



Arranging by Examples

The Practical Guide to Jazz and Pop Orchestra Arranging

Third Edition

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Frans Absil



Colophon

This e-book is a practical guide to arranging for jazz and popular music orchestra.

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Contents

List of Figures	vii
List of Tables	xi
Preface	xiii
I Preparations	1
1 Introduction	3
1.1 What you will find in this book	3
1.1.1 Arranging Techniques	3
1.1.2 The approach: examples discussed in detail	4
1.1.3 Notation in the book	4
1.1.4 Assembling the arrangement	5
1.2 What you will not find in this book	5
1.2.1 No MIDI files available	5
1.3 Ready to get hands dirty?	7
2 Instrumentation	9
2.1 The range of musical instruments	9
2.2 Instrument groups	9
2.3 Orchestra sections and balance	13
2.3.1 Rhythm section	13
2.3.2 Saxophones	14
2.3.3 Woodwinds	17
2.3.4 Brass	20
2.3.5 Strings	22
2.3.6 Percussion	26
2.3.7 Unfamiliar acoustic instruments	27
2.3.8 Electronic instruments	29
2.4 The score	30
2.4.1 Vertical staff order	31
2.4.2 Various forms of the score	34
2.4.3 Optimize the score for performance	34
2.5 Conclusion	36

CONTENTS

II	Techniques	37
3	Sectional harmony in four parts	39
3.1	Basic rules	39
3.2	Lead with chordal tones	41
3.2.1	The danger of repeated notes	41
3.2.2	Prevent repeated notes	42
3.3	Harmonizing non-chordal tones	44
3.3.1	Diminished and secondary dominant chords	44
3.3.2	Rhythmic aspects	45
3.3.3	Leading tone chords	47
3.3.4	Substitute chords	48
3.3.5	Exact parallel chords	51
3.3.6	Connecting minor 7th chords	53
3.3.7	Subdominant chords	56
3.4	Extensions to four-part sectional harmony	58
3.4.1	Sequence of similar structures	58
3.4.2	Sequences of diatonic parallel structures	58
3.4.3	The 'drop 2' voicing	60
3.4.4	Repeated notes	64
3.4.5	Extended and altered dominant chords	68
4	Sectional harmony in five parts	75
4.1	Extended four-part sectional harmony	75
4.2	Sectional harmony in 4ths	79
5	Ensemble techniques	87
5.1	Fundamental aspects	87
5.2	Four-part ensemble technique	88
5.2.1	Full big band	90
5.2.2	Reduced big band	92
5.2.3	Intermediate size band	95
5.2.4	Combining trombones and saxophones	96
5.3	Brass voicing for extended chords	98
5.3.1	Dominant seventh bitonal voicings	99
5.4	Percussive voicing	101
5.4.1	Examples of percussive brass voicings	101
5.4.2	Examples of ensemble voicings	106
5.5	Tutti voicings for concert band and studio orchestra	111
6	Special techniques	113
6.1	Bell chords	113
6.2	Harmonization with symmetrically distributed roots	115
6.3	Intermediate leading tone harmonization	120
6.4	Chromatic stepwise motion	122
6.5	Diatonic and exact parallel chord motion	124
6.6	Variable density	128

6.7	Pedal point	129
6.8	Classical music techniques	131
7	Woodwind voicing	135
7.1	Voicing multiple instrument groups in a woodwind section	135
7.2	Homogeneous and heterogeneous woodwind combinations	138
7.3	Woodwind voicing examples	141
8	String section voicing	145
8.1	The size of the string section in an orchestra	145
8.2	Unisono strings	147
8.3	Sustained harmonic backgrounds	151
8.4	Create motion in the string parts	153
8.5	Exact parallel voicing	156
8.6	Special playing techniques	158
8.6.1	Pizzicato	158
8.6.2	Tremolo bowing	160
8.6.3	Divisi playing	160
8.6.4	Bowing near the bridge and on the fingerboard	162
8.6.5	Multiple stops	162
8.7	Small string groups	164
9	Melody	169
9.1	Motion in melodies	169
9.1.1	Types of motion	170
9.1.2	Melody direction axes	172
9.1.3	Melodic curve	172
9.2	Types of melodies	174
9.3	Examples of melody types	174
III	Assembling the Piece	179
10	Musical forms in jazz and pop music	181
10.1	The building blocks	181
10.1.1	The 32-measure AABA song form	181
10.1.2	The blues form	182
10.1.3	The verse-chorus form	184
10.1.4	Folk and world music	184
10.1.5	Additional formal elements	186
10.2	The full piece	187
10.2.1	Longer forms	187
10.3	Musical style	189
10.4	Move on to arranging	190

CONTENTS

11 The arrangement	193
11.1 Creating a tension curve	193
11.2 Using the toolbox	195
11.2.1 Combine elements	197
11.2.2 Crossing borders	205
11.2.3 Start and stop	209
11.2.4 Contrasting bridge and transition	218
11.3 Special choruses	220
11.4 Notate the details	222
12 On a final note	225
Bibliography	227
Index	231

List of Figures

2.1	Range of musical instruments	10
2.2	The instrument groups in an ensemble	11
2.3	Various familiar instrumental ensembles	11
2.4	Jazz big band tutti voicing	15
2.5	Jazz big band special chorus for saxophones	15
2.6	Woodwind voicing and internal dissonance	18
2.7	Woodwind voicings in concert band arrangement	19
2.8	The string section in classical music style	24
2.9	The string section in contemporary style	25
2.10	The frequency spectrum of (electronic) sounds	30
2.11	Filtering of (electronic) sounds	30
2.12	The amplitude envelope of (electronic) sounds	31
2.13	Vertical staff order in the full score	32
2.14	Full score staff order	33
3.1	Examples of chord structures in four-part sectional harmony	41
3.2	Chordal tones in lead, straightforward procedure.	42
3.3	Chordal tones in lead, application of secondary dominant chord structure.	43
3.4	Non-chordal tones in lead, application of secondary dominant chord structure.	45
3.5	Non-chordal tones in lead, syncopated rhythm.	46
3.6	Harmonization of non-chordal tones in the lead using leading tone chords.	48
3.7	Cross relation between lower and upper voice.	48
3.8	The definition of a substitute chord.	49
3.9	Alternative harmonization of non-chordal tones in the lead using substitute chords.	49
3.10	Harmonization of non-chordal tones using substitute chords.	50
3.11	Harmonization of non-chordal tones in the lead using exact parallel chords.	51
3.12	Harmonization of non-chordal tones using exact parallel chords.	52
3.13	Lead voice with diatonic 6 – 7 stepwise motion (case 1).	53
3.14	Lead voice with diatonic 6 – 7 stepwise motion (case 2).	54
3.15	Lead voice with 6 – 7 stepwise motion on 3rd degree of major scale.	54
3.16	Harmonization of non-chordal tones using subdominant chords.	56
3.17	Similar chord structures on diatonic parallel degrees.	58
3.18	Diagram of the ‘drop 2’ procedure in four-part sectional harmony.	60
3.19	Close voicing and ‘drop 2’ voicing.	61
3.20	Changing from close voicing to ‘drop 2’ voicing.	63

LIST OF FIGURES

3.21	Open voicing.	64
3.22	Repeated notes in the lead voice.	65
3.23	Repeated notes at the end of a phrase.	65
3.24	Harmonization of non-chordal tones using altered dominant chords.	68
3.25	Harmonization of non-chordal tones using altered dominant chords.	70
3.26	Harmonization of non-chordal tones.	71
3.27	Harmonization of non-chordal tones.	72
4.1	Sectional harmony in five parts, lead doubled an octave below.	76
4.2	Sectional harmony in five parts, mixed voicing, 'drop 2'.	77
4.3	Sectional harmony in five parts, open voicing, 'drop 2 and 4'.	78
4.4	Sectional harmony in five parts, alternating voicing.	79
4.5	Sectional harmony in five parts, chords in 4ths	80
4.6	Sectional harmony in five parts, chords in 4ths	81
4.7	Sectional harmony in five parts, chords in 4ths, close voicing	82
4.8	Sectional harmony in five parts, chords in 4ths, leading tone in lead voice.	83
4.9	Sectional harmony in five parts, mixed chord structures.	83
4.10	Sectional harmony in five parts, maximizing the harmonization in 4ths.	84
5.1	Example of ensemble voicing diagram for big band.	88
5.2	Starting the ensemble voicing: sectional harmony in four parts.	89
5.3	Sectional harmony applied to full big band.	91
5.4	Voicing diagram full big band.	92
5.5	Sectional harmony applied to reduced big band.	93
5.6	Voicing diagram reduced big band.	93
5.7	Sectional harmony applied to an intermediate size band.	95
5.8	Voicing diagram reduced big band.	96
5.9	Sectional harmony applied to trombones and saxophones.	96
5.10	Voicing diagram trombones and saxophones.	97
5.11	Brass section voicings. (a): internal balance, (b): various chord types	98
5.12	Dominant 7th chord S_7 bitonal voicings	100
5.13	Percussive voicing for brass.	102
5.14	Percussive voicing for brass using bitonal triads in the trumpets.	103
5.15	Percussive voicing for brass using bitonal triads in the trumpets.	103
5.16	Rhythmic background for brass	105
5.17	Percussive voicing for big band tutti (case 1).	107
5.18	Percussive voicing for big band tutti (case 2).	107
5.19	Saxophone voicing in big band tutti.	108
5.20	Percussive voicing for big band tutti (case 3).	108
5.21	Percussive voicing for big band tutti (case 4).	109
5.22	Bitonal ensemble voicing for intermediate size big band.	109
6.1	Bell chords	114
6.2	Harmonization with symmetrically distributed roots: minor third	116
6.3	Harmonization with symmetrically distributed roots: major third	117
6.4	Harmonization with symmetrically distributed roots: chords in 4ths at the diminished fifth	118

6.5	Harmonization with symmetrically distributed roots: tritone-related dominant chords	119
6.6	Intermediate leading tone harmonization	120
6.7	Chromatic stepwise motion: middle voice	123
6.8	Chromatic stepwise motion: bass	125
6.9	Exact parallel motion	125
6.10	Parallel 3-part chords in ballad for concert band	126
6.11	Variable density	128
6.12	Classical music technique: chorale setting	132
6.13	Classical music technique: counterpoint	133
7.1	Woodwind voicing and blending	136
7.2	Woodwind voicings.	139
7.3	Woodwind voicing for concert band and studio orchestra	142
7.4	Tutti climax voicing	143
8.1	Balancing the string section	146
8.2	Unisono violin lead melody	147
8.3	Unisono string voicing in studio orchestra arrangement	148
8.4	High strings playing unisono	148
8.5	Sustained harmonic background for 6-part string section	152
8.6	Motion in string section writing	154
8.7	Exact parallel chords in 5ths for strings	157
8.8	String section voicing diagram for parallel chords in 5ths	158
8.9	String section playing pizzicato and tremolo	159
8.10	String section playing divisi and unisono.	160
8.11	String quartet background in funk rock production	165
8.12	Cello quartet in Latin bossa nova production	167
9.1	Unisono violin lead melody	170
9.2	Unisono violin lead melody	172
9.3	Sentence and period melody structure	174
9.4	Introduction melody in classical style	175
9.5	Unisono violin lead melody	176
9.6	Electric guitar solo melody	178
9.7	Melody with late climax	178
10.1	The four-element, 32-measure AABA song form	182
10.2	The three-element, 12-measure blues chorus	182
10.3	The verse-chorus pair form	184
10.4	The full song form	187
11.1	Tension curves for a piece of music	194
11.2	Parameters that influence harmonic tension	195
11.3	The techniques toolbox in diagram	196
11.4	Combining techniques at different note duration timescales	198
11.5	Instrumental background in vocal chorus	199
11.6	Rhythm and saxophone background in an ad lib solo chorus	200

LIST OF FIGURES

11.7	Tutti special chorus for big band	202
11.8	Juxtaposing multiple techniques in ad lib solo chorus	204
11.9	Changing techniques in bridge section	206
11.10	Changing techniques in main theme chorus	207
11.11	Overlapping techniques at section edge	208
11.12	Riff introduction to latin piece	211
11.13	Voicing diagram for five-part parallel big band tutti setting	212
11.14	Juxtaposition of riff and build-up introduction to rock piece	213
11.15	Build-up introduction to ballad for concert band	214
11.16	All-out coda to swing piece for concert band	216
11.17	Tutti voicing diagram for all-out coda for concert band	216
11.18	All-out coda to ballad for concert band	217
11.19	Modulating bridge in ballad for concert band	219
11.20	Double time section in ballad for concert band	220

List of Tables

1.1	List of frequently used symbols	6
1.2	Chord progressions and root cycles	7
3.1	Basic chord structures S in four part sectional voicing.	40
3.2	Basic rules for four-part sectional harmony.	41
3.3	Extensions and alterations of the dominant chord.	68
5.1	Checklist of outer voices between the sections in a jazz big band	89
5.2	Alternatives bitonal voicings for given lead tone and basic harmony	103
7.1	Homogeneous woodwind voicings	139
7.2	Heterogeneous woodwind voicings	140
8.1	Size of the string section	146

LIST OF TABLES

Preface

This is the third edition of the book *Arranging by Examples: The Practical Guide to Jazz and Pop Orchestra Arranging*. This expanded edition is intended for beginning arrangers, providing them with a toolset of techniques and guiding the reader through a collection of examples for different ensembles.

A book about arranging

Why write a book about jazz and popular music arranging techniques? Well, this is intended as a practical guide to arranging in the typical musical idiom and style played by the *jazz big band*, *concert band* (also known as *symphonic wind band*) or *popular music radio* and *studio orchestra*. This document is the result of studying band and orchestra scores, writing arrangements and of teaching experience. Although a number of books on this subject exist (see the reference list in the bibliography), students keep asking for many examples and exercises as part of an arranging course. These exercises must gradually become more complex and introduce the student with alternative techniques of arranging in the jazz and popular music style. Also, I know that students appreciate the detailed discussion of the examples, explaining the instrumentation, voicing, voice leading and technical aspects of the performance.

Therefore, this manual consists of a considerable collection of condensed and full score examples, that have been grouped into categories and presented in separate chapters. Within each chapter the sections will introduce new aspects and in general discuss more complicated examples. The chapters cover orchestration, section and tutti voicing, musical forms and elements of an arrangement.

The Third Edition of *Arranging by Examples* has been significantly expanded. The document structure has changed and now the book is in three parts. Part I, *Preparations*, gives background information on arranging, instrumentation and the orchestral score. Part II, *Techniques*, is the main body of this book, containing the chapters from the previous edition and presenting the toolbox with arranging techniques. Here you will find the methods for writing *sectional harmony* in four and five parts, dealing with non-diatonic notes, writing *ensemble settings* and a set of *special techniques*. In Part III, *Assembling the Piece*, musical forms in jazz and pop music will be discussed and you will learn the essentials of how to apply your knowledge and skills to create a complete orchestral arrangement of a musical composition.

