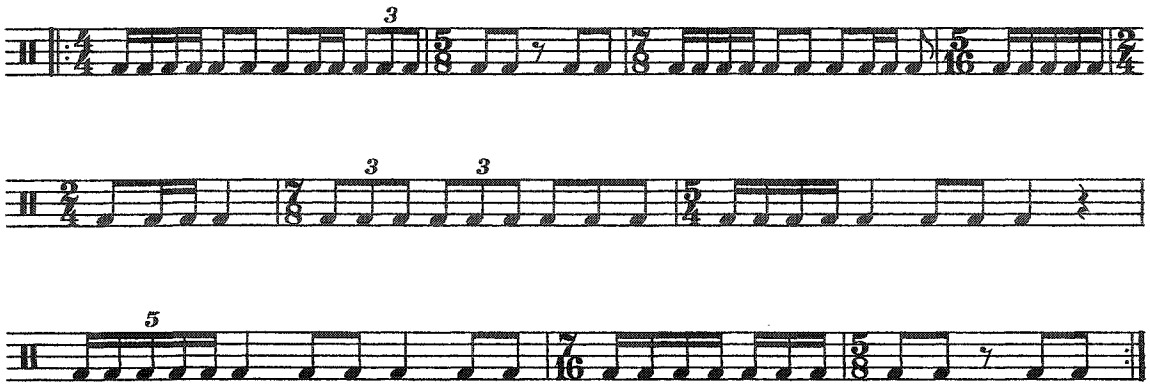
Ex. 4-34 ♪ = 138



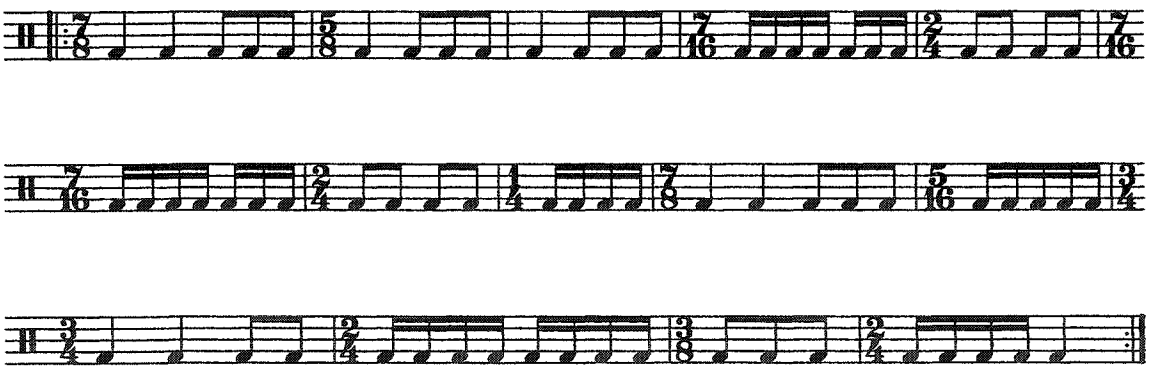
Ex. 4-35 ♩ = 69



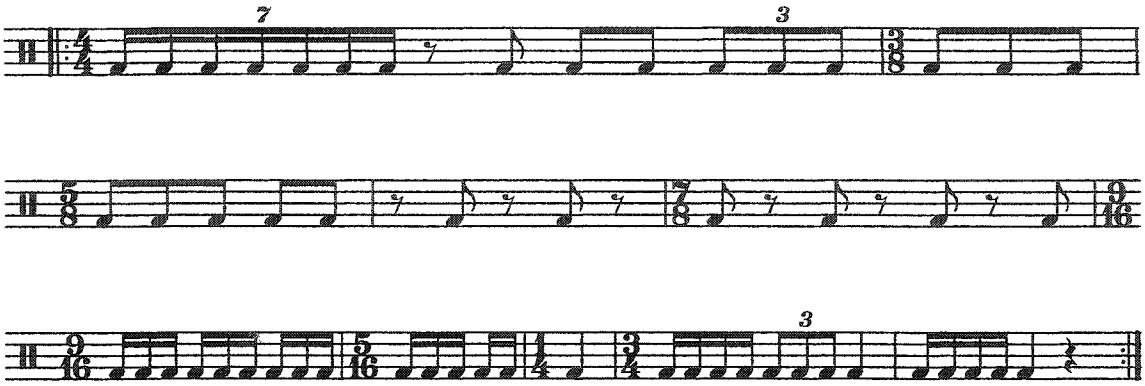
Ex. 4-36 ♩ = 69



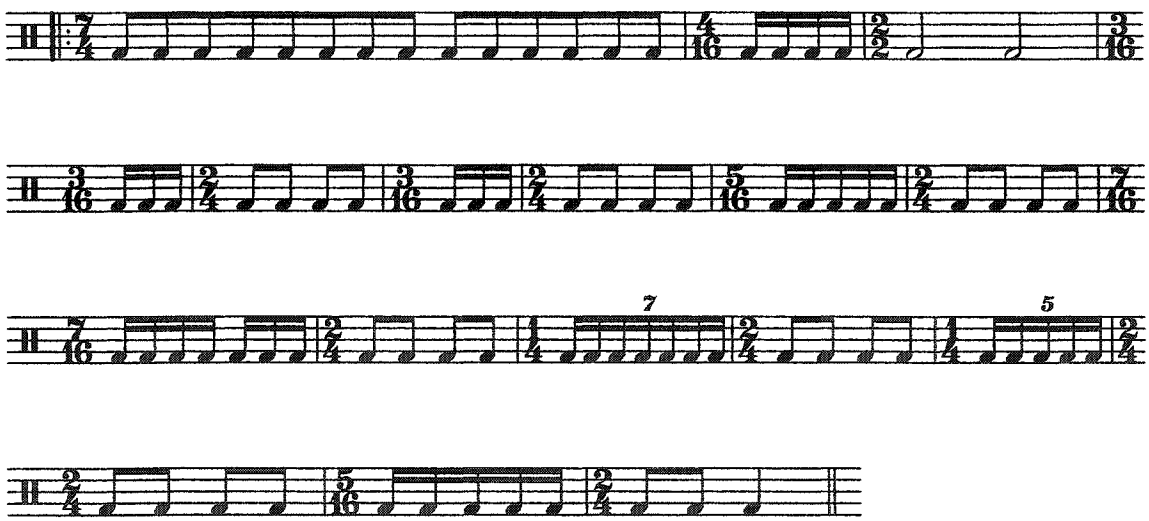
Ex. 4-37 ♩ = 69



Ex. 4-38 ♩ = 54-60



Ex. 4-39 ♩ = 90

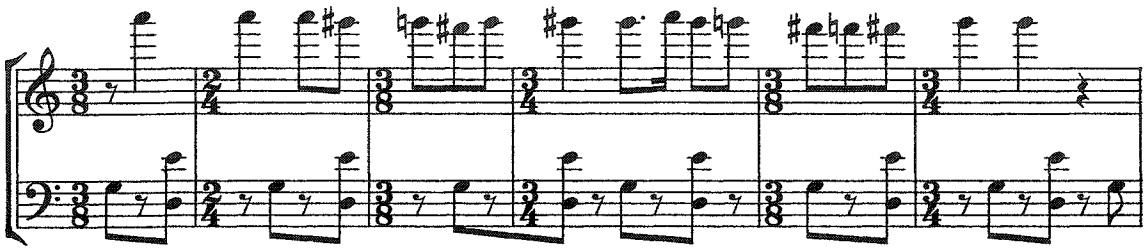


Rhythm against meter: Cross metrical writing

In writing that utilizes changing meter, very often the rhythm will go against the meter. Ex. 4-40 illustrates use of cross metrical writing in the *Marche du Soldat* from *L'Histoire du Soldat* by Stravinsky. The bass and clarinet

part have been isolated; while the bass clearly shows a pattern of two against constantly changing meter, defined by pitch pattern and confirmed by Stravinsky's beaming, the clarinet melody fits well into the changing meter. (Further examples illustrating Stravinsky's use of cross metrical writing from L'Histoire will be examined later.)

Ex. 4-40 *L'Histoire du Soldat*, rehearsal 10, clarinet, bass

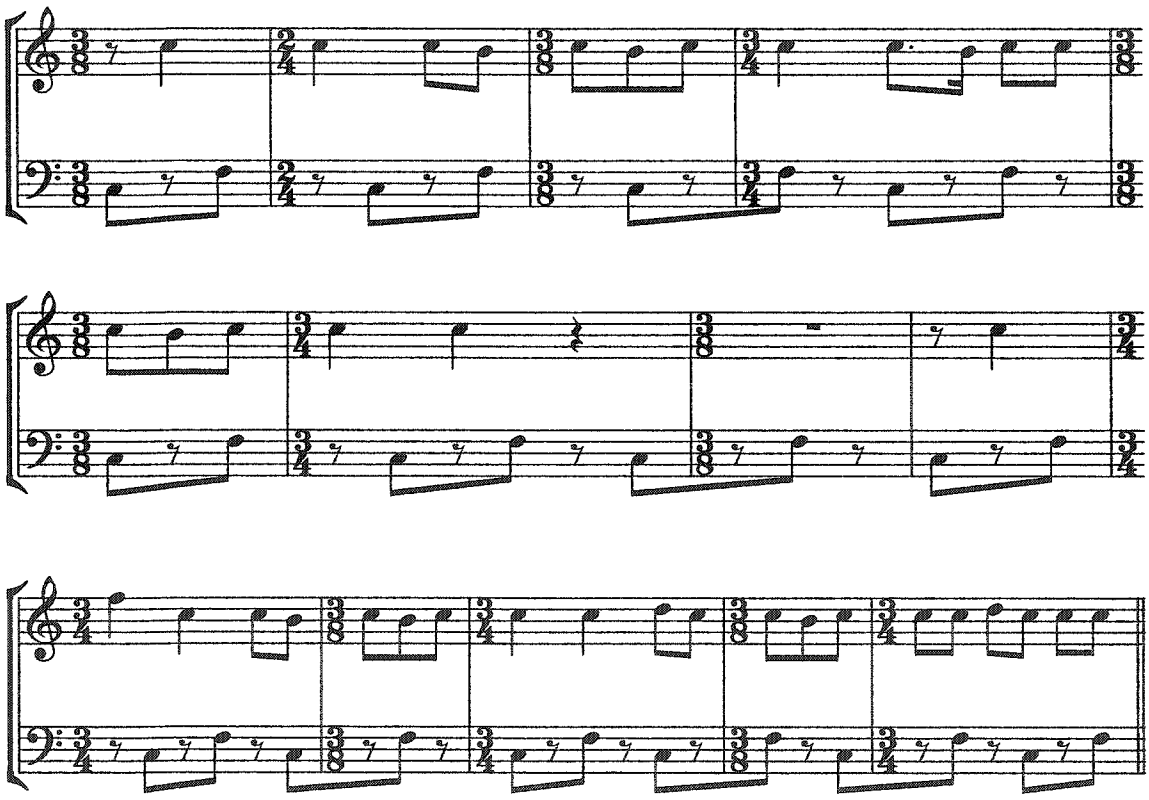


Exercises employing cross metrical writing

Example 4-41 presents an exercise based upon the above excerpt from *L'Histoire du Soldat*. Here are presented the bass and clarinet parts with simplified pitch material so no other ancillary challenge is present.

First conduct Ex. 4-41.

Ex. 4-41 ♩ = 69



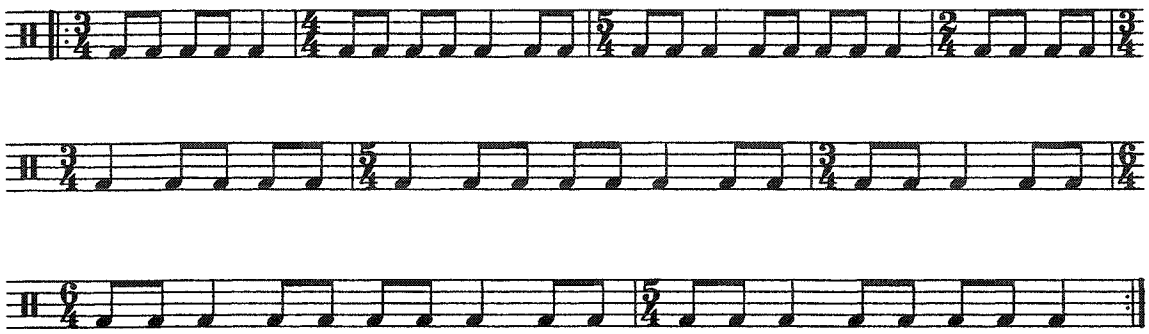
Now sing the top line of Ex. 4-41 using solfeggio (or whatever syllable you wish) while conducting. This should be a relatively easy task since the melodic and rhythmic

patterns correspond to the changing metrical pattern. If the initial tempo of ♩ = 69 proves difficult, start at ♩ = 58 and work your way up to the faster tempo. Your next task is to sing the bottom line of Ex. 4-41 while conducting. This is more challenging in that both the melodic and rhythmic material go against the written meter, outlining an unchanging pattern of 2/4.

Examples 4-42 and 4-43 present simple rhythmic patterns repeated across constantly changing meter. As the pattern moves against the different meters it takes on a new identity, and the beat is constantly turned around or obfuscated. This is a typical device of twentieth-century composers. Example 4-42 presents a simple repetitive pattern of three beats set in changing meter. Though the rhythm is rudimentary, you will feel a mental tug of war between the actual rhythm and its metrical setting as the beginning of the phrase no longer coincides with the downbeat of the measure. This is the challenge of performing rhythms that go against the written meter: perceiving one musical element while performing another,

contradictory one.[8] Perform Ex. 4-42 at ♩ = 120, first counting aloud while clapping the rhythm, then singing on ta while conducting. Repeat several times; if necessary, start at a slower tempo.

Ex. 4-42 ♩= 120



Example 4-43a illustrates this same idea, now using a rhythmic phrase of four against the same metrical pattern found in Ex. 4-42. A 4/4 bar has been added at the beginning to accommodate the initial four beat pattern.

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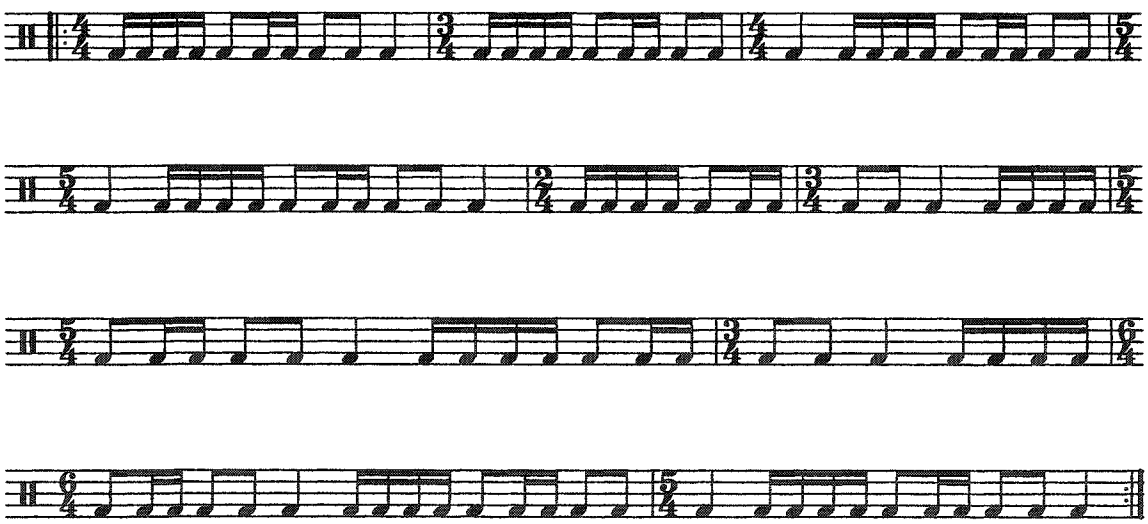
[8] Though the goal is effortless performance, there is the performance practice issue of understanding the composer's intent. There can be an inherent quirkiness or jaggedness in changing meter and cross metrical writing (particularly at quicker tempos), and this should be embraced and articulated by the performer, or at the very least, considered. Sometimes it is the challenge or stress of performance that produces a certain edginess that the composer intended to be present in their music. Graziela Bortz discusses this in her examination of the New Complexity School of Composition in her dissertation: "Rhythm in the Music of Brian Ferneyhough, Michael Finnissy, and Arthur Kampela: A Guide for Performers." DMA diss., Graduate School and University Center of CUNY, 2003.

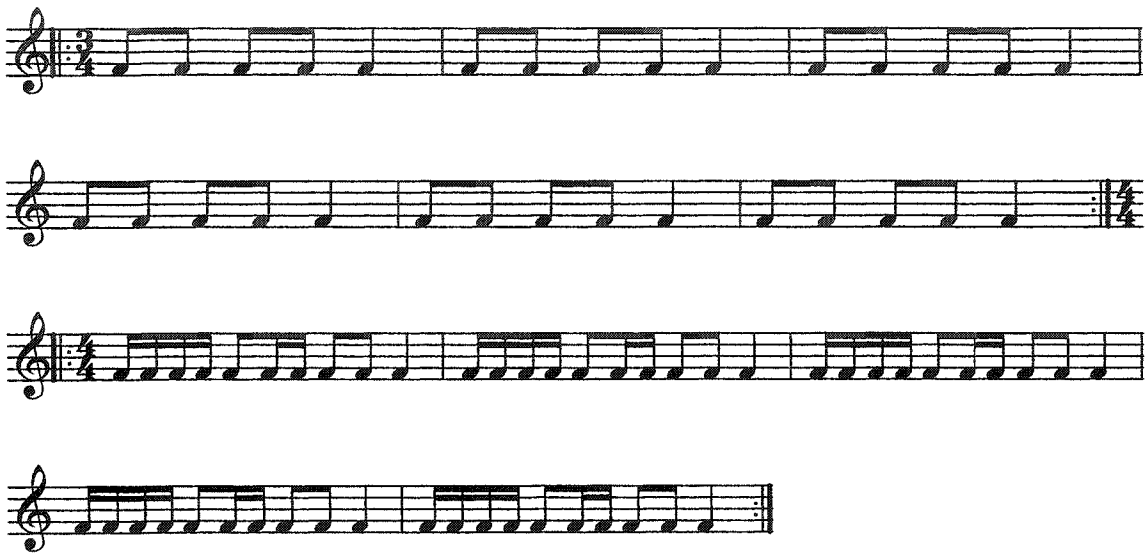
Perform Ex. 4-43a at ♩ = 90, first counting aloud while clapping the rhythm, then singing on ta while conducting. Repeat several times; if necessary, start at a slower tempo. This exercise is deceptively simple in that you are essentially repeating a rudimentary rhythm over and over again. However, it is not easy to perform. The goal is not to perform a simple rhythm; rather, you are exercising your perceptive flexibility, i.e., your ability to perform a known pattern in constantly shifting settings.

Ex. 4-43a ♩ = 90



Example 4-43b rewrites Ex. 4-42 in 3/4 meter and Ex. 43a in 4/4 meter.