On the author's website there is a document library with interactive webpages and additional articles about composing and arranging. The author also has created a YouTube channel with a playlist of composition and arranging techniques; these are explained and demonstrated in brief video episodes.

Document update history

There have been earlier editions of this book, that began as a sort of manual with voicing techniques only. In a second edition, various special arranging techniques were added to the volume. I am most grateful to Markus Pohlen who carefully read the book and pointed out a number of errors and unclear issues in the chapters on sectional harmony. Composer Roula Baaklini meticulously reviewed the complete Third Edition, identified more errors and provided numerous suggestions for improving the book. Here is an overview of the history of the document.

January 2005: First complete version, published on internet. Chapters on writing sectional harmony and tutti voicings.

October 2008: Restyled version. Layout updated.

December 2012: Expanded version (98 pages). Chapter on special techniques added.

August 2013: Minor edits and error corrections. Introduction of full and free demo version.

February 2014: Third, expanded edition (237 pages) with new instrumentation and assembly parts. Layout modified and many more diagrams added. Errors corrected. November 2013: Chapter on 4-part sectional harmony corrected and edited.

March 2016: Updated third edition (243 pages) with errors corrected. Introduction of standard pitch notation. Notation explained and confusing statements clarified. Some score examples enlarged.

Part I

Preparations

“Mo’mortar”

Chapter 1

Introduction



This book is about *arranging* for larger ensembles instrument groups in jazz and popular music; big bands, jazz ensembles, concert bands, studio and radio orchestras, pop groups with added instrument sections. It is meant as a textbook for studying the field; it should be most helpful to the beginning arranger, that wants to master the subject. ⇐

1.1 What you will find in this book

The book is divided into three parts; this structured approach should help the reader to understand the level of discussion and focus on specific aspects. Currently, you are reading Part I, which serves as an introduction to the arranging book.

1.1.1 Arranging Techniques

This practical guide will concentrate in Part II on a number of *voicing techniques*, such as *sectional harmony* (see Chapter 3 and 4), *percussive voicing* for a full ensemble (see Chapter 5) and a set of *special techniques* in Chapter 6. The detailed discussion of these techniques is meant to help the student master the basics of jazz arranging for big band and other popular music ensembles. There are also guidelines for writing for woodwinds (see Chapter 7) and string sections (Chapter 8); these include specific voicings used and stylistic aspects. ⇐

Following the instructions in the text and studying the examples will not lead to a personal style or an advanced voicing of a musical phrase; the material presented herein is standard practice with a guaranteed result that will sound acceptable and be playable by living musicians (as opposed to computers). The toolset from the chapter with special techniques can be used to deviate somewhat from the typical jazz big band idiom and create variation in an arrangement: see Chapter 6 for a catalogue of these alternative approaches.

1.1.2 The approach: examples discussed in detail

The approach in this book is the presentation of many *examples* that are discussed in great detail. Condensed and full score fragments (see Section 2.4.2) in the figures are elucidated in the text, in order to familiarize the reader with specific aspects and techniques.¹

The technique examples are presented in a common, *standardized format*.

- First there is a definition of the *problem*. See the example title or the first paragraph of text. Why are we presenting the example? What is the problem that has to be solved?
- In many examples the *lead voice* and the *basic harmony* are given. These are shown in figures (a system of staves) that accompany the example. Usually each voice is printed on a separate staff. The basic harmony is written in shorthand on the lowest staff, labeled *H*, with either a basic bass line or with slash (rhythm) notation.
- The details of the *harmonization* (this holds in particular for the chapters on sectional harmony) are shown below the lead voice. This voice also contains marked numbers (e.g., [*1]) that refer to items discussed in the text.
- Each example is discussed in detail in the text, with a particular focus on *voicing* aspects; *voicing diagrams* will elucidate the detailed vertical arrangement of the instruments. Other aspects are voice leading, playing register and instrumentation. In some examples a number of alternative solutions to the problem is presented.
- In the later chapters orchestration aspects and the juxtaposition of techniques from the toolbox will be discussed. Also there will be examples with specific formal aspects, such as climaxes, different types of introductions, transitions and codas.

The text between the examples is the general introduction to the various techniques. Fundamental aspects and general rules (tricks, recipes, standard procedures) are discussed here. Diagrams serve to summarize and structure the information.

1.1.3 Notation in the book

This book tries to adhere to consistent notation. The layout should help to find your way through the chapters.

Colour is used to identify beginning and ending of examples, and indicate special or additional aspects in the diagrams. Coloured references to book chapters, sections, figures and tables are in fact internal hyperlinks for easy navigation; when reading this book on a computer, just click on the link and go the referenced element.

⇒ Important terminology is printed *slanted*. and may be marked by an arrow in the margin. The book also provides an extensive *index* for easy reference that contains most of the terminology; references in the index point to either the definition or the application of the items, specific techniques, song titles, ensemble types etc. There is also cross-referencing between examples.

Important information is bundled in *tables* and *diagrams*, when appropriate. At the beginning of the book there is a list of tables and figures, also for easy reference.²

¹For many of the examples in this book, full score and audio excerpts can be found on the author's website; go and visit the menu items *Arrangements*, *Compositions* and *Audio*.

²The hyperlinks in the electronic version enable easy navigation through the document.

The book uses *scientific pitch notation*, i.e., the notename (with accidental) and octave number tuple. For example, the pitch C_4 (with text font for the notename and subscript for the octave number) is Middle *c* pitch on the piano keyboard with frequency $C_4 = 261.63$ Hz.³ This pitch corresponds to $C_4 = c^1$ in the Helmholtz pitch notation system. Scientific pitch notation is also known as *standard pitch notation*. It also corresponds to MIDI (Musical Instrument Digital Interface) pitch $C3 =$ note number 60, which may lead to confusion.

The notation for *chordal functions* and *chord structures* is based on the *Schillinger System of Musical Composition* [44]. Also chord progressions interpreted in terms of *root cycles* are a Schillinger concept. This may be unfamiliar to the reader of textbooks on classical harmony or other books on arranging. The most frequently used symbols are listed in Table 1.1 and 1.2; these are written in a slanted font (using mathematical notation).

1.1.4 Assembling the arrangement

In Part III the full arrangement or composition of a piece will be discussed. Whereas the techniques in Part II focussed on details within a phrase of between two and sixteen measures, here we will have a look at other elements that are needed to compose or assemble a complete piece. Jazz and popular music are based on a limited set of frequently used forms. The standardized forms listed in Chapter 10 cover roughly 90% of the repertoire.

Things that need to be taken into account when creating a balanced and meaningful (i.e., coherent, balanced, logical, and maybe beautiful) complete piece are presented in Chapter 11; these include tension curves, introductions, codas and transitions, special choruses and notation details.

1.2 What you will not find in this book

This book is *not* about instrumentation; it neither covers the theory of harmony. A great many excellent books on those subjects are in print or online on the internet and should be studied by the student arranger in parallel to this manual.⁴

For alternative discussions of voicing aspects, see [9, 11, 16, 40, 42, 44]. The bibliography at the end provides a list of books on jazz arranging; see [9, 16, 30, 34, 40, 43, 50]. For instrumentation and orchestration in general, consult the reference books [1, 4, 31, 23]. Chapter 2 will provide only a brief overview of instrumentation aspects. For jazz composition or musical style see [54, 37, 48, 49, 52]. This is a reading list that has been useful to me.

1.2.1 No MIDI files available

With this book there is no accompanying website with MIDI files or audio examples. Don't go and look for it. It is a deliberate decision from the teacher's point of view. With today's computer technology it would have been fairly easy to build an online library. However,

³See the keyboard pitch label and frequency scale in Fig. 2.1, Section 2.1.

⁴Obviously, the internet nowadays is a *mer à boire*. Use it for absorbing great material. The problem lies in finding what's valuable and useful. For instrumentation, instrument registers and mechanics. multimedia tools on the internet are fantastic; pictures, text and audio samples will demonstrate everything you need. Try the Vienna Symphonic Library website at <http://vsl.co.at>; they are an orchestral sample library vending company, but also provide overviews of what instruments can do and sound like. But there are numerous other sources to be consulted, such as <http://www.music.indiana.edu/department/composition/isfee/>.

CHAPTER 1. INTRODUCTION

Table 1.1: A list of frequently used (unfamiliar) symbols in this arranging book.

Symbol	Meaning	Comment
Chordal functions (integer number)		
1	root	In the C triad, pitch $c = 1$ (is the root)
3	third	In the Cm chord, pitch $eb = 3$ (the minor third)
5	fifth	In the Bb chord pitch $f = 5$, the (perfect) fifth, or the altered fifth $ab = b5$ in D_7^{b5} or $a\sharp = \sharp5$ in $D_7^{\sharp5}$
6	sixth	In the C^6 chord, pitch a is the added 6th
7	seventh	will occur as major 7th $\Delta7$, e.g., $b = \Delta7$ in $C_{\Delta7}$, minor 7th $b7$, e.g., $eb = b7$ in Fm_7 , or as diminished 7th $bb7$, e.g., $ab = bb7$ in B_{o7}
9	ninth	occurs both as major 9, e.g., $a = 9$ in G_7^9 dominant chord or as altered note $ab = b9$ in G_7^{b9} or $a\sharp = \sharp9 = bb = b10$ in $G_7^{\sharp9} = G_7^{b10}$ (note the enharmonic equivalence)
11	eleventh	In $Fm_7^{9/11}$, pitch $bb = 11$, in $C_{\Delta7}^{\sharp11}$ pitch $f\sharp = \sharp11$ (altered note)
13	thirteenth	In G_7^{13} pitch $e = 13$; this function may be altered as $b13$ (e.g., eb in G_7^{b13})
Chord structures (symbol S)		
$S(5)$	triad	chord consisting of root, third and fifth, e.g., $S(5) = C$ major triad contains $\{c = 1, e = 3, g = 5\}$
$S(7)$	seventh chord	chord structure contains, root, third, fifth and seventh, e.g., $S(7) = D_7$ contains the pitches $\{d = 1, f\sharp = 3, a = 5, c = b7\}$
$S(9)$	ninth chord	extended chord, e.g., $S(9) = Fm_7^9$ with pitches $\{f = 1, ab = b3, c = 5, eb = b7, g = 9\}$.
S_7^{b9}	altered 7th chord	dominant 7th chord with added lowered ninth, e.g., $S_7^{b9} = A_7^{b9}$ with pitches $\{a = 1, c\sharp = 3, e = 5, g = b7, bb = b9\}$
$S(11)$	eleventh chord	e.g., $S(11) = Em_7^{9/11}$ containing pitches $\{e = 1, g = b3, b = 5, d = b7, f\sharp = 9, a = 11\}$
$S(13)$	thirteenth chord	e.g., $S(13) = B_7^{13}$ with pitches $\{b = 1, d\sharp = 3, f\sharp = 5, a = b7, c\sharp = 9, g\sharp = 13\}$
$\langle S_1 S_2 \rangle$	bitonal voicing	E.g., $\langle Eb C_7 \rangle$ a triad on top of a dominant structure
$S(Np)$	N -part structure	A triad is $S(3p)$ a complete 7th chord is $S(4p)$, etc.
Instrumental part (symbol P)		
P_i	i th part	i is an integer number $\{1, 2, 3, \dots\}$ counting from the top, e.g., P_1 is the lead part

Table 1.2: Chord progressions and root cycles (symbol R).

Symbol	Meaning	Comment
Positive root cycles - Primary chord progressions		
R_3	root descending a diatonic third	E.g., $C^6 - Am_7$, with the root (chordal function 1) moving $c - a$, i.e., two scalar degrees down
R_5	root descending a diatonic fifth	E.g., the closing dominant - tonic cadence $G_7 - C$
R_7	root descending a diatonic seventh	E.g., the deceptive cadence $G_7 - Ab$ in minor; note that this is equivalent to an ascending step (scalar degree up)
Negative root cycles - Secondary chord progressions		
R_{-3}	root ascending a diatonic third	E.g., $C_{\Delta 7} - Em_7$, with root moving $c - e$
R_{-5}	root ascending a diatonic fifth	E.g., the plagal cadence $F_{\Delta 7} - C^6$
R_{-7}	root ascending a diatonic seventh	E.g., the deceptive cadence $G_7 - Fm_7$ in minor; note that this is equivalent to a descending step (scalar degree down)

providing additional material will distract you and be an escape from serious homework that has to be done anyway in order to absorb the techniques and become a skilled arranger.

Instead, my advice is: enter the examples in a music notation or MIDI sequencer program. For each example that should take no more than a couple of minutes. Put each part in a different staff or on a different instrument track, for easy chord inversion, octave transposition, or change of voicing type. Do not waste time on finding the perfect sound sample; make sure you can identify the individual parts, and that will do.

1.3 Ready to get hands dirty?

I hope that this practical guide provides a most useful tool for the student of jazz arranging or the musically interested reader. Much effort has gone into preparing the examples and the manuscript.

Remember that a personal style usually is achieved by first mastering the basic skills, the standard set of techniques and then gradually ignore them and replace them with your personal marks. Good luck with developing your own style and with all your creative potential!

Now let's get our hands dirty with bricks and mortar for building the house.

Chapter 2

Instrumentation



This chapter presents a limited overview of musical instrument groups and orchestration aspects. It contains examples for typical jazz and popular music ensembles, such as the big band, the concert band and the studio orchestra. For a far more detailed discussion of instrumentation and orchestration, the reader is once again referred to textbooks such as [4, 8, 31, 23].¹ At the end of this chapter, there are some things to keep in mind, when writing a musical score.

2.1 The range of musical instruments

An overview of the practical and extended sounding range of musical instruments is shown in Fig. 2.1. Also shown is a keyboard with pitch names and frequency scale.² The instruments are grouped into *families*: keyboard, definite pitch percussion, strings, brass, saxophones, woodwinds, and they are in order of ascending pitch range. Both the normal, practical and the extended range are indicated; obviously this all depends on the player skills and the quality of the instrument. ⇐

2.2 Instrument groups

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¹Apart from studying these instrumentation and orchestration handbooks, it makes sense to buy and study books on the technique of specific instruments, that the arranger is not familiar with. My own collection includes technique and etude books for violin, cello, harp, timpani, French horn, bass guitar, drums and percussion. These references will be listed in the appropriate sections.

²This figure is available as a separate, single page colour diagram on the website. Look in the *Document Archive* for the PDF file.