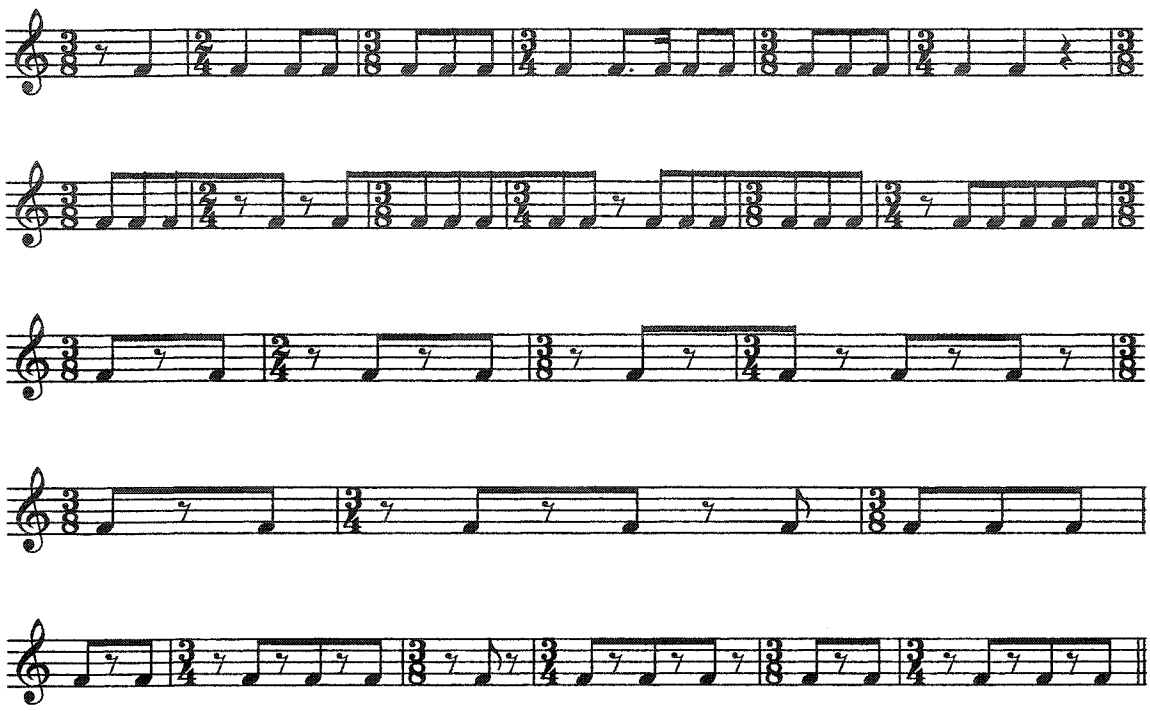
Ex. 4-43b ♩ = 120



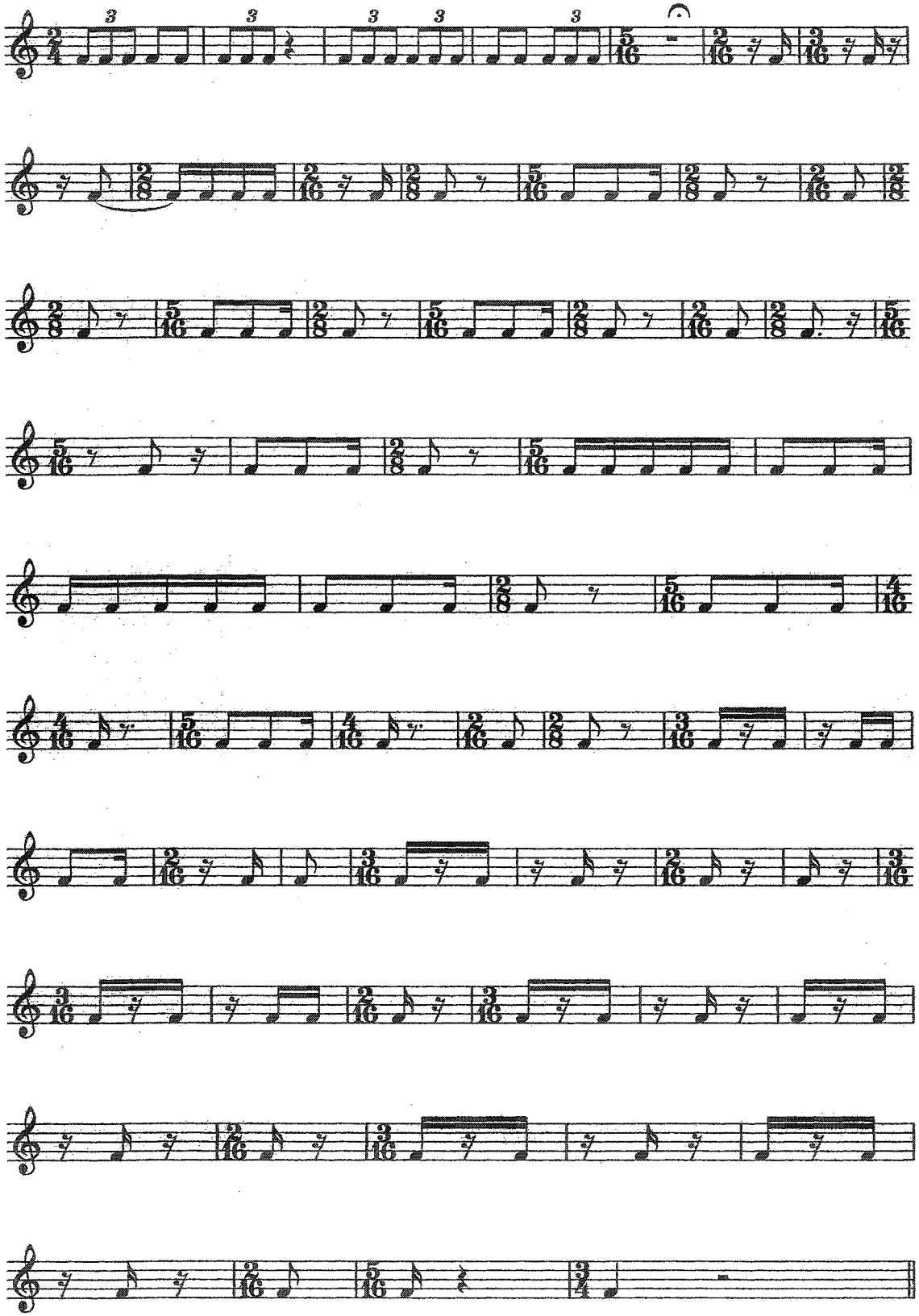
Exercises based on examples from the literature

Examples 4-44 through 4-46 present exercises based upon Stravinsky's *L'Histoire du Soldat* and *Rite of Spring*, and Dave Hollinden's *Second Quartet for Percussion*. These works contain some of the most difficult changing meter material you will encounter; when you master these you will have little problem performing changing meter. Count each example through before attempting to perform.

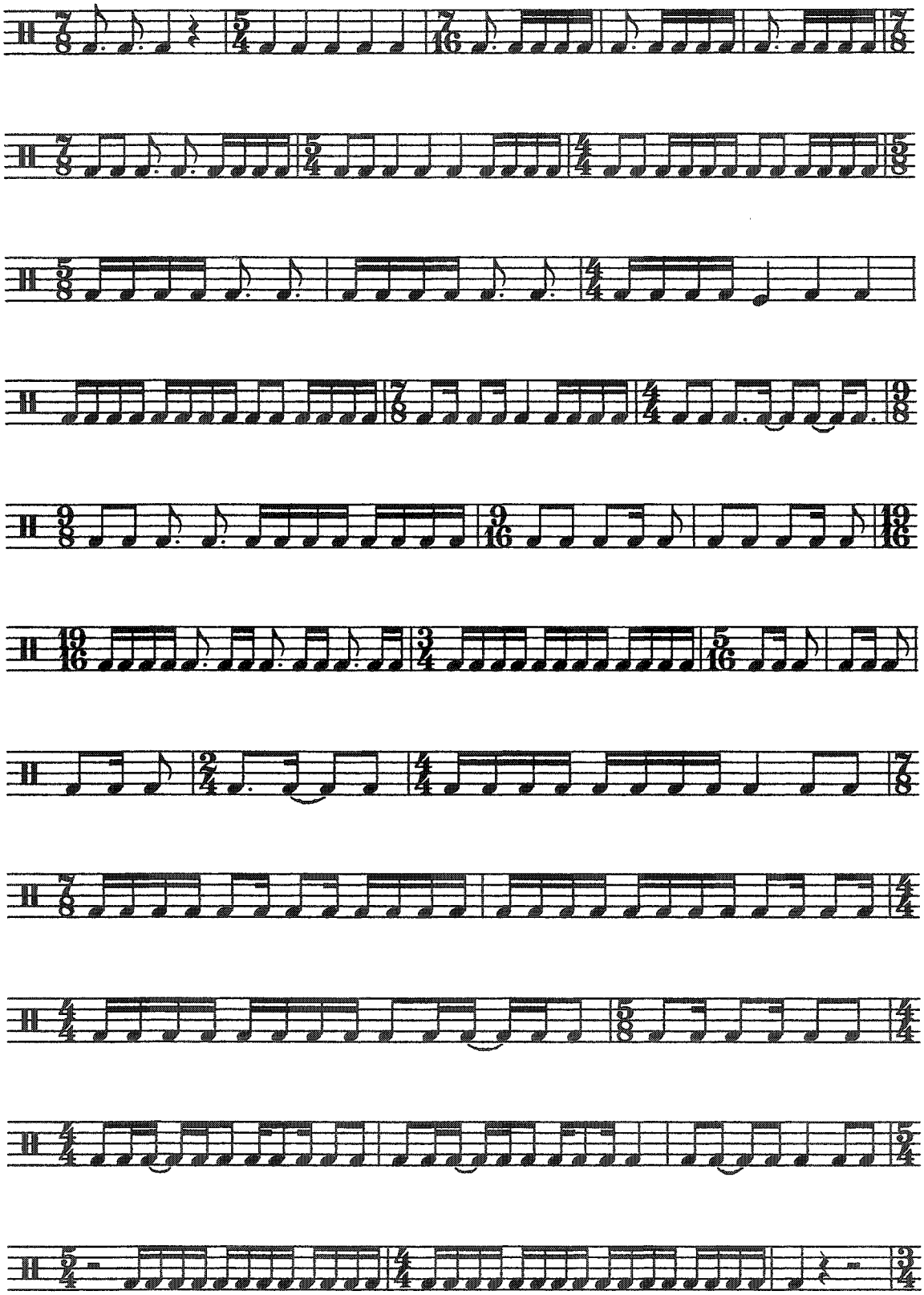
Ex. 4-46 ♩= 120 based on *L'Histoire du Soldat*, rehearsal 10-14



Ex. 4-45 based on *Rite of Spring* Second Part, rehearsal 179-181, 186-end



Ex. 4-46 Hollinden, *Second Quartet for Percussion*, Player Two, mm. 58-90

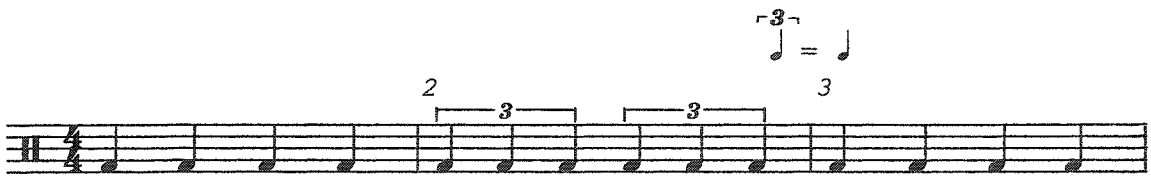


Chapter 5: Metric Modulation

Introduction

Metric modulation is a compositional technique used to change tempo, providing for an exact proportional relationship to the previous tempo. This is achieved by imposing an tuplet (i.e., irregular subdivisions of the beat) on an established tempo, and then treating the units of the tuplet as units of regular groupings (i.e., regular subdivision of the beat), or as the beat itself, in the new tempo. The duration of the notes remains constant. Ex. 5-1 outlines the three steps necessary to a metric modulation: establishment of tempo (quarter notes, shown in m. 1); imposition of an tuplet (quarter-note triplets, shown in m. 2) and modulation (the quarter-note triplets are now redefined as regular quarter notes, shown in m. 3).

Ex. 5-1



This is the basic form of metric modulation; examples that follow will illustrate variations and more complex models.

Though accepted as standard terminology, the term metric modulation is a misnomer. It is more correctly called

"tempo modulation," a term favored by Carter. It is the tempo that changes, brought about by the assignment of a new pulse to notes of the same value from the previous tempo. Carter has used this device throughout his works to manifest his concept of producing several streams of tempos simultaneously.[1] Though the meter may change coincidentally, this change is not integral to the modulation.

Metric modulation can be understood as being analogous to harmonic modulation. In harmonic modulation there must exist both an original key and a goal key. In metric modulation, the equivalents are the original tempo and the goal tempo. To modulate there must also exist material common to both areas. In harmonic modulation, it is pitch (and the harmony produced) that constitutes the common material found in both the old and new key areas. This common harmonic material facilitates modulation to the next key area. This material functions in both keys, but retains

---

[1] Carter states, "I was preoccupied with the time-memory patterns of music, with rethinking the rhythmic means of what had to seem a very limited routine used in most contemporary and older Western music. The result was a way of evolving rhythms and rhythmic continuity called 'metric modulation', worked out during the composition of the Cello Sonata (1948)." See Else and Kurt Stone, *The Writings of Elliott Carter* (Bloomington: Indiana University Press, 1977).

David Schiff writes of Carter's use of cross pulses: "Different speeds appear as others fade out, so that the overall tempo of the music fluctuates rapidly. The notational means for achieving this effect is known as 'metrical modulation'." See David Schiff, *The Music of Elliott Carter* (New York: Da Capo Press, 1983), p. 26.