CHAPTER 2. INSTRUMENTATION

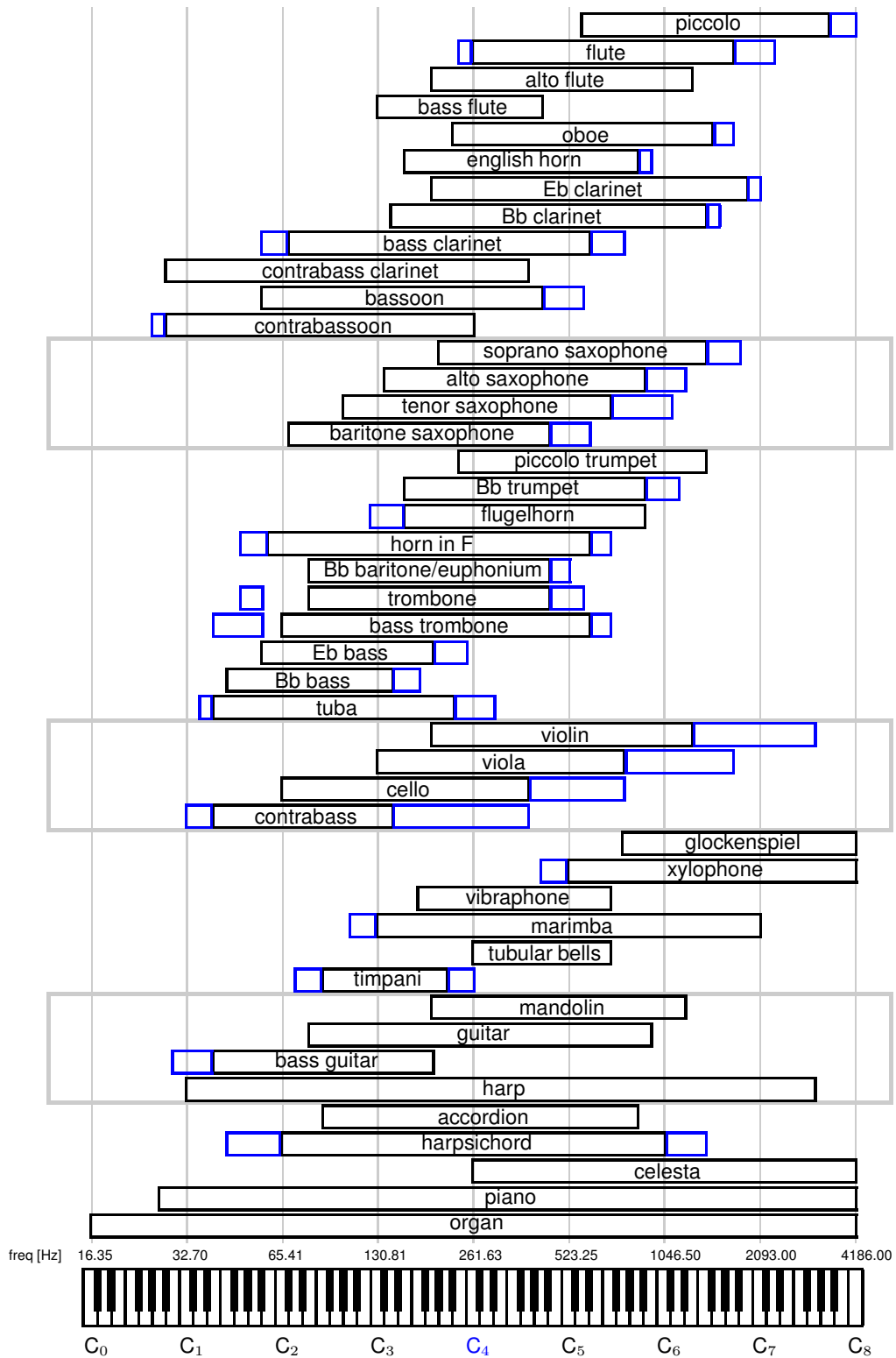


Figure 2.1: Range of musical instruments (concert pitch). Rectangles indicate practical (black) and extended range (blue) for various familiar instrument groups.

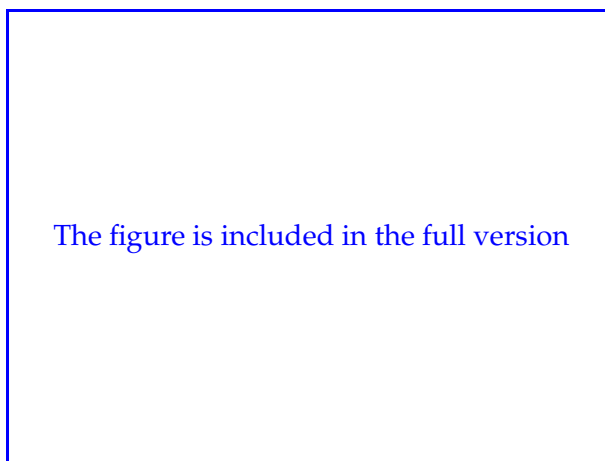


Figure 2.2: The instrument groups in an ensemble

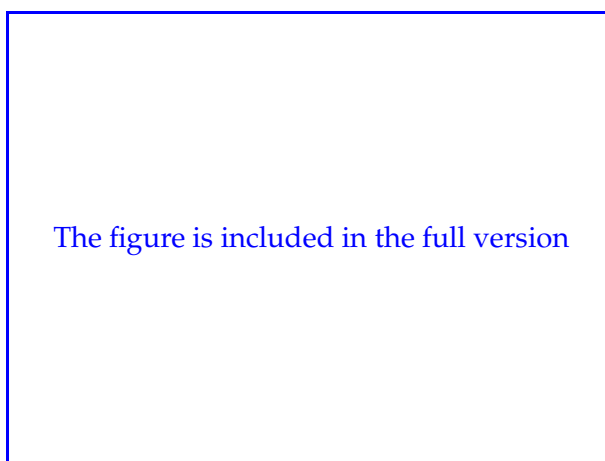



Figure 2.3: Various familiar instrumental ensembles

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2.3 Orchestra sections and balance

The fundamental roles, peculiarities and the aspect of orchestral balance are discussed below for the different sections from the classical symphony orchestra (woodwinds, brass and strings) and the modern jazz and pop orchestra additions (rhythm and saxophones). Let's start with the latter and see how the arranger can best use the musical resources in the orchestra.

2.3.1 Rhythm section

The rhythm section is the core of every modern jazz and pop music ensemble. Some chamber music groups and small ensembles, such as the string quartet or the brass quintet, will do without, but that is an exception. Bass and drums are the essential instruments to create the *groove* in any popular and jazz music style. 

For the separate rhythm section instruments keep the following essentials in mind:

Bass. The bass instrument can be an acoustic bass (double bass), electric bass, bass guitar, or keyboard (synthesizer bass). Some styles require a specific sound; the jazz ballad will be best served with an acoustic bass, whereas a funk rock piece demands a bass guitar (e.g., for slapping). Do not rely on the tuba in the symphony or wind orchestra as the only bass instrument. The arranger will specify the type of bass instrument, when appropriate.

Drums. The drummer is the propulsion system in the ensemble and will '*drive the bus*' (a familiar expression). He provides the beat and groove, which are essential for establishing the musical style. He will maintain and control a steady tempo, prepare tutti accents and breaks, and fills in gaps.³ The arranger should never write too much detail in the drum part: indicate the general *style* (e.g., medium swing, rock in 16th, bossa nova, Latin), the type of *mallets* (sticks, brushes, hard/soft mallets), and the important *accents* in other parts. Most of the time there will be slash notation, with rhythmic accents above the staff (with instrumentation, e.g., brass or tutti). The drummer plays up to four instruments in parallel with independent hands and feet. Support the musician with easy part reading and he will help the arranger with the best possible rendering of the piece.

Piano or keyboard. The fundamental role of the keyboard player is to provide harmonic support, i.e., *comping* (accompaniment). Write slash notation with chord symbols in his part, the *chord changes*. Carefully indicate chord *extensions*, in order to prevent conflicts with orchestral parts (e.g., major 9th in trumpet clash with minor ninth played by piano). The arranger may specify the type of accompaniment; e.g., easy comping, light fills, funky groove in 16ths, similar to the style indications for the drummer. Normally the piano player will adapt his style to the setting in the other orchestral sections.

A secondary role for piano and keyboard is the *doubling* of bass parts (riffs and pedal points) and melodic lines in the ensemble. Then the part will contain normal music notation: e.g., melodic lines, arpeggio patterns and accented written-out chords. The

³An experienced orchestra conductor will aim for a good coordination with the drummer in the rhythm section. The latter is a more significant audible time beater for the other players than the baton. The role of the conductor as tempo indicator is essential in free-tempo sections, such as introductions, coda's and transitions.

piano is great for doubling high woodwinds (it may replace definite pitch percussion such as glockenspiel). In the professional orchestra the keyboard player is versatile as both the virtuoso soloist and the harmonic servant, a perfect sight-reader and the assistant to the conductor (always checking the voicings in the orchestra and helping to correct errors in the score).

Guitar. This musician will add to the groove by playing rhythmic (syncopated) chords. This implies balancing the contribution by piano and guitar. Write chord changes and extensions. Be aware that finger stretching and *barré* playing limits the chord voicing on the guitar. The player will know best and pick a guitar voicing that contains the essential *chordal functions*.⁴ The arranger may notate substitute chords, e.g., write Em_7 instead of $C_{\Delta 7}^9$. In busy parts with rapid chord changes, a check on the consequences for the guitar player will be useful.⁵

Specify either *acoustic* or *electric* guitar. In case of the latter, indicate the type of sound and effect, e.g., clean, heavily distorted, slap delay, long reverb. Indicate the current role: *rhythm* (play chords, riffs, licks) vs. *solo guitar*. The electric solo guitar may easily overpower the other instruments by opening the amplifier. Shutting down is a must to re-establish a balance with acoustic instruments (indicate *End of solo* in the part, and a dynamics marking).

In rock and pop music the arranger must be aware of the consequences of guitar tuning. The open guitar strings are tuned in (bottom-up concert pitch) $E_2-A_2-D_3-G_3-B_3-E_4$, favouring keys with sharps such as G, D, A or E .⁶ These enable playing *power chords* with open strings. In contrast, saxophones and brass instruments prefer keys with flats. In order to feature such a guitar solo, the arranger may have to modulate to a favourable key.

Also see the remarks about the rhythm section in a percussive voicing in Section 5.4 in Part II. A set of useful reference books about drums, guitar and bass guitar includes [6, 10, 12, 21, 26, 55, 56].

2.3.2 Saxophones

Example 2.1

Jazz big band tutti voicing.

This example is included in the full version of the book.

Example 2.2

Jazz big band special chorus for saxophone section.

This example is included in the full version of the book.

⁴The notion of chordal functions will return many times in this book. See Section 1.1.3 for the meaning and notation of chordal functions.

⁵Books and computer apps with guitar chord tables are of great help, but show finger positions for individual chords. I use string tuning and fret diagrams on paper and game tokens to see what a sequence of chords means for the guitarist. This often implies a revision of the part.

⁶Pitch names are labeled according to standard pitch notation, see Section 1.1.3.



The figure is included in the full version

Figure 2.4: Jazz big band tutti voicing



The figure is included in the full version

Figure 2.5: Jazz big band special chorus for saxophones

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2.3.3 Woodwinds

The woodwind section consists of either single or multiple players from an instrument subgroup (flute, oboe, clarinet or bassoon). The latter case is referred to as double, triple or quadruple woodwinds. Triple or quadruple winds also imply that other family members are doubled or part of the group; i.e., piccolo with flutes, English horn with oboes, bass clarinet with clarinets and contrabassoon with bassoons. So for *triple woodwind*, the standard in the symphony orchestra, we have: Fl 1 - Fl 2 - Fl 3/Pi - Ob 1 - Ob 2 - EHn - Cl 1 - Cl 2 - Cl 3/BCl - Bsn 1 - Bsn 2 - CBSn (note that the third player is doubling). The studio orchestra will probably contain single or double woodwinds, except for large scale productions.

When deciding on a particular woodwind voicing, take into account:

Instrument register. As the voicing for a *heterogeneous* woodwind section (i.e., with different instrument subgroups) gets wider, using a *crossing* or *enclosure* voicing approach (see Section 7.1 for a classification of woodwind voicing types), two instruments from the same subgroup may sound in a different register. This change in timbre significantly decreases the blending quality of the section.⁷ A good example is a subgroup of two flutes, one playing in the low register, between C_4 and A_4 , the other between E^5 and C_6 ; these will have a different loudness and sound, losing timbre coherence.

Intervals within a group. A voicing may lead to a sequence of either consonant or dissonant intervals in an instrumental groups. For example, take a chord sequence of 2nd inversion 7th chords, e.g., $G_7/D - Am_7/E - Bb_7/F$, where two flutes play the outer, two oboes the inner parts, as shown in Fig. 2.6. The result is a series of parallel consonant 6ths in the flutes, while the oboes play parallel major seconds. The alternative, shown on the right, is *juxtaposition* voicing, with the flutes taking the two upper pitches, and the oboes the bottom notes; both are now playing in consonant parallel thirds. Re-ordering the voicing is a mechanism of controlling the degree of dissonance within the subgroups; this is an important aspect of woodwind voicing.

Specific aspects of and techniques for voicing a woodwind section is discussed in greater detail in Chapter 7, where we also will see *voicing diagrams*. Let's demonstrate a typical woodwind section in a concert band piece, see Example 2.3.

Example 2.3

Tutti woodwind section voicing in concert band arrangement.

Shown in Fig. 2.7 are the introduction and part of a special chorus of an arrangement or 'Let it Snow' (H. Arlen) for concert band.

- Both fragments are tutti settings of a classical Viennese waltz (the piece later turns into a jazz waltz). The saxophones are not shown; they play elements from both the woodwind and brass sections.
- In the introduction there is a dominant pedal point on a $Gm_7/C - C_7^{b9/13}$ chord change (the key is F major). The woodwind play the higher chordal functions in parallel consonances or triads; see the 9 and 11 of the Gm_7 in

⁷Dutch arranger and (film music) composer Bob Zimmerman in an interview strongly opposed against crossing, *dovetailing* and enclosing voicings. He is advocating the *overlaying* technique, with maximum likelihood of instruments playing in the same register and best blending potential.

Figure 2.6: Woodwind voicing and internal dissonance. (a): series of 7th chords in 2nd inversion position S_3^4 , (b): Poor internal balance in the heterogeneous woodwind section due to the enclosed voicing, yielding wide intervals between the flutes (timbral differences) and parallel dissonant second intervals between the oboes. (c): better balance with juxtaposed voicing; both subgroups now play parallel consonant thirds.

beat 1 of m. 2, and the $b9, 3$ and 13 , yielding the bitonal chord structure on beat 1 in m. 5. For more on bitonal extended chord voicings, see Section 5.3.1.⁸

- The opening run is unisono for flutes, oboes and clarinets in parallel thirds, with higher octave doubling in the piccolo. In m. 2 we switch to a three-part setting with instrumentation (Pi + Fl 1 + Ob 1 + Cl 1) - (Fl 2 + Cl 2) - (Ob 2 + Cl 3). The unisono French horns double the lead part at the octave below. Both flutes and oboes play parallel consonant intervals.
- In the introduction m. 5–8 the arpeggio triads are in *interlocking* voicing: Fl 1 - Ob 1 - Fl 2 - Ob 2, turning to Fl 1 - Ob 1 - (Fl 2 + Ob 2) on beat 3 of m. 7.
- The second fragment, see the second system m. 1–10, is a tutti climax, with lead melody in fortissimo bassoons (middle register), flugelhorn (not shown) and supported by the trumpets over a tonic pedal in the new key of *G* major. Note how the lead trumpet part supports the main melody (doubling or playing consonant parallels).
- The flutes and oboes play the upward scalar runs in parallel thirds, with piccolo *8va* doubling, while the clarinets play the downward runs. This effect depicts a snow storm with ‘wind gusts’. The high woodwinds are combined in m. 8 at the end of the first phrase.

Special playing techniques include flutter tonguing, alternative fingerings, and harmonics.

⁸See the introduction of chordal function notation in Section 1.1.3.

2.3. ORCHESTRA SECTIONS AND BALANCE

1 Waltz $\text{♩} = 128$ Pi+Fl+Ob+Cl 2 *tr.* 3 *tr.* 4 *tr.* 5 6 7 8

Bsn *mf* *ff* *decr.* *f*

Brass *ff* *decr.* *f*

FHn *decr.* *mf*

Tu+DB *ff* *decr.* *mf* Solo *mf*

Gm7/C *ff* *decr.* *mf*

C7⁹

1 Pi+Fl+Ob 2 3 4 5

Bsn *ff*

Cl *p*

Brass

Tu+DB

6 7 8 9 10

FHn


Figure 2.7: Woodwind voicings in a concert band arrangement of 'Let it Snow' (H. Arlen, arr. F.G.J. Absil). Shown are the introduction and part of a special chorus.

2.3.4 Brass

Example 2.4

Jazz big band tutti brass voicing.


This example is included in the full version of the book.



Example 2.5

Jazz big band tutti setting with brass accents.


This example is included in the full version of the book.



Example 2.6

Balancing the French horns in the brass section or in a tutti voicing.

This example is included in the full version of the book.



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2.3.5 Strings

The size of the string section is highly relevant for the balance with the other instrument groups. The most important fact is that in popular music concerts and recording sessions the total number of strings is significantly less than in the symphony orchestra: typical figures are 7-25 string players in popular music vs. 20-60 strings in the classical music domain. In jazz and pop music there may be even smaller units, such as the string quartet.

But also the internal balance within the strings is of importance. There exists a rule-of-thumb, when balancing a string subgroup with the next-higher subgroup:

⇒ **The 2:3 string balance rule.** For unisono string playing more string players are needed in the neighbouring higher subgroup. The recommended ratio is 2:3. E.g., two celli should be balanced with three violas, four violas with six violins, etc.

In Chapter 8 the internal balancing issue will be illustrated with a diagram (see Fig. 8.1) and discussed in Section 8.1. Combining strings and woodwinds at the same dynamic level, use 5–7 strings to balance one woodwind instrument. Violin playing technique with many detailed examples from the classical music repertoire can be found in [14, 15, 51] and cello playing in [27].

Open strings are tuned in: $E_1-A_1-D_2-G_2$ for contrabass (in fourths), $C_2-G_2-D_3-A_3$ for cello (in fifths), $C_3-G_3-D_4-A_4$ for viola and $G_3-D_4-A_4-E_5$ for violin (see the range and octave labeling in Fig. 2.1). Although these tunings may suggest preferred keys with sharps ($G - D - A$ major), as was the case for the guitar, the problem is almost absent. String players generally avoid open strings, since they cannot influence the tone quality by playing *vibrato*. Instead, position playing gives better intonation and tone colouring potential. Open strings become relevant when playing *double* and *multiple stops*. For triple and quadruple stops a combination with open strings is essential, see Section 8.6.5.

A shortlist of popular music string orchestration considerations is:

Put weight at the top. Decrease the number of parts for the upper string subgroups and have these play unisono.

Lower octave doubling in the high register. Unisono lines in the high violin, say above c^3 , need support from doubling at the lower octave, by either other violins or violas,

For maximum melodic impact use unisono. Unisono playing in octaves by violins, violas and celli will provide the best condition that the string melody is heard in an orchestral tutti (the other option obviously is doubling in other instrument groups). Example 8.3 in Section 8.2 demonstrates this technique.

Never divide the violas. These middle range strings play a single part only; no *divisi* playing (see Section 8.6.3). An occasional *double stop* is allowed, but keep the number of players at the maximum.

The celli are great for divisi playing. With two or more players, one can have this subgroup play *divisi*. A beautiful effect is having a cello quartet each play an individual line (see Example 8.11 in Section 8.7).

Do not double the contrabass part at the higher octave. This type of *8va* doubling between double basses and celli is a regular practice in the classical music symphonic repertoire,

where celli and basses can frequently be found on the same staff in the score (have a look at Romantic period symphonic scores, or see Example 2.7). This will not work for the limited numbers of string players in popular music (total numbers are less than half of their symphony orchestra counterparts).

No need for mutes. This is a subtle effect in the orchestral repertoire, when playing acoustically. With electronic recording and stage amplification, the effect of string mutes, as opposed to softer playing, will hardly be noticeable.

Special playing techniques. Effective use can be made of pizzicato playing (i.e., plucked strings), tremoli, playing *sul tasto* (on the fingerboard) or *sul ponticello* (near the bridge), natural and artificial (fingered at higher positions) *harmonics*. Double and triple stops can be used, but with limited effect for the smaller section in an orchestra.⁹ Chapter 8, in particular Section 8.6, will list and demonstrate a number of these techniques.

Let's have a look at two examples that demonstrate the classical (see Example 2.7) vs. the modern style of writing for strings (see Example 2.8).

Example 2.7

Voicing the string section in classical music style.

Fig. 2.8 shows the opening 16 measures of a Western movie style cue, 'Shotgun Soliloquy', featuring the solo trumpet with orchestral background. The key is *C* minor.

- The introduction (m. 1–4) is for solo strings in the middle register. Violins and violas play sustained notes. Celli and contrabasses (bottom staff) play a walking bass Baroque music style pizzicato in parallel octaves. This requires a large size string section in order to achieve internal balance.
- In the first statement of the main theme (m. 5–8) the solo trumpet is supported by the strings. The strings open up (highest pitch C_5 in VI 1 in m. 6), and there is more motion on the sustained trumpet notes (m. 6 and 7).
- During the second statement (m. 9–12) horns in *F* contribute to the background, while the louder strings now reach the highest pitch of G_5 in m. 10. The tension is rising, using higher chordal functions; the violins play the 9th and 11th ($9 = e\flat$ and $\sharp 11 = g$) on the $D\flat$ major chord in m. 10. The cello and contrabass have stopped the doubling in octaves, since the former now are needed for harmonic support.
- The B section, m. 13–16 is a modulating transition to the new key of *D* minor. Clarinets double the lower string parts, while a flute doubles the lead violin part at the higher octave. The setting is in counterpoint style (listed as a special technique in Section 6.8).

⁹Check a number of string quartet and orchestral scores and study the use of string multiple stops. Doing that, I scribbled fingering diagram drawings in the score, to realize what was requested from the string players. In particular, multiple stop sequences in the string music by Maurice Ravel and Béla Bartók were a valuable learning experience.

CHAPTER 2. INSTRUMENTATION

Adagio triste $\text{♩} = 54$

1 2 3 4 **A** Solo Tpt 6

Str

mp mf

mp Pizz. mf

7 8 9 10 11 12

FHns

mf Div. f mf

B Fl 14 15 16

f

Str+Cl

mf

mf Arco

Figure 2.8: The string section playing in classical music style. This fragment is the opening of 'Shotgun Soliloquy' (F.G.J. Absil).

2.3. ORCHESTRA SECTIONS AND BALANCE

A Latin - Mambo $\text{♩} = 160$ 2 3 4 5 6 7 8

TS F^6_9 Solo ad lib $A_{aug}7/F$ F^6_9 F_9 $D_9\#11$ WW+Xyl

Piano mf

Vi. 1 (2nd x only) mf f mf

Vi. 2 mf f mf

Va. mf f mf

Vc. mf f mf

DB mf f mf

9 (2nd x only) 10 11 12 13 14 15 16

$E^{\flat}13/D^{\flat}$ $A^{\flat}add9/C$ G_9/B $B^{\flat}m7$ C^{\sharp}/G $C7sus4E$ D^{\flat}/G G $C7sus4$ E D^{\flat}/G $G13^{\flat}9$ $C13^{\flat}9$

Pno. f

Vi. 1 f mf ff

Vi. 2 f mf ff

Va. f mf ff

Vc. f mf ff

DB f mf ff

f

Figure 2.9: The string section playing in contemporary style. Shown is the tenor saxophone ad lib solo chorus of 'Mediocrity Mambo' (F.G.J. Absil) for studio orchestra.

Example 2.8**Voicing the string section in contemporary style.**

Fig. 2.9 shows a fragment from a Latin mambo, 'Mediocrity Mambo', for studio orchestra with an ad lib solo for tenor saxophone.

- The rhythm section plays a montuno pattern, with the characteristic arpeggio patterns in 8th notes for piano. The final measure is a percussion break.
- The background is played on the repeat only, and is for woodwinds (piccolo, flute and oboe), xylophone and strings.
- The strings (contrabass tacet) play close voicing extended chords in parallel motion in m. 1–8. The celli play *divisi à 2*.
- The strings open up and will sound more prominently in m. 9–12. Now there is a more open voicing, with double stops in the celli (easy to play parallel 6ths). The final measures, 13–15, contain an accented rhythm (this could be performed as a series of down bows), working towards a fortissimo climax in opening contrary motion; this is where the basses join in.

More examples in both styles can be found in Chapter 8 on string section writing.

From the style council there is some good advice: try to stay away from writing sustained notes harmonic backgrounds for strings, known as *football notes*. This is too much associated with the *easy listening* style of the 1960s. Instead, write interesting string parts, with lots of motion, counterpoint in the inner parts. Section 8.4 shows how that can be achieved. The approach to string section writing by Vince Mendoza is highly praised by orchestra musicians.¹⁰ For inspiration listen to classical music string orchestra pieces such as Alban Berg's *Lyrische Suite* (1926), Béla Bartók's *Divertimento for String Orchestra* Sz. 133 (1933), or Alberto Ginastera's *Concerto for Strings* Op. 33 (1965).

Some popular and jazz music string sections have specialized in advanced contemporary playing techniques; for example, the 25-piece Metropole Orchestra string section, where syncopated swing, funk and Latin montuno patterns have become second nature through decades of experience in these styles.¹¹

In contemporary popular and world music, small size string groups are added more and more frequently, both in the studio and on the concert stage. Young musicians with either a classical music or a pop music background have no problem getting together and creating a *cross-over* musical idiom, full of rich and advanced string playing. The use of a small string group is demonstrated in Section 8.7.

2.3.6 Percussion

In orchestral jazz and pop music there is frequent use of *percussion* instruments. This group is divided into two subclasses. The first is the percussion with *definite pitch*: examples are

¹⁰American composer, arranger and conductor Vince Mendoza is a multiple Grammy award winner with a unique contemporary style. He has been arranging major projects for many jazz and popular music artists.

¹¹The *Metropole Orkest* is a professional studio orchestra in the Netherlands, producing jazz, popular, film and world music for concerts, recordings, radio, television and film. See their website at <http://www.mo.nl>.

the harp, timpani, celesta, harpsichord, tubular bells and the mallet instruments glockenspiel, vibraphone, xylophone and marimba. The subclass of percussion with *indefinite pitch* contains such instruments as the triangle, tambourine, bar chimes, woodblocks, suspended cymbal, shaker, tam-tam, and Latin percussion claves, bongos, congas, timbales, cowbells, guiro, and maracas.

In the jazz, pop and studio orchestra there is one player for piano and all other (electronic) keyboard instruments. Whereas the symphony orchestra has a separate timpani player, in the studio orchestra these and all other percussion instruments are played by the one or two percussionists. These are most versatile musicians, that play the full range of percussion and mallet instruments. Harp and percussion need electronic amplification in order to be audible in the full orchestra.

Percussion instrument usage and playing techniques are discussed in specific textbooks. Orchestral and Latin percussion technique and details can be found in [17, 18, 33, 39, 7]. Playing the harp is discussed in [19].

2.3.7 Unfamiliar acoustic instruments

This section is included in the full version of the book.

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2.3.8 Electronic instruments

Of course, since the introduction of electronic instruments and computers in the second half of the 20th century, the range of timbres and the sound processing possibilities have grown exponentially. Synthesizers, samplers, the MIDI protocol, analog and digital sound processing equipment have entered the recording studio and the concert stage. The Digital Audio Workstation (DAW), a computer with dedicated sequencer and audio processing software, is found in both musician bedrooms and in the best recording studios.¹² Reliability and user-friendly interfaces have enabled their live use. ←

When writing for electronic instruments, all the techniques from this book may be used: harmonic sustained chords in open and close voicing, ensemble techniques, percussive writing, even some sectional harmony writing (see Part II). However, keep in mind the following aspects:

Indicate general timbre attributes. Since there exist countless numbers and huge varieties of electronically generated sounds, the arranger is not expected to specify the exact timbre, the sound parameters or instrument settings. However, write *general sound attributes* into the part, such as: mellow pad, syn lead, brassy, ethereal high strings, techno syn bass, distorted, mallet sound. Or indicate a General MIDI (GM) standard patch number (i.e., a program number 1–128 from the standardized soundbank).¹³

Be aware of the frequencies. The instrument range chart in Fig. 2.1 also has a frequency axis with values between 16 Hz and 4.2 kHz (the audio range is 20 Hz - 20 kHz). This might come in handy when planning for electronic instruments. Like their acoustic equivalents, the pitch is determined by the fundamental frequency and the timbre by the complex *frequency spectrum* of (in)harmonics, as sketched in Fig. 2.10. Tonal components and narrow- or sideband noise will contribute to the overall timbre. ←

Electronically generated sounds use *filtering*. Filter types are: the widely used Low-Pass Filter (LPF), its complement the High-Pass filter, bandpass and reject, and the shelving filter. See the diagram of filter types and parameters in Fig. 2.11. Cut-off frequency f_{co} and resonance factor Q will affect the overall sound. If you as an arranger have a specific sound in mind, then you might give a rough frequency indication, such as: boost 100-200 Hz, LPF@2 kHz, reduce 200-500 Hz by 3 dB, create brilliance at 2-5 kHz.

Know the amplitude envelope. Another element of electronic sounds is the amplitude *envelope*, the sound amplitude (loudness) as a function of time. The four-parameter Attack-Decay-Sustain-Release (ADSR) envelope, sketched in Fig. 2.12 is widely used. Be aware of the difference between sustained (left) and decaying sounds (centre and right).¹⁴ The duration of the attack is another determining factor in sound design.