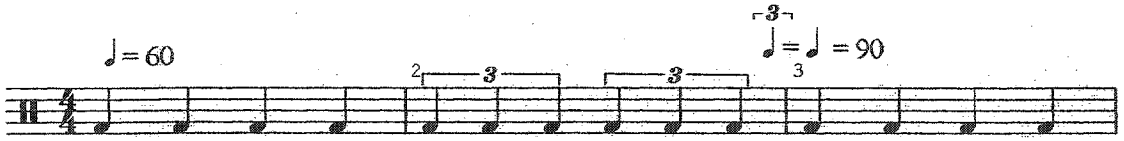
Carter further developed this idea in his timpani pieces (1949), String Quartet No. 1 (1951), and subsequent works. The term metric modulation has become standard terminology.

an individual role and identity in each key; sometimes the same pitches appear in enharmonical respelling. Analogous to the pitch material in harmonic modulation is the rhythmic material in metric modulation. The individual note values are common to both tempos but belong to different groupings. This commonality facilitates modulation to the next tempo. The note values function as a member of one grouping in the original tempo and then as a member of a different grouping in the new tempo. Just as pitch takes on a new identity in the new key, so do the individual note values as they are translated and redefined in the new tempo.

Notation

In order to indicate a metric modulation the following notation is used. Immediately above the left of the barline of the new tempo is placed a note from the tuplet (with a qualifying bracket and numeral above the note); an equals sign (=); and, on the right side of the bar line of the new tempo (m. 3), the note to which the tuplet note is equal. Ex. 5-2 illustrates an elementary metric modulation.

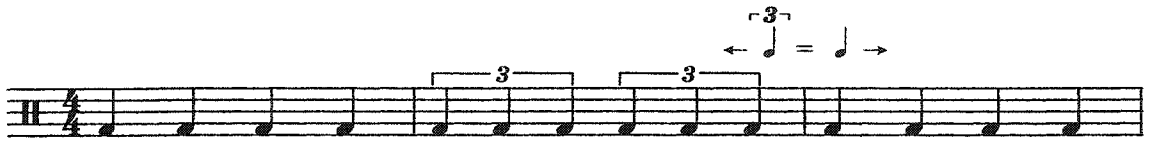
Ex. 5-2



Thus, $\overset{3}{\text{♩}} = \text{♩}$ reads: triplet quarter note from previous tempo is equal to quarter note in new tempo.

Although there may be qualifying arrows next to these notes, they are not necessary; they are, in fact, redundant and cumbersome.[2] Example 5-3 illustrates a metric modulation with qualifying arrows.

Ex. 5-3

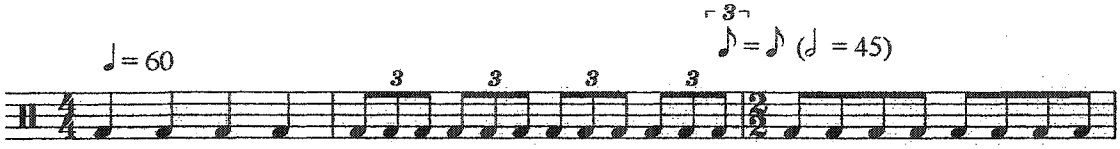


Functionality of Metric Modulation

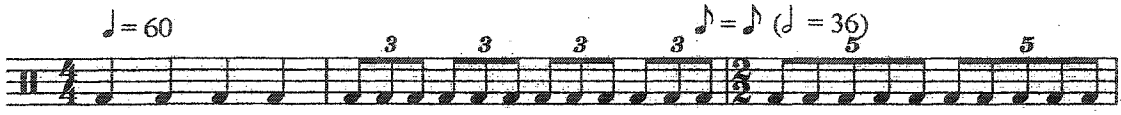
The transitional tuplets may function in three different ways in the new tempo: as the beat itself (Ex. 5-4a), as a regular subdivision (Ex. 5-4b), or less commonly, as a new tuplet within the new tempo (Ex. 5-4c).

[2] These arrows appear in early works by Carter such as his String Quartet No. 1 (1951) as he was developing this concept.

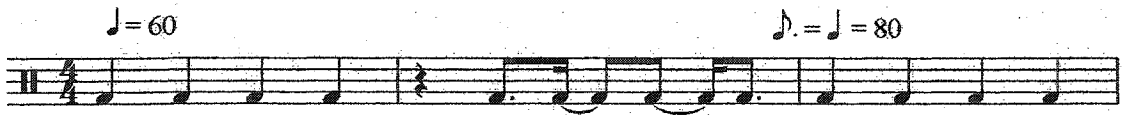
Ex. 5-4a



Ex. 5-4b

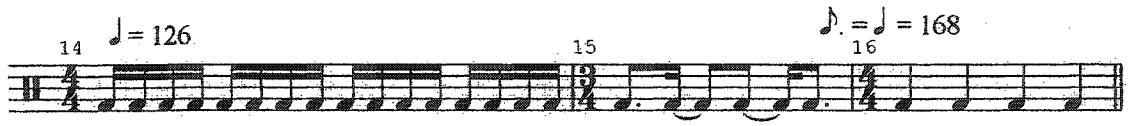


Ex. 5-4c



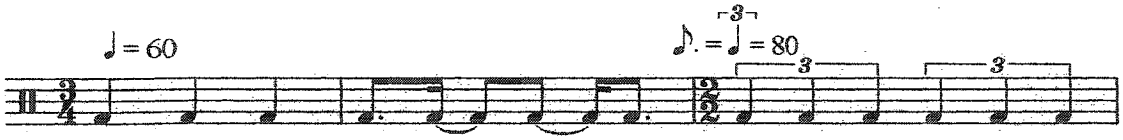
Metric modulation can also take place without the tuplet as the transitional material. Instead, a cross rhythm or cross pulse is used as the common material, most often that of four against three. Example 5-5 illustrates a four against three modulation.

Ex. 5-5 Carter: from "Improvisation", *Eight Pieces for Timpani*, mm. 14-16



Most often this cross pulse becomes the beat itself in the new tempo, as in the above Ex. 5-5, and not a subdivision. Ex. 5-6a and 5-6b show the cross pulse becoming a subdivided unit in the new tempo.

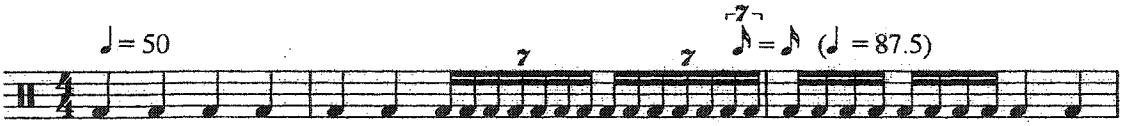
Ex. 5-6a



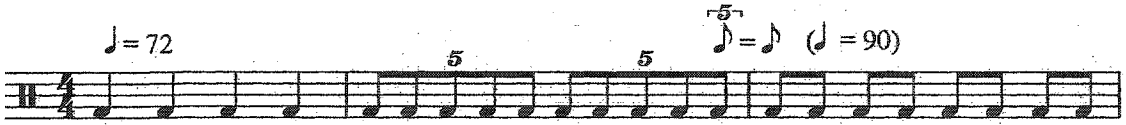
Ex. 5-6b

Meter may often also change in metric modulation, but it is not obligatory. A different meter may or may not be found in the goal tempo. Examples 5-7a and 5-7b illustrate modulation without changing meter.

Ex. 5-7a

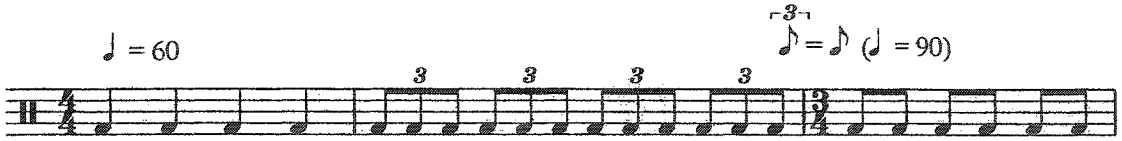


Ex. 5-7b

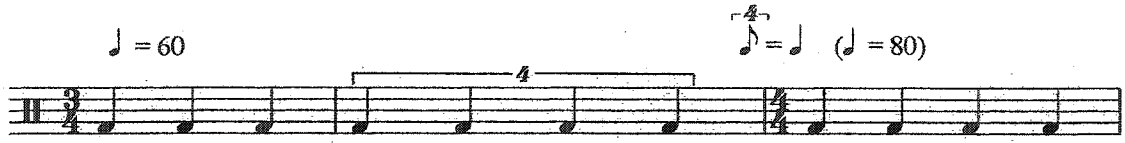


Examples 5-8a and 5-8b illustrate modulation with changing meter in the goal tempo.

Ex. 5-8a



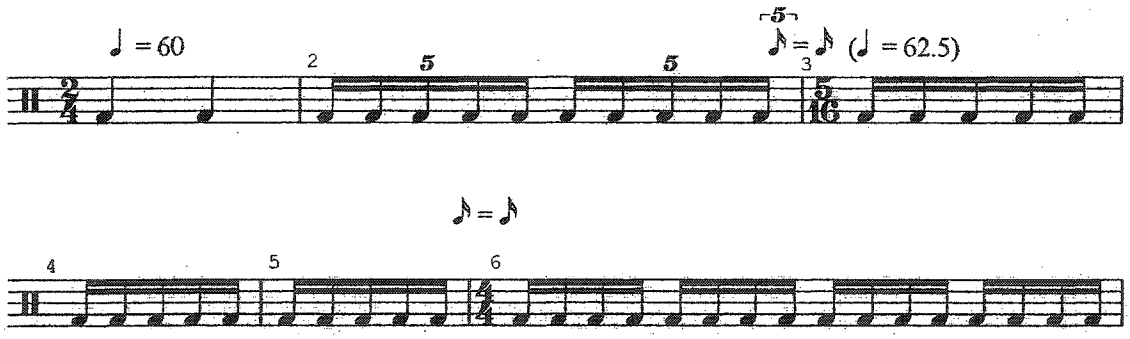
Ex. 5-8b



Changing meter as an intermediate transitional step

In example 5-9, a metric modulation does not take place between measures 2 and 3, even though the notation normally indicating metric modulation is used. It is a false or deceptive modulation; m. 3 simply rewrites the quintuplet in m. 2 and the pulse has not changed. The modulation takes place in m. 6 where the new pulse is made apparent. (cont.)

Ex. 5-9



Changing meter is a transitional element in this modulation; the 5/16 measure (m. 3) prolongs the quintuplet of m. 2;

this continues until m. 6, where the sixteenth note is redefined as a member of a quadruplet grouping, thereby changing the tempo.

Preliminary exercises

Learning to perform metric modulations does not present the same kind of difficulties found in other twentieth-century rhythms in that it does not necessarily confront you with new rhythmic material. It is a process by which rhythms are used to achieve the goal of systematically increasing or decreasing the tempo. It requires no specific rhythm, but rather the ability to quickly and seamlessly shift from one pulse to the next, and to articulate correctly the rhythmic material common to both tempos.