¹²The current DAW market leaders are Avid *ProTools*, Apple *Logic Pro*, Steinberg *Cubase* and Motu *Digital Performer*.

¹³Software instruments enable browsing the vast sound libraries (holding thousands of sounds) by selecting a set of pre-defined attributes; have a look at this set to learn the vocabulary.

¹⁴Classical music composers did make use of the sustain and decay characteristics of acoustic instruments. Igor Stravinsky combined both sounds on unisono pitches; even with instruments from the same group; e.g. pizzicato or sforzato and sustained strings doubling the same part.

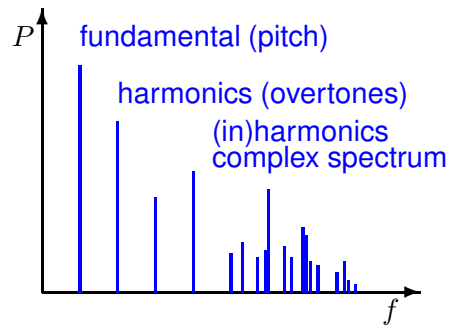


Figure 2.10: The frequency spectrum of (electronic) sounds. Vertical lines indicate the fundamental pitch, the higher harmonics (overtones) and the complex (in)harmonic spectrum.

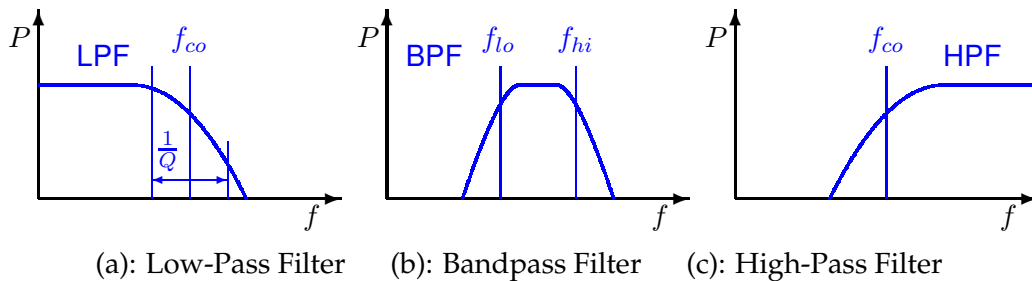


Figure 2.11: Filtering of (electronic) sounds. Three familiar filter types are shown. Cut-off frequency f_{co} and resonance factor Q determine the filter slope.

Modulation as another degree of freedom. Apart from the amplitude, many other sound parameters may be varied over time. This is called *modulation*. Modulation may affect pitch, filtering, envelope parameters, vibrato, delay effects, etc., and will yield complex-sounding but more realistic, ‘humanized’ electronic sounds. It can be implicit (pre-programmed) in the sound design or varied realtime by using MIDI controllers, such as the *pitch bend* or *modulation wheel*. A special case of modulation is *keyboard tracking*; sound parameters in the time or frequency domain will vary with the key number (MIDI range: 0–127, with key number MIDI C3 = 60 = C₄, the musical pitch).

Leave it to the specialist. From this brief description of electronic instrument aspects, it is clear that we are entering a specialised field of sound design with dazzling numbers of options. This is beyond what may be expected of the orchestral arranger. Usually the details of the electronic sound are left to the musician, who should be the greater expert. Mark the part(s) in the score with the relevant general specifications in order to help the performer selecting the best option, within the context of the orchestra.

2.4 The score

The score contains all the parts to be played by the musicians. We will consider the vertical layout ordering of staves, the different forms of a score and important considerations during

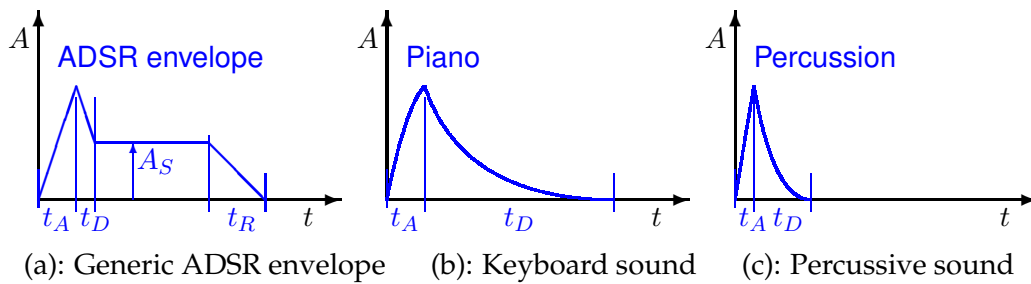


Figure 2.12: The amplitude envelope of (electronic) sounds. Shown are the generic ADSR envelope (sustained sounds, such as woodwinds, brass and strings) and two typical decaying envelopes for keyboard (piano) and percussive sounds.

the process of writing and using the score. Music notation details can be found in [38].

2.4.1 Vertical staff order

The vertical ordering of staves in the *full score* is different for classical vs. jazz and pop orchestras. The most frequently used score layouts are shown in diagram in Fig. 2.13 for the symphony orchestra (left), the studio orchestra (centre left) and the jazz big band (right).

In Fig. 2.13 the symphony orchestra is shown for large, quadruple woodwinds and elaborate percussion section. In the studio orchestra the saxophones are placed between woodwinds and brass; clarinets are omitted from the woodwinds, since they are doubling instruments for the saxophone group. The brass section now has four trumpets and four trombones (trombone 4 is the bass trombone, frequently doubling on bass tuba). The rhythm section is between the brass and the other percussion. The big band layout is standardized as shown on the right. The positioning of solo vocals and choir (Soprano - Alto - Tenor - Bass) depends on the style. In classical music they are shown in the score above the strings, while in jazz and pop scores they are either at the top (option 1) or the bottom of the score (option 2). When electronic instruments are involved, group these with the (pitched) percussion.

In Fig. 2.14 there is the full score staff layout, as generated by the template scores in the Finale music notation software. The symphony orchestra is for triple woodwind section (3-3-3-3), and a (4-3-3-1) brass section. Note the numbering of multiple parts on a single staff. This may lead to reading problems for the player; frequent use of extended chords and cluster voicings in jazz and popular music yield close intervals of the second in neighbouring parts. It is better for the arranger to put players 1-3 and 2-4 on a single staff, as we will get wider intervals and easier reading.¹⁵

The concert band score is different for different countries (US vs. Europe and even within Europe there are national differences in concert band instrumentation). Note that a rhythm section is not included in these orchestral templates; usually the jazz and pop music arranger creates his own templates with rhythm group.

¹⁵If your score paper size allows a separate staff for each instrument, do so. It will prevent potential trouble when generating the parts for the musicians. It might even be wise, to create the score with separate staves first and then compile a conductor version, where multiple parts are merged on a single staff.

CHAPTER 2. INSTRUMENTATION

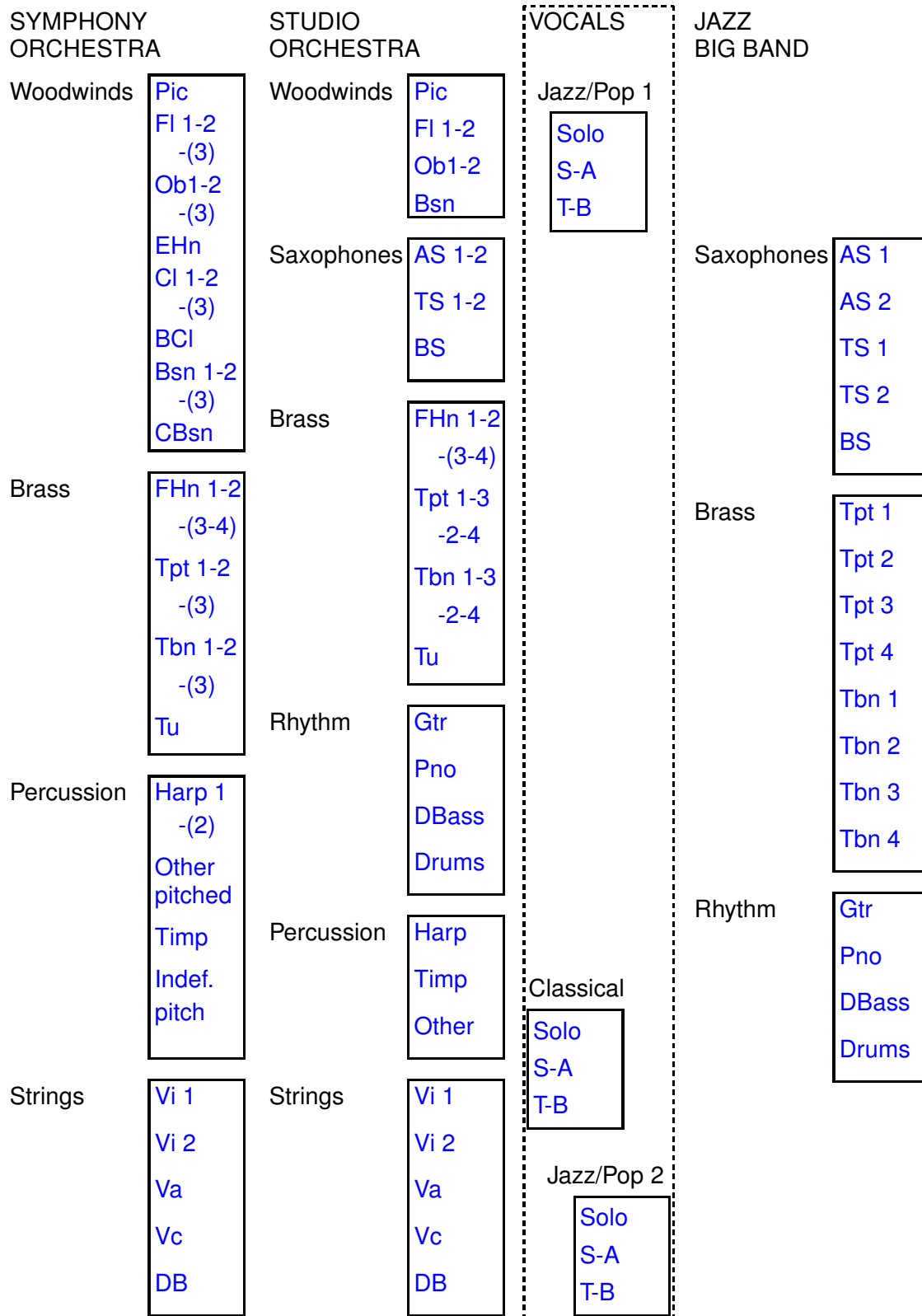


Figure 2.13: Vertical staff order in the full score.

The image displays three columns of musical score staves, each representing a different ensemble. Each staff is labeled with an instrument name and a part number (e.g., 1, 2, 3, 4). The staves are arranged vertically from top to bottom in the order listed.

- (a) big band:** Piccolo, Flute 1, Flute 2, Oboe 1, Oboe 2, English Horn, Bassoon 1, Bassoon 2, Contrabassoon, Horn in F 1, Horn in F 2, Horn in F 3, Horn in F 4, Trumpet in Bb 1, Trumpet in Bb 2, Trumpet in Bb 3, Trumpet in Bb 4, Trombone 1, Trombone 2, Trombone 3, Trombone 4, Tuba, Timpani, Percussion, Guitar, Piano, Bass, and Drum Set.
- (b) symphony orchestra:** Piccolo, Flute 1, Flute 2, Oboe 1, Oboe 2, English Horn, Bassoon 1, Bassoon 2, Contrabassoon, Horn in F 1, Horn in F 2, Horn in F 3, Horn in F 4, Trumpet in Bb 1, Trumpet in Bb 2, Trumpet in Bb 3, Trombone 1, Trombone 2, Trombone 3, Tuba, Timpani, Percussion, Violin I, Violin II, Viola, Cello, and Contrabass.
- (c) concert band:** Piccolo, Flute 1, Flute 2, Oboe 1, Oboe 2, English Horn, Bassoon 1, Bassoon 2, Clarinet in Eb, Clarinet in Bb 1, Clarinet in Bb 2, Clarinet in Bb 3, Alto Clarinet, Bass Clarinet, Alto Sax, Tenor Sax, Baritone Sax, Horn in F 1, Horn in F 2, Horn in F 3, Horn in F 4, Cornet 1, Cornet 2, Cornet 3, Cornet 4, Trumpet in Bb 1, Trumpet in Bb 2, Trombone 1, Trombone 2, Bass Trombone, Euphonium, Tuba, Timpani, Percussion 1, and Percussion 2.

(a): big band

(b): symphony orchestra

(c): concert band

Figure 2.14: Full score staff order.

2.4.2 Various forms of the score

An orchestral score may have different forms:

Transposed full score. This is the score as read by the musicians. Composer, arranger and conductor take care of appropriate transpositions. The transposed full score layout for a piece in the key of *C* major is shown in Fig. 2.14; there are transposing instruments in *F*, *B \flat* and *E \flat* .

Concert pitch full score. The concert pitch score will show the parts as they sound. It is easier for the conductor, when studying, preparing for and rehearsing music with complex harmonies (e.g., atonal music). However, the conductor then has to be skilled at transposing when communicating with the musicians during rehearsals.¹⁶ Music notation programs, such as Finale and Sibelius provide representation in either form with a menu command. All examples in this book are in concert pitch key.

Condensed score. In the condensed score the information is reduced to between two (piano reduction) and five staves, with instrumentation markings added. Many examples in this book are presented as a condensed score.

2.4.3 Optimize the score for performance

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¹⁶Early 20th century Russian music publishers printed full scores in concert pitch key. See Prokofiev and Strawinsky scores.

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2.5 Conclusion

Here we conclude the introductory part of the book, called *Preparations*. Its goal is to create awareness of a number of aspects that have to do with arranging, instrumentation and completing a score for performance. As said before, the mechanics of musical instruments and classical music orchestration can be studied in greater detail in other textbooks and on the internet. This part of the book provides an overview, in order to prepare you for Part II. The second part will demonstrate in detail a set of techniques, appropriate for jazz and pop music arranging for larger ensembles. Examples will guide you along the way and should trigger the development of arranger skills.

A limited number of examples was discussed in this part. However they nicely covered the standard ensembles that play jazz and pop music these days: the jazz big band, the concert band and the studio orchestra.

Part II

Techniques

“Brix4u”

Chapter 3

Sectional harmony in four parts



Sectional harmony in four parts is one of the basic techniques in the field of arranging. It may be characterized as a mixture of traditional functional harmony with (impressionist) modal harmony. It is the bread and butter of jazz big band writing; as soon as jazz orchestras emerged in the 1930s *swing* music, there was sectional writing. This carried over into the *bebop* era of the 1950s. The technique remained a standard in the *ballroom dancing* and *easy listening* orchestral recordings of the 1950s and 1960s; it is immediately recognized and typical for this musical idiom.