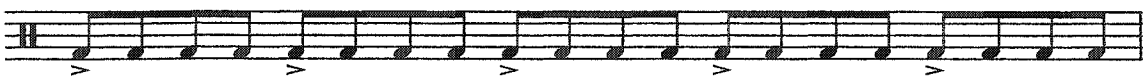
In order to perform metric modulations successfully, you must have mastered tuplets. The performance of metric modulations requires the utmost concentration and alertness, along with a certain flexibility as you react to and facilitate the change of pulse produced by the modulation.

The following exercises serve as a warm-up to actual modulations. First perform a steady stream of eighth notes using the syllable ta, as shown in Example 5-10a. Use the metronome to establish the tempo (♩ = 80), then turn it off while performing the exercise.

Ex. 5-10a ♩ = 80

Next, as illustrated in Example 5-10b, organize this stream into groups of four and accent the first note of the group, perceiving the accented note as the pulse. As an additional learning aid, clap on the accented notes. Use either ta or corresponding numbers.

Ex. 5-10b



Example 5-10c illustrates four groups of four even eighth notes followed by three groups of five even eighth notes (using ta or numbers and clapping on the accented notes). Perform Ex. 5-10c. Always accent the first note of each group, perceiving it as the superimposed pulse.

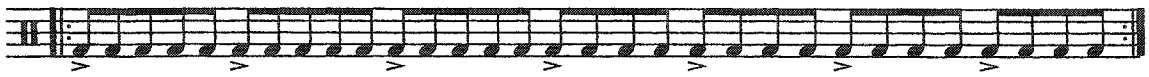
Ex. 5-10c

As you move from the groups of four to the groups of five, feel the pulse slow down (as indicated by the first clapped/accented note of each group), while the individual notes retain their durational value. You have now performed a metric modulation. Though lacking the sophistication of standard notation - this is the essence of metric modulation

- a change of pulse is brought about by the regrouping of notes of the same duration.

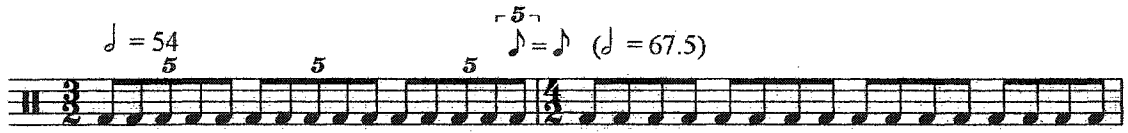
Now perform Ex. 5-11, which displays the same material as Example 5-10c, but in reverse order.

Ex. 5-11



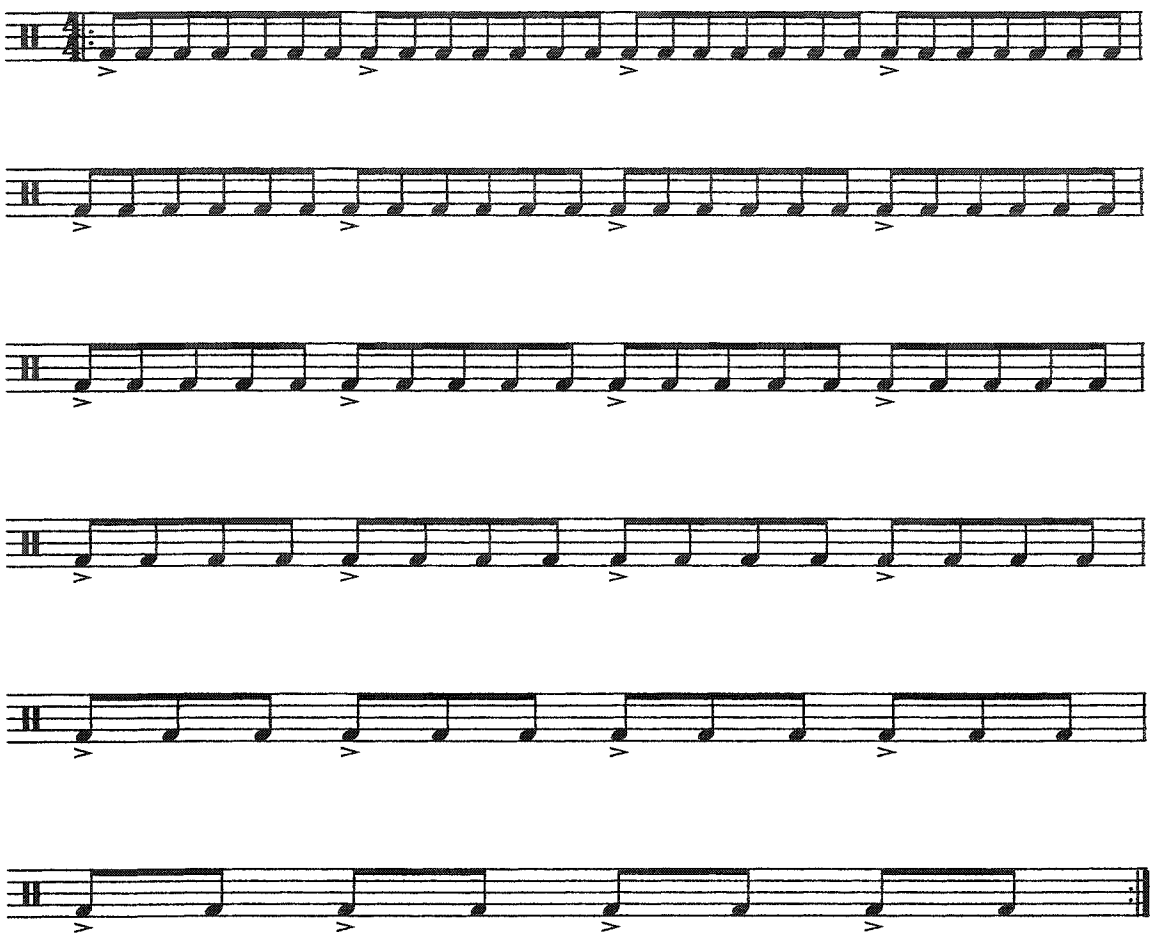
Example 5-12 presents Ex. 5-11 as it would appear in standard notation.

Ex. 5-12



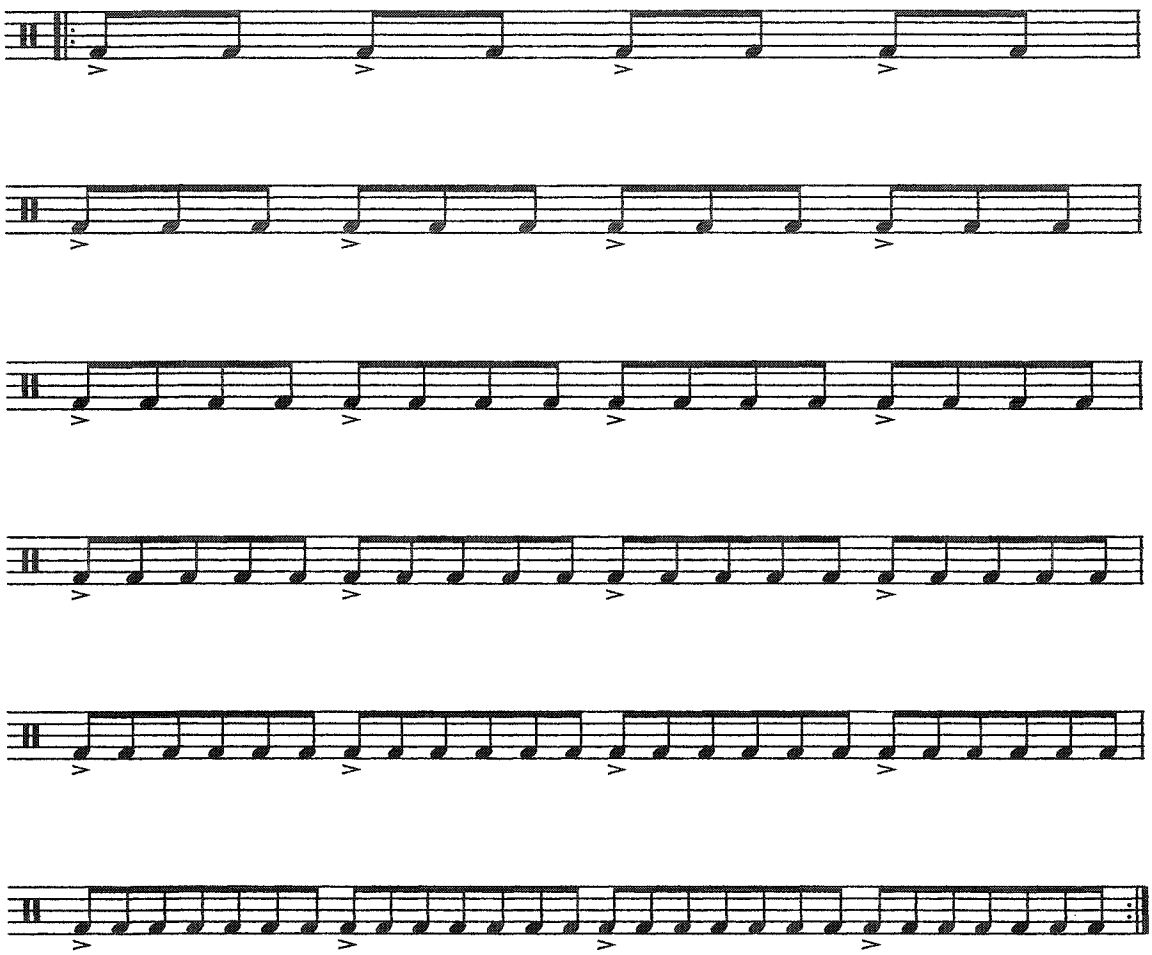
The following exercise, Ex. 5-13, is a callisthenic drill designed to develop alertness and flexibility in dealing with the changing tempos inherent in metric modulation. Set the metronome to ♩ = 132 to establish an initial working tempo for the eighth note. Then, without the metronome, perform exercise 5-13 on ta or on numbers that correspond to the grouping, clapping on the accented notes. The eighth note remains the same throughout the exercise.

Ex. 5-13 ♩ = 132



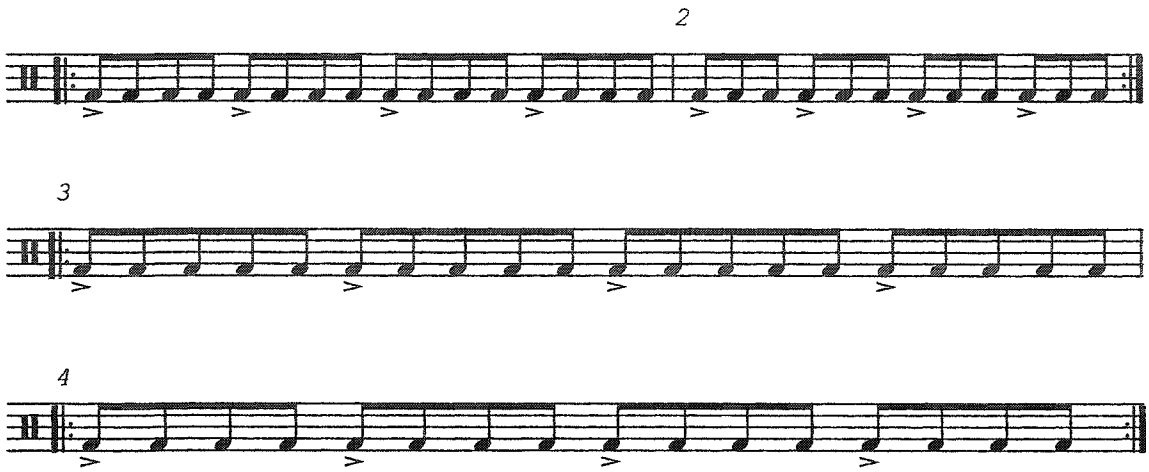
Example 5-14 presents the previous exercise in reverse order. Practicing these groupings (and the tempo changes they produce) in reverse order will increase your flexibility to shift from one tempo to another.

Ex. 5-14 ♩ = 132

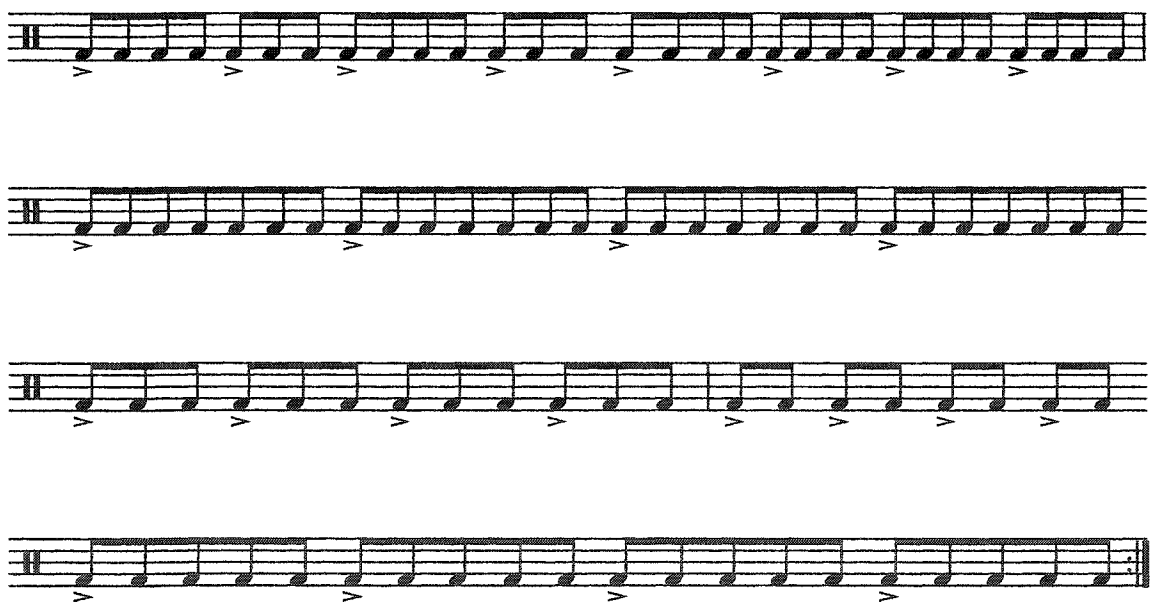


Exercises 5-15 through 5-17 illustrate several different combinations of changing groupings. These exercises again increase your flexibility and fluency in changing tempos. Now try these exercises at faster tempos, eventually increasing the initial eighth note tempo ♩ = 180. These faster tempos more closely approximate tempos found in common metric modulations.

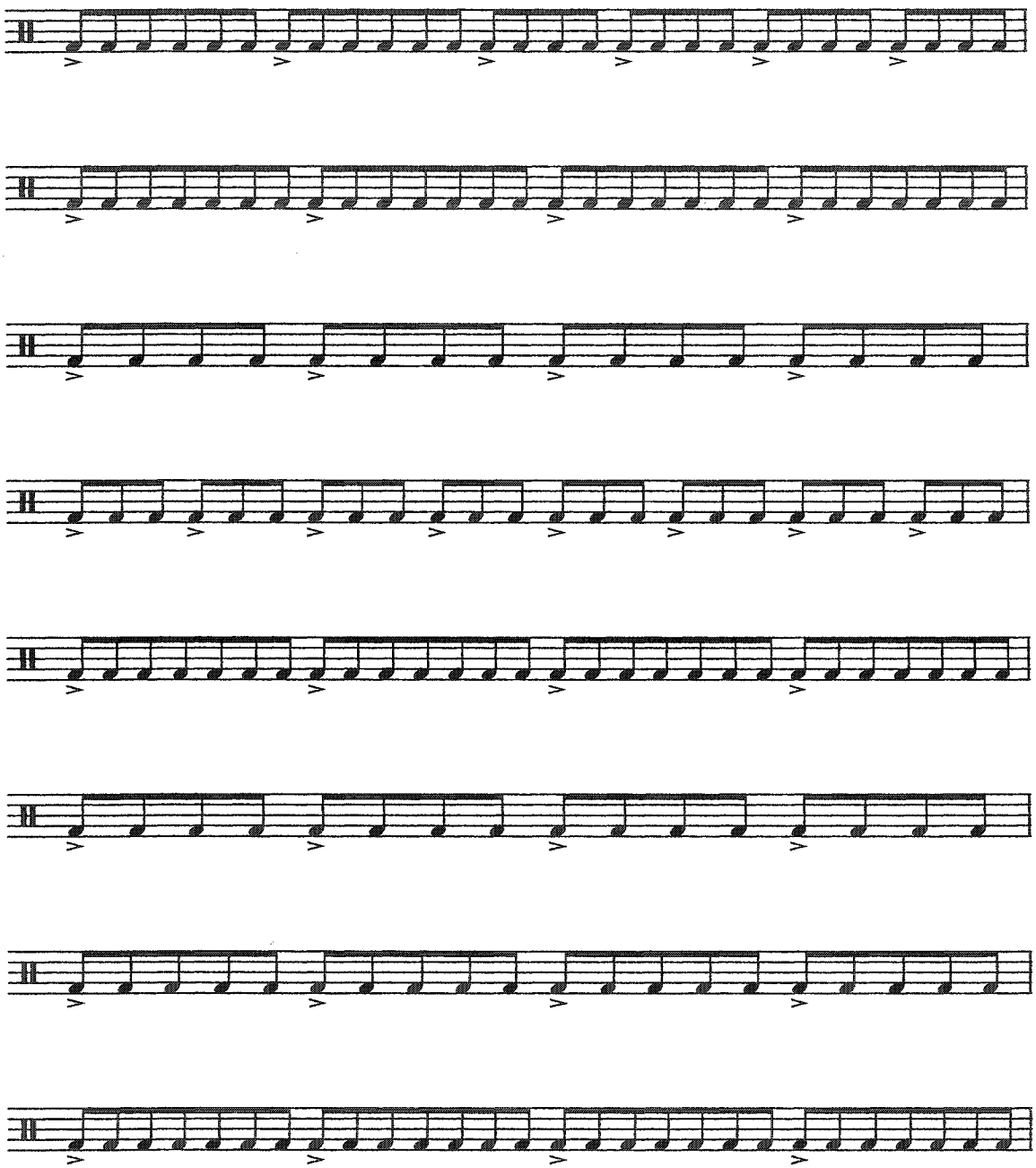
Ex. 5-15 ♩ = 132 - 180



Ex. 5-16 ♩ = 132 - 180



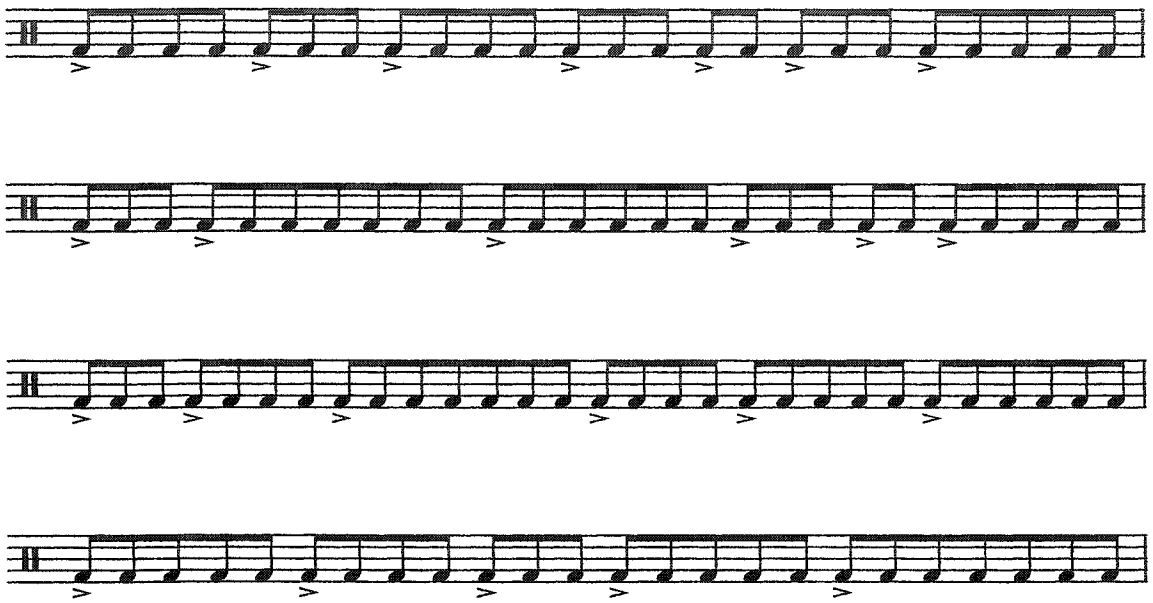
Ex. 5-17 ♩ = 132



Exercise 5-18 presents a stream of eighth notes with irregularly placed accents which produce rapidly changing groups. The groupings in this example are not repeated and therefore do not establish new tempos. This example (which

could also be thought of as an exercise in rapid changing meter) develops agility, speed, and alertness in performing rapidly changing groupings.

Ex. 5-18 ♩ = 132-180



By developing this ability to perform constantly changing groupings while maintaining the durational value of the basic unit, you are mastering one of the tasks necessary to the performance of metric modulation. This ability will enable you to perform without guesswork or fluctuation the exact proportional relationships found in metric modulation.

Performance

Perform the following exercises. Use a metronome to establish the initial tempo, then perform the exercise without it. The metronome can only be used to establish

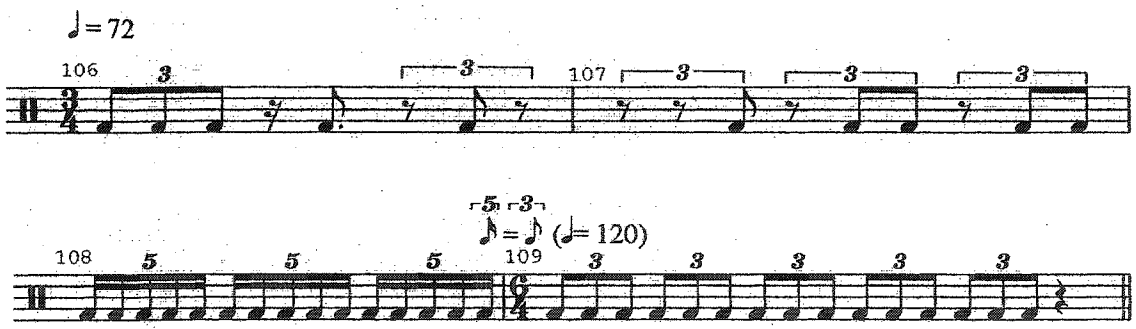
initial tempo in exercises containing metric modulation since the tempo will change. If the composition returns to the original tempo the metronome may be used again to check the accuracy of that tempo.