It occurs most frequently in the saxophone section, but also in the brass. Even the solo piano may play lines in sectional harmony. The problem is that of harmonizing a given *lead voice* over a given basic harmony for a total of four voices; we have to find the three lower voices. The lead voice may consist of chordal tones, non-chordal tones and non-diatonic tones. We will study the technique (alternatively described as the bag of tricks) that enables us to harmonize the lead voice, especially for the latter two categories (non-chordal and non-diatonic tones in the lead) and make sure the end result makes sense in harmonic terms and is playable from a musician's point of view. ←

Sectional harmony for more than four parts and some forms of ensemble technique often only come down to a doubling of voices from a given basic four part harmonization. This chapter will discuss and demonstrate the technique of harmonizing a given lead in four parts.

For further reading, see [9], pp. 29–35; [43], Ch. 10; [44], p. 451. The first two are about jazz arranging with chapters dedicated to sectional harmony, the latter book covers more diverse styles.

3.1 Basic rules

In writing four part sectional harmony there is a basic set of rules that we will follow:

Table 3.1: Basic chord structures S in four part sectional voicing.

<i>Structure</i>	<i>Description</i>
S^6	the major triad with added 6th (note: the 6 does not indicate the inversion of the triad, but the 6 ajoutée, the added 6th)
S^m6	the minor triad with added major 6th
S^{m+7}	the minor triad with added major 7th
S^m7	the minor 7th chord
S_7	the dominant 7th chord
$S_{\emptyset 7}$	the half-diminished 7th chord
$S_{\circ 7}$	the (fully) diminished 7th chord

- 1. Use a top-down approach.** Start with the given lead voice and find the three lower voices. As an arranger we will usually compose the lead voice first and then harmonize that leading part. In our exercises the lead voice will be given. Do not modify the lead voice unless you find its harmonization impossible.
- 2. Use four part harmony.** Most chord structures in jazz and popular music have four parts or more. Table 3.1 summarizes the types of four part chord structures that will be used in the four part sectional technique (remember that the symbol S indicates a chord structure, see Section 1.1.3). Figure 3.1 gives an example of each of these types. For the moment we will forget about extensions (higher numbers than the 7th) of the basic chord structures. We will come back to that later.
- 3. Use close voicing.** The basic four part technique uses close voicing only when the range of all voices has to stay within the interval of an octave; the outer voices will in that case form the interval of either the 6th (imperfect consonant) or the 7th (mild dissonant). We will also discuss the so-called *drop 2* technique, which, strictly speaking is not close voicing, but is easily obtained from a close voicing harmonization.
- 4. All parts use parallel motion.** This means that the lower three voices exactly follow the motion of the leading voice. This is contrary to classical music theory of harmony where 'good' voice leading obliges us to use preparation and resolution of dissonant tones (the 7ths, for example). When writing sectional harmony this is of no concern.
- 5. Prevent repeated notes in any part.** You will find the four part sectional technique usually in medium to up-tempo pieces. Noteworthy examples are the '*Four Brothers*' (Woody Herman big band) and the '*Supersax plays Bird*' (using a five-member saxophone section) recordings. From a musician's point of view it is better to avoid repeated notes in any part (unless they are in the lead voice); this makes playing easier. Harmonization therefore must be such, that no repeated notes will occur.

The list of basic rules is summarized in Table 3.2. Now we will discuss a number of exercises and examples that will gradually introduce and discuss problems of increasing complexity. We will illustrate the various techniques for writing four-part sectional harmony.

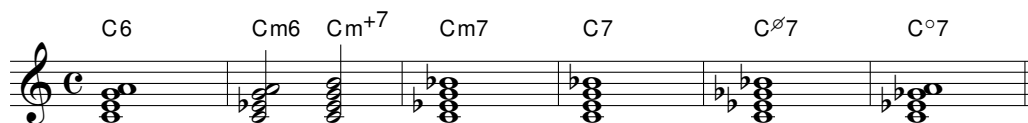


Figure 3.1: Example of the chord structures used in four part-sectional harmony (Root C , root positions, close voicing).

Table 3.2: Basic rules for four-part sectional harmony.

Basic rules

- Work in a top-down order
 - Use four part harmony
 - Start with close voicing
 - All parts move in parallel
 - Prevent repeated notes in any part
-

3.2 Harmonizing a lead consisting of chordal tones only

We will start with the situation where the given lead consists of chordal tones only (see the basic harmony on the lower staff of the example and check).

3.2.1 The danger of repeated notes

Figure 3.2 shows what happens when the basic rules from the previous section are applied in a straightforward manner. This approach is demonstrated in Example 3.1.

Example 3.1

Chordal tones in the lead voice, straightforward procedure.

The lead voice P1 consists of chordal tones only, the four-part voicing is straightforward. The basic harmony is $C - Dm_7 - G_7 - C$ corresponding to the root cycle pattern $R_7 + 2R_5$ (positive cycles only).¹

- The tonic triad C in m. 1 is harmonized using the added 6th chord type. Note that following the lead we pass through the various inversions of the basic chord.
- On several occasions we may see the interval of a major 2nd between the upper two voices. This is no problem unless we are in a high range, for a specific instrumentation. Try to avoid minor 2nds between the upper voices, since this dissonant is too harsh.

¹See the root cycle notation, introduced in Section 1.1.3.

Figure 3.2: Chordal tones in lead, straightforward procedure.

- The example shows two cases of repeated notes: m. 2, 3rd beat in P2 and P3 at [*1] and m. 3, 1st beat in P3 at [*2]. These have to be eliminated!

3.2.2 Prevent repeated notes using secondary dominant structures

Example 3.2

Chordal tones in the lead voice, application of secondary dominant chord structure.

This example is included in the full version of the book.

This section is included in the full version of the book.

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The figure is included in the full version

Figure 3.3: Chordal tones in lead, application of secondary dominant chord structure.

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3.3 Harmonizing non-chordal tones

⇒ The example from the previous section will now be modified slightly in such a way that the lead contains *non-chordal tones*. Note, however, that the lead part still is completely diatonic, i.e., there are only notes from the *C* major scale, which is the scale that is implied by the *I – IIIm₇ – V₇ – I* cadence in the given harmony. The marked notes are the non-chordal tones that have to be harmonized with a different chord structure.

3.3.1 Use of diminished chords and secondary dominant structures

The only solution we have seen so far to the problem of harmonizing non-chordal tones is the use of secondary dominant structures. That is the approach demonstrated in Example 3.3. The structure of the secondary dominant chord will yield a diminished 7th chord.

Example 3.3

Non-chordal tones in the lead voice, application of secondary dominant chord structure.

The lead voice P1 contains non-chordal tones (see Figure 3.4), the basic harmony is *C – Dm₇ – G₇ – C*.

- At [*1], occurring twice in m. 1, there are the non-chordal tones *b* and *d*. In fact these are the $\Delta 7$ and the 9th of the extended *C₆* chord respectively; we will consider them now as non-chordal since they do not belong to the *S₇* structure. These notes may be harmonized using the *diminished chord B_{o7}*, which has a secondary dominant function relative to *C*. Note that we may find two non-chordal tones in sequence, where the resolution towards a chordal tone occurs after the second non-chordal tone.
- At [*2] in m. 2 of the score example, the non-chordal tones *g* and *e* are harmonized using the *C_{#o7}* chord, which as a secondary dominant function relative to the *Dm₇* chord.
- At [*3], on beat 3 in m. 2, we choose an alternative solution. The *a* is the non-chordal tone in the *G₇* (since, again, we consider four part chord structures as the starting point), that might have been harmonized using the *F_{#o7}* chord.

There is a difference with the previous two cases, however: whereas the other non-chordal tones move stepwise towards a chordal tone (here is the list, check for yourself: [m. 1]: $b \nearrow c, b \nearrow d \searrow c$, [m. 2] $g \searrow f, e \nearrow f$), now we find a leap (m. 2, beat 4) $a \nearrow d$.

Using a diminished chord here has a much weaker effect than in the case of stepwise motion. Therefore, we now choose to extend the *Dm₇* chord unto the 3rd beat of that measure. This leads to a suspended *G₇^{SUS4}* chord, or, equivalently, a *Dm₇/G*, which sounds as a richer dominant structure than the plain *G₇*. Note that on beat 4 the lead is harmonized using *B_{o7}*, since we work towards the *C* chord in the next measure.

This is equivalent to the *G₇⁻⁹* structure and although we were not to consider extended chord structures beyond four parts, here we have one! This is no

The musical score consists of five staves labeled P1, P2, P3, P4, and H. The key signature is one flat (B-flat) and the time signature is common time (C).
 - Staff P1 (Lead): Contains non-chordal tones marked with asterisks: [*1] above the first two measures, [*2] above the third and fourth measures, and [*3] above the fifth measure.
 - Staff P2: Chords are B°7, B°7, C#°7, and C#°7.
 - Staff P3: Chords are C6, Dm7, Dm7/G, and G7b9.
 - Staff P4: Chords are C6, Dm7, Dm7/G, and G7b9.
 - Staff H (Bass): Chords are C6, Dm7, Dm7/G, and G7b9.

Figure 3.4: Non-chordal tones in lead, application of secondary dominant chord structure.

problem, it simply sounds better (has a stronger dominant effect, since there is an extra leading tone *ab*, see the next section) than the plain dominant 7th *S*₇ structure.

3.3.2 Rhythmic aspects: the use of syncopations

Example 3.4

Non-chordal tones in the lead voice, syncopated rhythm.

This example is included in the full version of the book.

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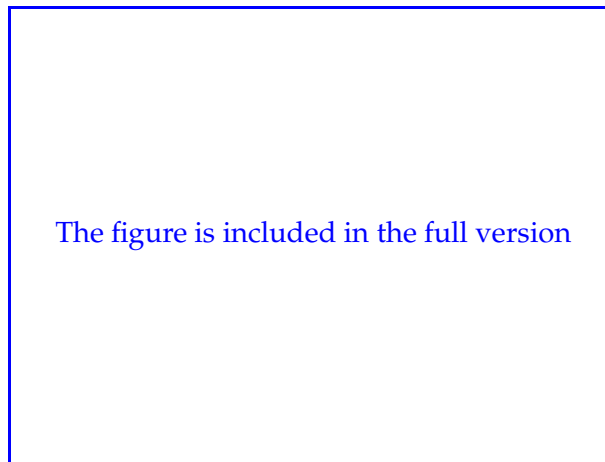


Figure 3.5: Non-chordal tones in lead, syncopated rhythm.

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3.3.3 Use of leading tone chords

The next example has the opening chords of the jazz standard ‘How High the Moon’ (or its derivative ‘Ornithology’). It is familiar chord sequence that leads to a tonic R_{-7} root cycle (from C to $B\flat$ through modification of the first tonic chord).²

The lead part now contains both *non-chordal* and *non-diatonic tones*. Measures 1 to 3 are in the key of C major where $d\sharp$ and $f\sharp$ are no members of the diatonic scale. These tones cannot be harmonized using the secondary dominant structure, since neither of them is part of the diminished 7th B_{o7} chord.

Therefore we shall apply a new technique, which is called the *leading tone chord*. This means that we apply exact parallel motion locally, i.e., between two consecutive chords. All voices in the first chord move by the same distance towards the second chord, which, as you may remember, is our *aiming chord*.

The distance of motion is either a minor or a major 2nd up or down. This is indicated as $i \nearrow$ and $i \searrow$ or as $2i \nearrow$ and $2i \searrow$, where i is the semitone step of chromatic minor second (the smallest unit in the chromatic 12 tone system). The effect of the leading tone chord is stronger since it is using minor 2nds, compared to the occurrence of major second steps in other approaches. The leading tone chord is used more frequently moving upward than downward. Let us now discuss Example 3.5, which is shown in Figure 3.6.

Example 3.5

Harmonization of non-chordal tones in the lead using leading tone chords.

The lead voice P1 contains non-chordal and non-diatonic tones, the basic harmony is $G_7 - C - Cm_7 - F_7 - B\flat$.

- At [*1] we harmonize the upbeat tone into the C chord of m. 2. We find in the upbeat measure the sequence $G_7 - F\sharp_{o7} - B_{o7} - C$. The two diminished chords form a chain of secondary dominants.
- M. 2 and m. 4 [*2] use the standard secondary dominant technique for the harmonization of the non-chordal tones.
- In m. 3 [*3] we apply the leading tone chord technique. The aiming chord twice is the C_6 chord, which is enharmonically equivalent to the Am_7 chord. Exact parallel motion (upward minor 2nd step) therefore yields the $G\sharp m_7$ structure as the preceding chord.
- In m. 5 beat 3 [*4] we encounter another aspect that requires consideration. We have the sequence $e\flat - g$ in the lead (the 7th and the 9th of the F_7 chord). Now suppose we harmonize the first note with the F_7^{-9} structure (again, this would be a small diversion from our basic rules) or its equivalent A_{o7} , as shown in Figure 3.7. If we harmonize the second note with a pure F_7^9 , or its equivalent A_{o7} then we find a *cross-relation* between the lower and upper part: there is a minor 9th between the $f\sharp$ and the g that will sound harsh.³ Try to prevent this and use a now familiar trick: use the $F_7^{\text{SUS}4}$ or

²For the interpretation of chord progression in terms of root cycles, see Section 1.1.3.

³In classical music the *cross-relation* indicates the incompatible combination of altered notes in different parts in a counterpoint setting. This may happen in minor keys where the lowered subtonic $b7$ must be resolved in a downward melodic sequence $b7 - b6 - 5$ (in Cm this implies $bb - ab - g$), before the raised subtonic $\flat 7$

CHAPTER 3. SECTIONAL HARMONY IN FOUR PARTS

Figure 3.6: Harmonization of non-chordal tones in the lead using leading tone chords.

Figure 3.7: Cross relation between lower and upper voice.

its equivalent Cm_7/F on beat 3 of that measure. Save the real dominant structure A_{o7} until the last beat and the rest will be a downward chromatic stepwise resolution (between parts) $\natural 9 - b9 - 1$ (g in P1, $f\sharp - gb - f$ in P2-P3).

3.3.4 Use of substitute chords

Example 3.6

Harmonization of non-chordal tones in the lead using substitute chords.

This example is included in the full version of the book.

resolves into the tonic, usually as the ascending stepwise motion $\natural 6 - \natural 7 - 1$ ($a\sharp - b\sharp - c$ in Cm). We are dealing with a combination of the melodic minor descending and ascending scale. If the descending sequence has not been completed in one part before the ascending pattern occurs in another part, this is called a cross-relation. The equivalent in jazz sectional harmony setting is the combination of two altered chord functions in close proximity. In the example here it is the $f\sharp = gb$, the lowered 9th in the lowest part, which usually resolves by chromatic downward step into the tonic, in combination with the $g = \natural 9$ in the lead. This implies an irregular upward resolution and yields a harsh minor 9th dissonant interval between the outer parts.