Rudimentary metric modulations

Examples 5-19 through 5-25 present rudimentary metric modulations.

In Ex. 5-19 make sure you differentiate between the rhythm of beat 2 and 3 in m. 106. This example is otherwise straightforward; it does result in the rather dramatic shift of tempo to ♩ = 120 in m. 109.

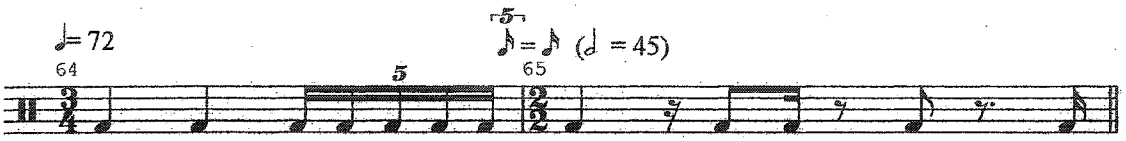
Ex. 5-19 Carter, from *String Quartet No. 3*, mvt. I, violin I, viola, mm. 106-109.



Ex. 5-20 presents the following challenge: the goal measure (m. 65) does not articulate the common note value

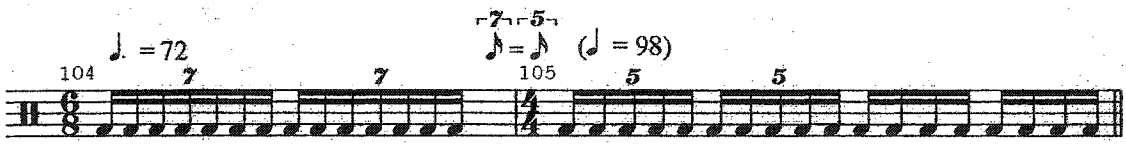
(sixteenth note); rather, you must perceive internally the sixteenths of the quarter note in m. 65.

Ex. 5-20 Carter, from *String Quartet No. 3*, mvt. I, viola, mm. 64-65



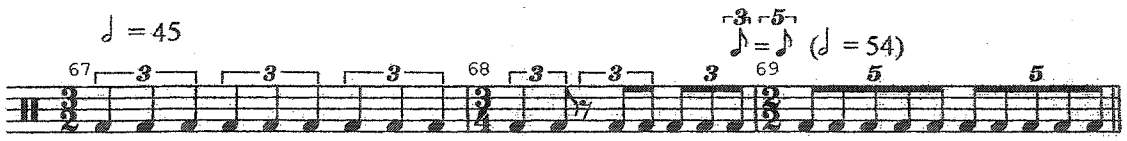
Ex. 5-21 is a straightforward modulation; the only added difficulty is that you are going from the compound meter of 6/8 to the simple 4/4. The basic ♩ pulse of the 6/8 is equal to the ♩ of the 4/4. You may wish to add a few simple measures of 6/8 rhythms as a warm up to the septuplets.

Ex. 5-21 Carter, *Double Concerto*, cadenza, harpsichord, mm. 104-105



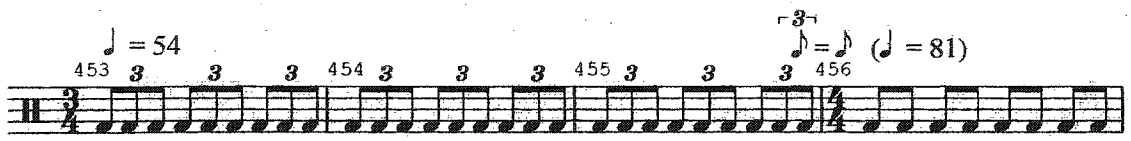
Ex. 5-22 presents the added challenge of shifting from half-note pulse to quarter-note pulse (both with triplet subdivision); you then have only three beats to establish the new cut-time tempo when you have to reinterpret the eighth-note triplet as an eighth-note quintuplet.

Ex. 5-22 Carter, from *String Quartet No. 3*, mvt. I, violin II, mm. 67-69

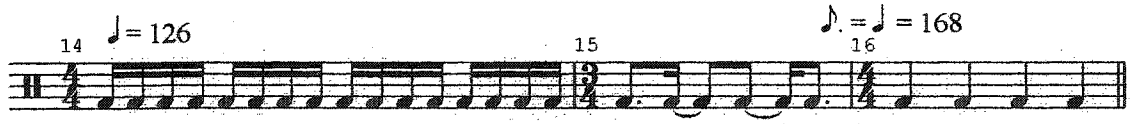


Ex. 5-23 and 5-24 are simple modulations with ample preparatory material.

Ex. 5-23 Berg, *Wozzeck*, Act 2, scene 4, mm. 453-456

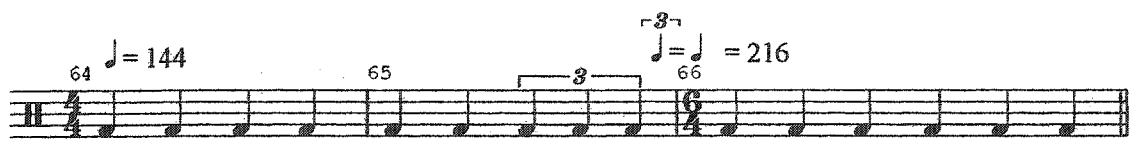


Ex. 5-24 Carter, "Improvisation" from *Eight Pieces for Timpani*, mm. 14-16



Ex. 5-25 is a straightforward modulation with changing meter.

Ex. 5-25 Carter, "Canaries" from *Eight Pieces for Timpani*, mm. 64-66

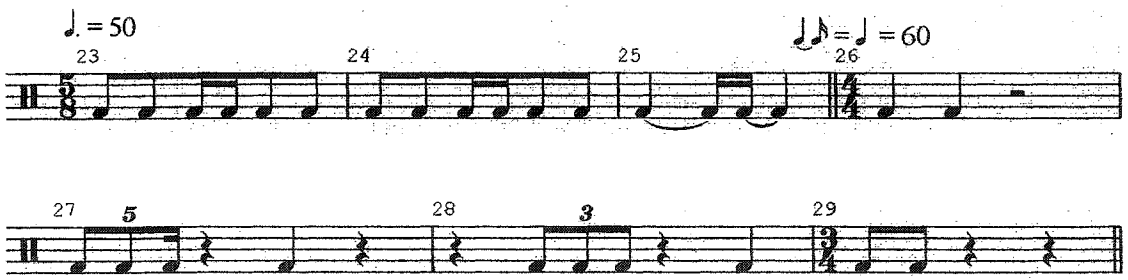


Intermediate metric modulations

Exercises 5-26 through 5-31 employ changing meter, rapid modulations, deceptive modulations, compound meter, and changing meter as an intermediate element.

Ex. 5-26 is a difficult and unusual modulation. It does not use irregular units; rather, it reinterprets a duration equal to 5 𝅘𝅥𝅯s from the 5/8 measure as a ♩ of the new 4/4 meter.

Ex. 5-26 Carter, "Saeta" from *Eight Pieces for Timpani*, mm. 23-29

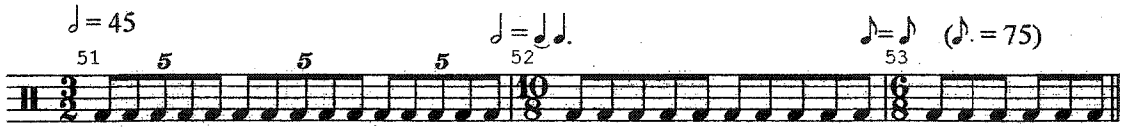


The only way to accurately perform this is to aggressively think of the 𝅘𝅥𝅯 within the 5/8 as you hit m. 25 and then count five, forming two groups - essentially rewriting the bar as two 5/16 measures. The two ♩𝅘𝅥𝅯s divide the 5/8 measure in half. When you then get to m. 26 continue the internal 𝅘𝅥𝅯s now as a quintuplet within the quarter note, establishing the new tempo. This will also serve as preparation for the upcoming subdivided quintuplet of m. 27. (By the fourth beat of m. 27 you should start to think of

triplets, preparing for beat two of m. 28). This is a deceptively simple example. The modulation really takes place in m. 3, one measure before the apparent modulation, and with no preparation or articulated common material.

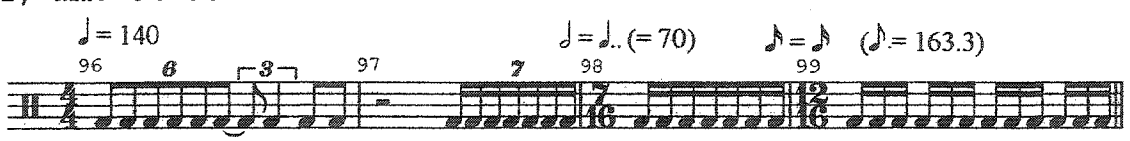
Ex. 5-27 also features a deceptive modulation; it would appear that there is a modulation at m. 52, but it is merely a rewriting of the rhythm of m. 51. The modulation takes place in m. 53, where the ♪ is now grouped in three instead of five, establishing a new pulse.

Ex. 5-27 Carter, "Saeta" from *Eight Pieces for Timpani* mm. 51-53



The challenge of Ex. 5-28 lies in the quick tempo. By beaming the first six triplets as a sextuplet, Carter is perhaps suggesting to think of the measure in two; this well accommodates the septuplet in the following measure: it is easier to think of the septuplet within the half note rather then over two rapid quarter notes.

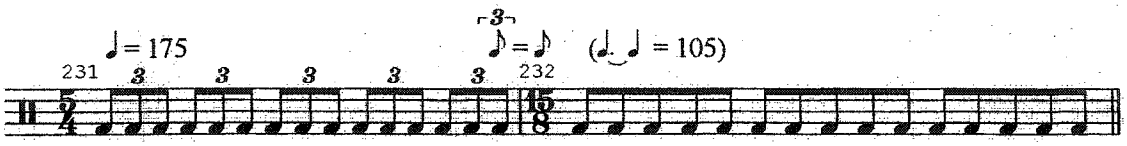
Ex. 5-28 Carter, from *String Quartet No. 2*, mvt. I, violin I, mm. 96-99



Think of the 7/16 (m. 98) as being in one; you must then quickly reinterpret the ♪ as a regular ♪ within the new compound meter of 12/16 in m. 99. (Carter incorrectly notates the septuplet in m. 97 using sixteenths; the eighth would be the correct unit.)