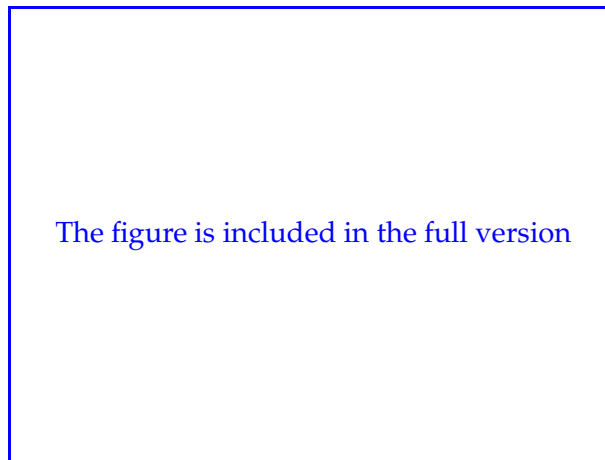


Figure 3.8: The definition of a substitute chord.

Example 3.7

Harmonization of non-chordal tones in the lead using substitute chords.

This example is included in the full version of the book.

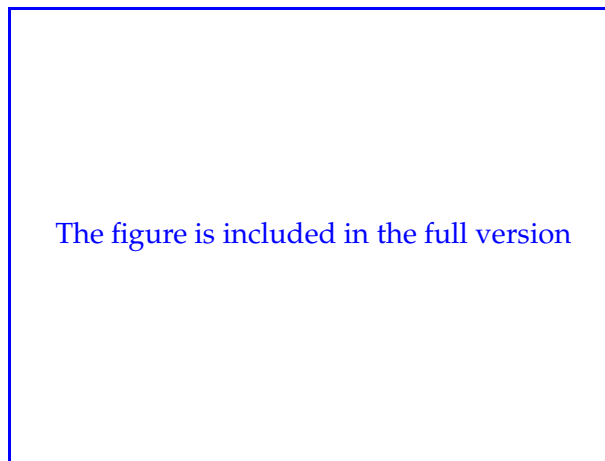


Figure 3.9: Alternative harmonization of non-chordal tones in the lead using substitute chords.

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Figure 3.10: Harmonization of non-chordal tones using substitute chords.

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3.3. HARMONIZING NON-CHORDAL TONES

The musical score for Figure 3.11 is in C minor (three flats) and 4/4 time. It features five staves: P1 (Lead Voice), P2, P3, P4, and H (Bass). The lead voice (P1) contains non-chordal tones. The basic harmony is G7 - Cm7 - Dø7 - G7 - C7. The score shows various chord solutions for the non-chordal tones, labeled with asterisks in brackets: [*1], [*2], and [*3].

Figure 3.11: Harmonization of non-chordal tones in the lead using exact parallel chords.

3.3.5 Use of exact parallel chords

The next example has a lead voice in *C* minor and consists of diatonic tones only. In minor we have the half-diminished chord on the 2nd degree of the scale.

We shall demonstrate two solutions to the harmonization problem for non-chordal tones from this 2nd degree chord. The first solution is based on the use of a substitute chord. The second solution will use *exact parallel chords*, which is the new technique introduced here. ← See Example 3.8 for the discussion of an application of this technique.

Example 3.8

Harmonization of non-chordal tones in the lead using exact parallel chords.

The lead voice P1 contains non-chordal tones (see Figure 3.11), the basic harmony is $G_7 - Cm_7 - D_{\flat 7} - G_7 - C_7$, corresponding to the root cycle pattern $R_5 + R_7 + 2R_5$, a series of four positive root cycles.

- At [*1] we harmonize the non-chordal tones with the standard technique of a single secondary dominant, $B_{\flat 7} - Cm_7$ in m. 2, or a sequence of two secondary dominants $F_{\sharp 7} - B_{\flat 7} - Cm_7$ in m. 4-5.
- At [*2] the non-chordal tone in the half-diminished chord e_{\flat} is harmonized using the $E_{\flat 7}$, or equivalently the $A_7^{b5/b9}$. This solution does not sound ideal, since we are using an intermediary dominant to an unstable half-diminished chord $D_{\flat 7}$ (which has no tonic function).
- At [*3] we meet the chromatically descending exact parallel chord solution $A_{\flat 7} - G_7$. In m. 3 it is approached through a leap; in m. 4 it is a neighbouring step $i \nearrow -i \searrow$.
- Notice that this example contains various syncopations (m. 2, beat 4 and m. 3, beat 4). The final 8th note of these syncopated groups is harmonized using the chord on the next downbeat. This is the same approach that we have used on tied-over notes.

The musical score consists of five staves: P1 (Lead voice), P2, P3, P4 (Inner voices), and H (Bass). The key signature has two flats (B-flat major). Measure 1 is marked with a bracket [*1] and contains a D°7 chord. Measure 2 is marked with a bracket [*2] and contains B°7 and C°7 chords. The bass line (H) is marked with Dø7 in both measures.

Figure 3.12: Harmonization of non-chordal tones using exact parallel chords.

Example 3.9 discusses two alternative solutions for harmonizing the non-chordal notes in m. 3 from Example 3.8 with exact parallel chords. These solutions are shown in Figure 3.12.

Example 3.9

Harmonization of non-chordal tones in the lead using exact parallel chords.

Lead voice P1 contains non-chordal tones, the basic harmony is $D_{\flat 7}$.

- At [*1] in Fig. reffig:ex4p14 we harmonize the non-chordal tones d and f using the substitute chord $Bb_{\flat 7}^{\flat 9}$, which is not exactly equivalent with the $D_{\flat 7}$ chord (because of its lowered 9th). However, it is equal to the $G_{\flat 7}^{\flat 9}$ chord, since the four upper functions of both chords form the same diminished chord $B_{\flat 7}$. What we in fact do here is to pull ahead the dominant chord of m. 4 (this has been discussed in previous examples).

This could possibly lead to a clash with the rhythm section in case they play the half-diminished structure (the clash between b and c) and probably it is better to correct the chord symbol for the rhythm section in that measure.

- At [*2] we apply three consecutive exact parallel chords ($B_{\flat 7} - C_{\flat 7} - D_{\flat 7}$) working backwards from the aiming chord on the chordal tone d . Although we now find quite a few non-diatonic tones in this sequence they are no problem, especially at higher tempos.

3.3.6 Connecting minor 7th chords

Example 3.10

Harmonization of a lead voice with diatonic 6 – 7 stepwise motion: problems using secondary dominant or leading tone chord.

This example is included in the full version of the book.

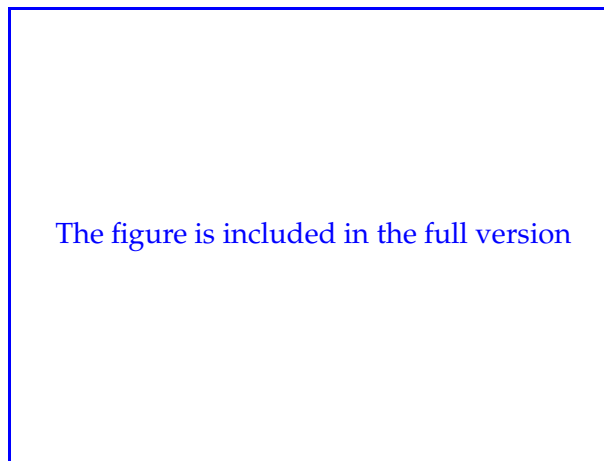


Figure 3.13: Lead voice with diatonic 6 – 7 stepwise motion (case 1).

Example 3.11

Harmonization of a lead voice with diatonic 6 – 7 stepwise motion: connecting minor 7th chords.

This example is included in the full version of the book.

Example 3.12

Harmonization of a lead voice with diatonic 7 – 8 or 3 – 4 stepwise motion over minor 7th chord on 3rd degree or 6th degree respectively.

This example is included in the full version of the book.

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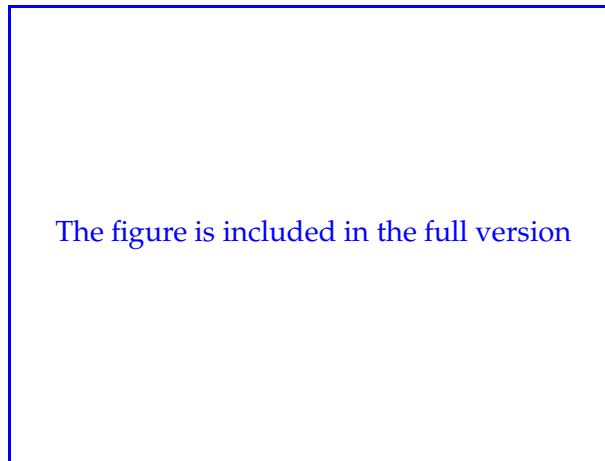


Figure 3.14: Lead voice with diatonic 6 – 7 stepwise motion (case 2).

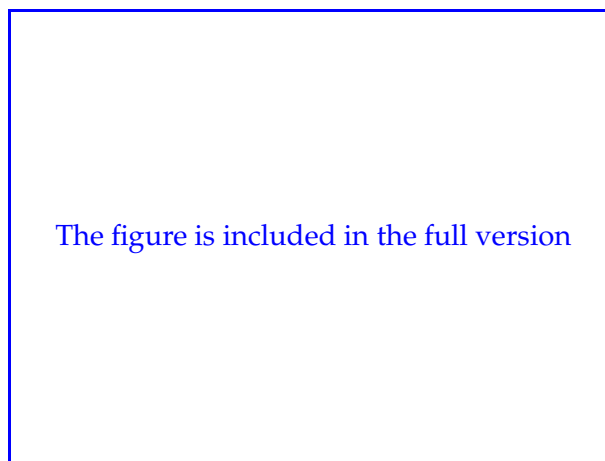


Figure 3.15: Lead voice with 6 – 7 stepwise motion on 3rd degree of major scale.

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3.3.7 Use of subdominant chords

Example 3.13

Harmonization of non-chordal tones using subdominant chords.

This example is included in the full version of the book.

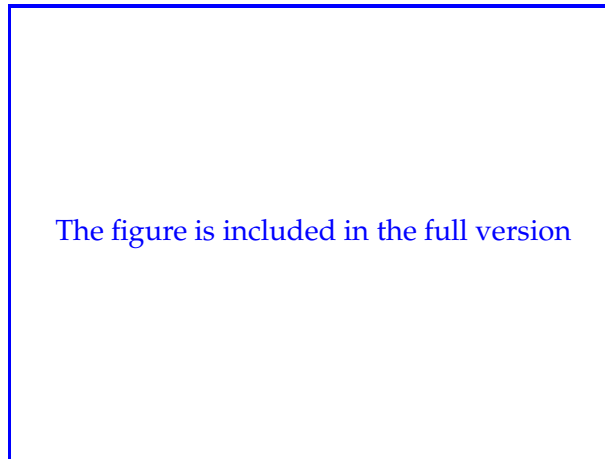


Figure 3.16: Harmonization of non-chordal tones using subdominant chords.

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3.4 Extensions to the technique of writing four-part sectional harmony

3.4.1 Sequences of similar structures on parallel diatonic degrees

In this section we will discuss various other aspects of writing four-part sectional harmony. First we will deal with the technique of using diatonic parallel structures. Then we will discuss the 'drop 2'-voicing in four-part sectional harmony. Also we will discuss the occurrence of repeated notes and the use of altered dominant structures.

3.4.2 Sequences of diatonic parallel structures

Example 3.14

Similar chord structures on diatonic parallel degrees.

This example is included in the full version of the book.

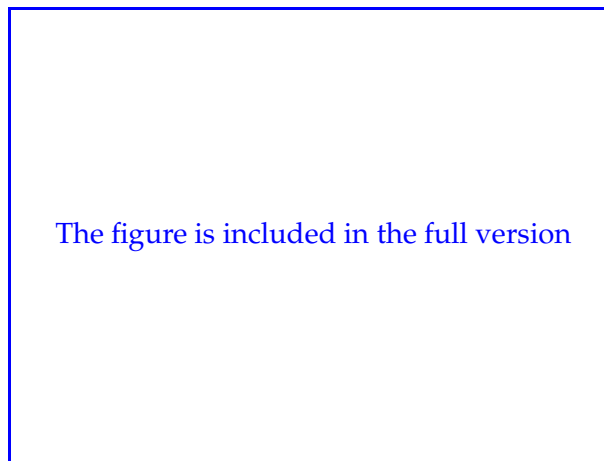


Figure 3.17: Similar chord structures on diatonic parallel degrees.

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3.4. EXTENSIONS TO FOUR-PART SECTIONAL HARMONY

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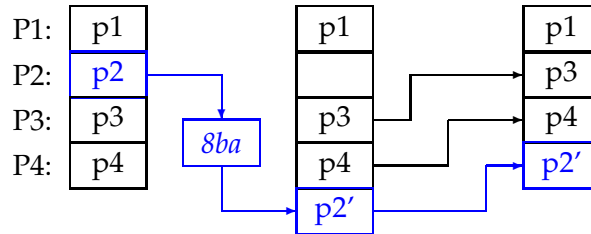


Figure 3.18: Diagram of the 'drop 2' procedure in four-part sectional harmony.

3.4.3 The 'drop 2' voicing

So far we have strictly adhered to the rule of close voicing in writing sectional harmony. However, there is another standard form of four-part sectional harmony, that can easily be derived from the close voicing. It is called the *drop 2 voicing* and it is obtained by transposing the 2nd voice from the top, i.e., P2 to the octave below. The process for achieving a 'drop 2' half-open voicing is shown in diagram in Figure 3.18.

This type of more open voicing is useful when either the lower instrumental part, or the second part from the top is playing in a (too) high register. This might be the case for in a 4-piece saxophone section with baritone playing the lower part. Another typical case is where we have mixed instrumentation, such as in a quartet of trumpet, alto sax, tenor sax and trombone. The 'drop 2' voicing allows the instruments to play in a more natural timbre in the middle range.

Example 3.15 demonstrates the 'drop2' procedure, when applied to a sectional harmony fragment (compare the two voicings in Figure 3.19).

Example 3.15

Close voicing and 'drop 2' voicing.

Assign the parts for given four-part sectional harmony: use close voicing and 'drop 2' voicing. The basic harmony is $Bm_7 - E_7 - A$.

- Figure 3.19.a shows the solution with close voicing. The non-chordal tones in m. 1 [*1] are harmonized using the secondary dominant $A\sharp_{o7}$, the appoggiatura $f\sharp$ in m. 2 [*2] is harmonized using the same principle (in this case with a $D\sharp_{o7}$ chord). Beat 3 of m. 2 [*3] uses the Bm_7/E structure that we have discussed before and the penultimate note $b\sharp$ [*4], a non-diatonic note, is harmonized using an altered dominant chord structure $E_7^{\sharp 5/b9}$. This note might also have been harmonized using a leading tone chord structure $E\sharp m_7$.
- Notice the rhythmic aspects of the example: syncopated and tied-over notes are harmonized using the chord structure on the next regular beat. Also note the 16th notes in the lead in m. 2; little embellishments like these do not necessarily have to be harmonized, especially at higher tempos.