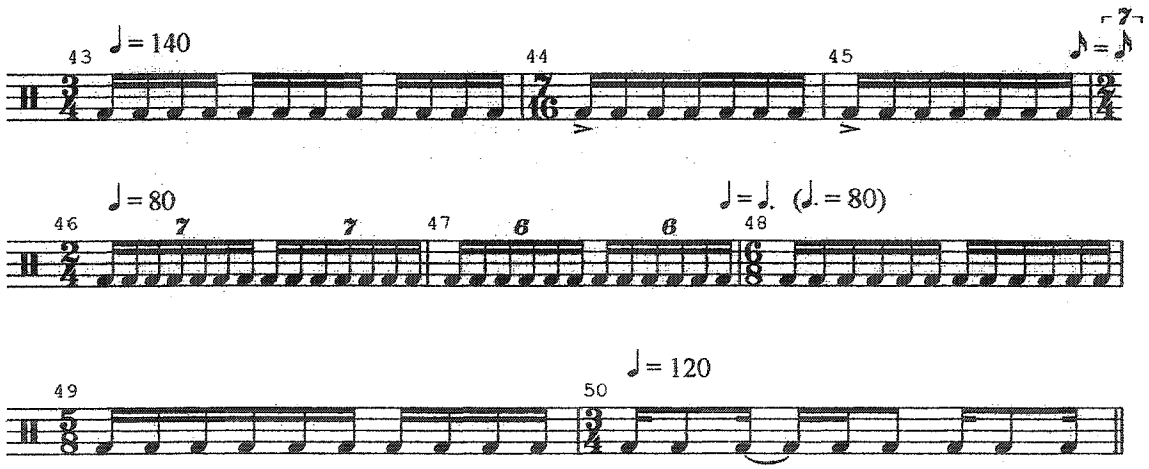
Ex. 5-29 is a simple modulation using odd meter, but at a very fast tempo.

Ex. 5-29 Carter, from *String Quartet No. 2*, mvt. II, violin I, mm. 231-232



In Ex. 5-30 the modulation starts at m. 2; the accented first notes of the septuplets produce a new pulse.

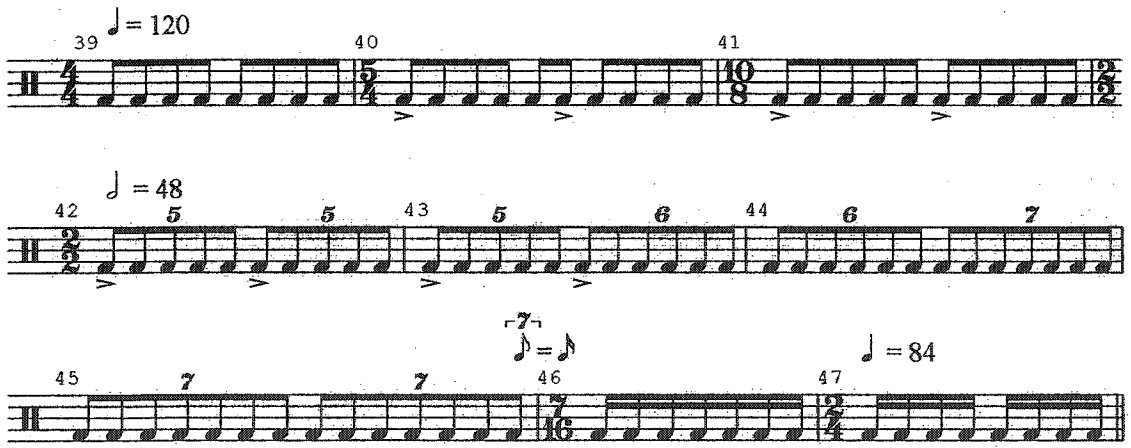
Ex. 5-30 Carter, from *Cello Sonata*, mvt. IV, cello, mm. 43-50



Though there is a modulation indicated between m. 3 and 4, the change of tempo has already taken place. The 5/8 measure serves as transitional material to the next modulation in m. 8, where the groupings of four within the 3/4 bar produce the new tempo.

Ex. 5-31 again illustrates Carter's technique of modulating through grouping; a new tempo is implied in m. 40 and confirmed in m. 42, with m. 41 serving as an intermediate, transitional measure. A second modulation occurs at m. 47.

Ex. 5-31 Carter: "Improvisation" from *Eight Pieces for Timpani*, mm. 39-47

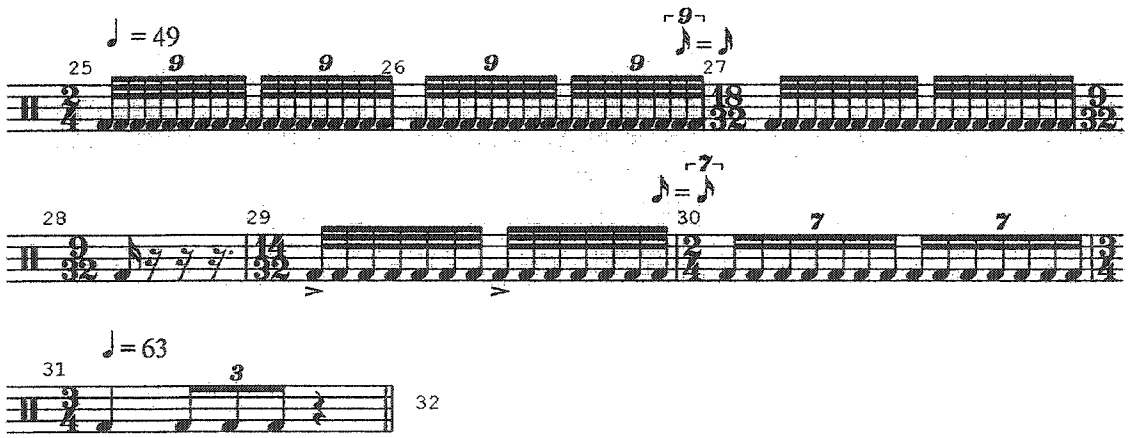


Advanced metric modulations

In addition to the qualities of the intermediate examples, changing meter, rapid modulations, compound meter, and changing meter as an intermediate element, Ex. 5-32 through 5-33 contain complex subdivisions of tuplets, small note values, rapid changing meter, and consecutive modulations.

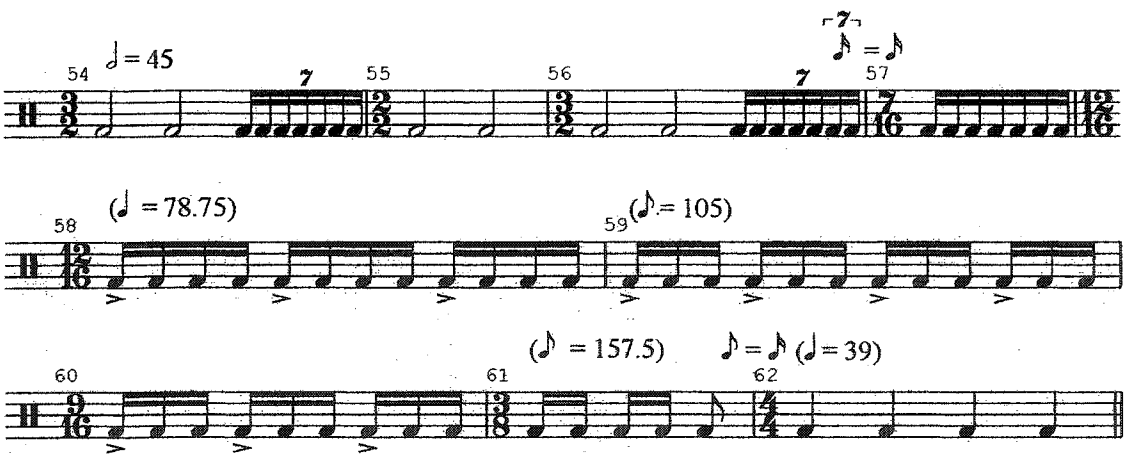
Ex. 5-32 utilizes small note values, unusual time signatures, and rapidity of tempo make this a difficult example. As with all exercises, slow the tempo until you can perform it correctly and then increase to performance tempo. Though the transition to the new tempo starts in m. 29 with the new grouping of seven notes, the new tempo is firmly established in m. 31.

Ex. 5-32 Carter, "Recitative" from *Eight Pieces for Timpani*, mm. 25-31



In Ex. 5-33 a modulation takes place at m. 58 and then again by grouping alone at m. 59, and m. 61, and then finally a dramatic decrease at the final goal tempo of m. 62, with the articulated ♪ of m. 61 becoming the internal ♪ of m. 62. (Carter incorrectly notates the septuplet in m. 54 and 56, the ♪ is the correct unit.) Because this example provides many challenges in one example, you should perform it at many different tempos.

Ex. 5-33 Carter, "March" from *Eight Pieces for Timpani*, mm. 54-62



Epilogue

Twentieth-century rhythms present a unique challenge to the musician, and hold an unusual status in the elements of music. They seem to exist above and beyond one's normal course of study. They are generally not taught in the conservatories, except in passing, and are only touched upon in rhythm, ear training, and theory texts. Twentieth-century rhythms are in many cases outside the expectations of normal performance abilities. Virtuosic piano students who are capable of the difficult common practice repertory often freeze at the sight of quintuplets or septuplets, or make only a perfunctory guess as to their correct performance. Some of the most accomplished musicians struggle mightily when faced with a performance of *L'Histoire du Soldat*. A single measure of 5/16 can throw both conductor and orchestra into a brief suspension of time, landing on the next measure after their collective approximation of five sixteenth notes.

This lack of expertise and specialist status of twentieth-century rhythms should certainly change. While some twentieth-century materials are excruciatingly complex, much of the rhythmic vocabulary employed can be mastered by the undergraduate music student.

My training as a percussionist has made me especially sensitive to discrepancies in rhythmic integrity. While all instrumentalists are responsible for the accuracy of their rhythmic performance and for the keeping of the steady beat, percussionists focus primarily on rhythm. Also, virtually all of the solo and ensemble percussion literature was written in the twentieth century, and so the rhythmic language we study is of the twentieth century by default. By comparison, most orchestral instrumentalists study repertoire from the common practice period, and soloists follow suit by concentrating on solo works and concertos from that same era.

At an intermediate level of accomplishment, certain musical materials such as scales, key signatures and basic rhythms are taken for granted, and the musician becomes concerned with the higher aspects of musical performance - nuance, phrasing, expression, etc. One does not ponder a change of key signature, an accidental in the middle of a scale, or simple changing meter. Yet, when confronted with, for example, subdivided rhythms in odd and changing meter, this internalized, confident, process of articulation grinds to a halt. The player is forced to engage his or her mind in rudimentary analysis; the focus has shifted from musical matters to the much less

sophisticated matter of correct execution. Only those who have dedicated time to mastering these rhythmic challenges can focus on the more artistic aspects of music making.

I was led to this subject from several different experiences: teaching ear training, where difficult rhythms were being approached in some cases for the first time, teaching percussion, and performing and conducting twentieth-century music. The experience of conducting illustrated best the lack of fluency amongst musicians, including both students and professionals. Because I have often faced the task of explaining or correcting a difficult rhythm, I have come up with the preceding methods that would quickly facilitate correct performance.

I hope this study serves to fill the pedagogical gap that exists concerning twentieth-century rhythms, and that musicians will find it a valuable resource.

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