3.4. EXTENSIONS TO FOUR-PART SECTIONAL HARMONY

Figure 3.19(a) illustrates close voicing for four parts (P1, P2, P3, P4) and a harp (H) across three measures. The key signature is three sharps (F#, C#, G#). Measure 1 has a Bm7 chord. Measure 2 has D#7 and Bm7 chords. Measure 3 has an A chord. P1 has melodic lines with first endings marked [*1] and [*4].

(a)

Figure 3.19(b) illustrates 'drop 2' voicing for four parts (P1, P2, P3, P4) and a harp (H) across three measures. The key signature is three sharps (F#, C#, G#). Measure 1 has a Bm7 chord. Measure 2 has an E7 chord. Measure 3 has an A chord. P1 has melodic lines with first endings marked 1, 2, and 3.

(b)

Figure 3.19: Close voicing and 'drop 2' voicing.

- Figure 3.19.b demonstrates the ‘drop 2’-voicing. We have transposed P2 one octave down. The total range is now more than one octave and the result is a mixed, more open voicing. Still the intervals between the outer voices are consonant 3rds most of the time, interspersed with occasional 2nds (9ths, to be correct).

Now, for the first time we have to consider instrumentation aspects. Since the range of the section gets wider as we use the ‘drop 2’ technique we might encounter instrumentation problems. The bottom voice may get into a too low register, either for the instrument to play comfortably, or from an acoustic point of view.⁴

In the latter case the implied fundamental of the applied chord structure is too low, as a result of the low register position of the chordal function 3 (the 5th harmonic, the fundamental pitch lies two octaves and a major third lower) or the function 7 (the 7th harmonic). In those cases we might have to change the voicing along the melodic line.

The preferred location for a change of the voicing is at a diminished chord, since, due to its internal symmetry (the diminished chord being constructed from minor 3rds) it suffers least from such a change and is least noticeable. We illustrate this with Example 3.16 and Fig. 3.20.

Example 3.16

Changing from close voicing to ‘drop 2’ voicing.

Assign the parts for given four-part sectional harmony: use a mixed voicing and determine the appropriate point for transition. The basic harmony is $F\sharp m_7 - B_7 - G\sharp m_7 - C\sharp_7 - F\sharp m$.

- Let us first harmonize the non-chordal tones. At [*1] we use a secondary dominant $E\sharp_{o7}$ to harmonize the b . At [*2] we use an extended secondary dominant $F\sharp_7^9 = A\sharp_{o7}$ to harmonize the $g\sharp$. At [*3] we use an altered secondary dominant $D\sharp_7^{b5/b9} = A_7$ to harmonize the $c\sharp$. At [*4] we use a secondary subdominant $A_6 = F\sharp m_7$ to harmonize the a . An alternative solution is either the altered secondary dominant $D\sharp_7^{b5/b9}$ or the leading tone chord Am_7 .

Comparing the three alternatives we may say that the currently used A_6 is the most diatonic solution, the Am_7 would have been the least diatonic alternative. At [*5] we use a secondary subdominant $G\sharp_{o7} = C\sharp_7^9 = A\sharp_7^{b9/b13}$ to harmonize the $g\sharp$. Using a plain $G\sharp m_7$ would have lead to an augmented 2nd step in P3. At [*6] we use an extended secondary dominant $B\sharp_{o7} = G\sharp_7^9$ to harmonize the $f\sharp$.

- The example starts with ‘drop 2’ voicing. This changes to close voicing at the second 8th note of beat 1 in m. 1 (at the $E\sharp_{o7}$). Then, at the upward leap,

⁴Try and prevent the third of a chord (corresponding to the frequency $5f_0$, where f_0 is the fundamental) to go below $C_3 = 130.8 = 5f_0$ Hz and the 7th (i.e., $7f_0$) below $Eb_3 = 155.6$ Hz. The first implies a chord root (fundamental f_0) at $Ab_0 = 25.9$ Hz, the second a fundamental of $f_0 = 21.8$ Hz. See the keyboard, pitch and frequency numbers in Fig. 2.1.

3.4. EXTENSIONS TO FOUR-PART SECTIONAL HARMONY

The musical score consists of five measures. The key signature has three sharps (F#, C#, G#) and the time signature is common time (C). The parts are labeled P1, P2, P3, P4, and H. Above the first four staves, there are labels [*1], [*2], [*3], [*4], [*5], and [*6] indicating specific notes. The bass line (H) shows the following chords: F#m7, B7, G#m7, C#7, and F#m. The voicing changes from close to 'drop 2' between measures 1 and 2, and back to close between measures 2 and 3.

Figure 3.20: Changing from close voicing to ‘drop 2’ voicing.

we change back to ‘drop 2’ and again to close voicing on beat 2 in m. 2 at the $G^{\#}_{o7}$.

The example ends with another change on the last two notes; the reason for doing this is to prevent the lower voices from having a 5th leap, since this might lead to instrumentation problems. Changing the voicing at these diminished chords does not lead to repeated notes in any of the parts.

Theoretically, there is an even wider voicing possible for four parts. By transposing also the original fourth part P4 from the close position voicing to the lower octave and rearranging the parts we obtain an *open voicing*. The result of applying the open voicing approach to the problem in Example 3.17 is shown in Figure 3.21. ←

Example 3.17

Open voicing.

Assign the parts for given four-part sectional harmony: use wide, open voicing. The basic harmony is $Bm_7 - E_7 - A$.

- The harmonization of the example in Fig. 3.21 is the same as the original close voicing in Fig. 3.19.a.
- Both P2 and P4 from the close voicing have been transposed to the lower octave. We now obtain a total range of almost two octaves. Note how the intervals between the outer voices still are not too dissonant (mainly 6ths and mild dissonances of the minor 7th).
- However, note the low thirds in m. 1, i.e., the $d = 3$ in the Bm_7 chord, and m. 2, the $g^{\#} = 3$ in the E_7 chord. Although they sound briefly in a medium

Figure 3.21: Open voicing.

or up-tempo, the total impression will be muddled, with the lower parts seemingly disconnected from the lead.

This voicing is almost never used. The open voicing is not suited for a homogeneous brass section; trumpets usually stay within the range of an octave, and although this voicing is within the compass of the trombone section, the open voicing is reserved for cases of smooth stepwise motion (classical music harmony), not for sectional harmony. For the saxophone section the open voicing often reaches the limits of compass.

Besides, the open voicing limits the fluency of the phrase. This voicing may be used in moderate to medium tempo, for high or middle strings or with a mixed instrumentation, i.e. with instruments from different families such as winds and brass combined.

3.4.4 The inevitable repeated notes

Example 3.18

Repeated notes in the lead voice.

This example is included in the full version of the book.

Example 3.19

Repeated notes at the end of a phrase.

This example is included in the full version of the book.

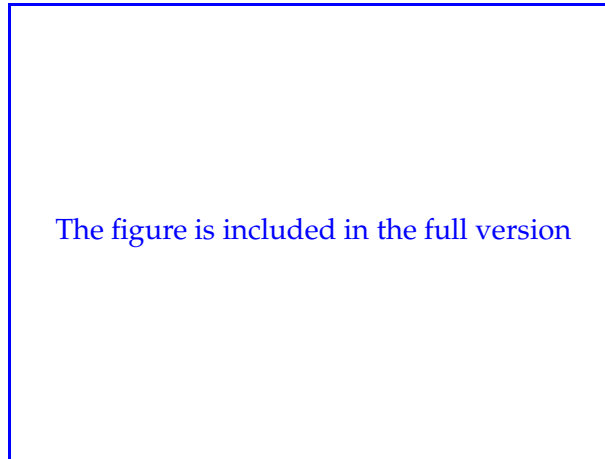


Figure 3.22: Repeated notes in the lead voice.

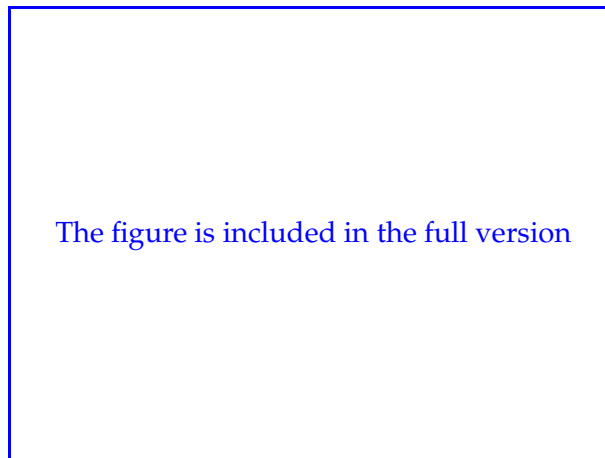


Figure 3.23: Repeated notes at the end of a phrase.

CHAPTER 3. SECTIONAL HARMONY IN FOUR PARTS

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3.4. EXTENSIONS TO FOUR-PART SECTIONAL HARMONY

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Table 3.3: Extensions and alterations of the dominant chord.

Chordal function	Description
-9 = $\flat 9$	lowered 9th
9	natural 9th
+9 = $\sharp 9$ = -10 = $\flat 10$	raised 9th or lowered 10th
-5 = $\flat 5$ = +11 = $\sharp 11$	lowered 5th or raised 11th
+5 = $\sharp 5$ = -13 = $\flat 13$	raised 5th or lowered 13th
13	natural 13th

Figure 3.24: Harmonization of non-chordal tones using altered dominant chords.

3.4.5 Use of extended and altered dominant chords

Next we will discuss two examples showing a variety of techniques for the harmonization of non-chordal tones. The main aspects here will be the use of *extended* and *altered dominant chord structures*.

We already have encountered an altered dominant chord in the section on subdominant structures and ‘drop 2’ voicing: the use of the S_7^{b9} , the dominant chord with lowered 9th where the upper four chordal functions are combined to create the diminished chord.⁵

From now on we will allow all regular extensions and alterations of the dominant chord structures as shown in Table 3.3. From this set we may pick any combination of four pitches. However, this combination must include the 3rd and the 7th, which are the essential chordal functions determining the dominant chord structure. We will need to apply altered or extended dominant chords mainly in cases where a non-diatonic, non-chordal tone has to be harmonized.

This is shown in Example 3.20 and Fig. 3.24.

⁵The notation and meaning of chordal functions were introduced in Section 1.1.3.

Example 3.20**Harmonization of non-chordal tones using altered dominant chords.**

The lead voice P1 in Fig. 3.24 contains non-chordal and non-diatonic tones, the basic harmony is $Cm_7 - F_7 - B\flat$.

- From the beginning to beat 3 in m. 2 the harmonization is with diatonic parallel structures, unless this is impossible. The first chordal tone is the $e\flat$ in m. 1 at [*1]; this determines the voicing of the previous chords. Strictly speaking this should lead to the following three chords at the start of the phrase: $Dm_7 - B\flat_{\Delta 7} - Cm_7$, all in 2nd inversion. However, the first 8th note has been harmonized using another inversion of the $B\flat_{\Delta 7}$ chord (just a matter of taste).

At [*2] we have to use a secondary dominant B_{o7} since there is no diatonic way to connect the two inversions of the Cm_7 chord. At [*3] we recognize the 7 – 8 diatonic stepwise motion, which corresponds to the local 6 – 7 step with a 2nd degree chord as basic harmony. We therefore have to use $Cm_7 - Dm_7$ (see Section 3.3.6 on connecting minor 7th chords). From the g in m. 1 onwards we recognize the diatonic parallel succession of chords until beat 2 in m. 2 [*4]: we have $Cm_7 - Dm_7 - E\flat_{\Delta 7} - F_{\Delta 7} - Gm_7 - E\flat_{\Delta 7}$, all in 3rd inversion. This is a series of positive root cycles: $4R_7 + R_3$. The major 7th chord $F_{\Delta 7}$ is the result of the elimination of the tritone interval that would have occurred with a purely diatonic solution (see the section on similar structures in diatonic parallel degrees, Section 3.4.1). The final chord $E\flat_{\Delta 7}$ can also be considered a substitute chord for the Cm_7^9 (using the four upper pitches).

- The rest of m. 2 is treated in a regular way using secondary dominants $B_{o7} - Cm_7$ and $E_{o7} - F_7$ at [*4].
- In m. 3 and m. 4, beat 3, [*5] we use the suspended chord Cm_7/F . The second 8th note in m. 3 $b\flat$ uses the substitute chord $E\flat_{\Delta 7}$.
- In m. 3, beat 4, [*6] the lead voice has the altered, non-diatonic note $a\flat$ which we harmonize using the $C_7^{b9/b13}$ chord (an altered dominant chord).
- We end the example with a sequence of secondary dominant chords $E_{o7} - A_{o7} - B\flat$; the second chord is used to harmonize a non-diatonic, non-chordal tone $g\flat$ and the $B\flat$ is replaced by the substitute chord $Dm_7 = B\flat_{\Delta 7}^9$.

The same example will now be shown with an alternative harmonization, see Figure 3.25 and Example 3.21.

Example 3.21**Harmonization of non-chordal tones using altered dominant chords.**

Lead voice P1 contains non-chordal and non-diatonic tones, the basic harmony is $Cm_7 - F_7 - B\flat$.

The musical score for Figure 3.25 consists of five measures across four parts (P1, P2, P3, P4) and a bass line (H). The key signature is B-flat major. Measure 1 has a secondary dominant $B^{\circ}7$ and a 6-7 stepwise motion. Measure 2 has a secondary dominant $B^{\circ}7$. Measure 3 has a basic harmony of $F7$ and is annotated with $[*2]$ and $[*3]$. Measure 4 has a descending chromatic motion annotated with $[*4]$. Measure 5 has a B^b chord. The bass line (H) has chords $Cm7$, $F7$, and B^b .

Figure 3.25: Harmonization of non-chordal tones using altered dominant chords.

- Measure 1 and m. 2 in Fig. 3.25 have now been harmonized using the secondary dominant $B^{\circ}7$, when appropriate $[*1]$. On beat 4 in m. 1 there is another case of 6-7 ($a - b^b$) stepwise motion on a minor 7th chord Sm_7 , harmonized with $Dm_7 - Cm_7$.
- The basic harmony in m. 3 is $F7$. The first beats $[*2]$ are harmonized with the suspended chord Cm_7/F , carried over from m. 2.
- The last three 8th notes in m. 3 $[*3]$ are harmonized with a sequence of altered and extended dominant chords $G_7^{b10/b13} - C_7^{b9/b13} - F_7^{13}$.
- The last three notes in m. 4 show chromatic downward stepwise motion $[*4]$ and can therefore be harmonized using exact parallel chords (or, equivalently, leading tone chords in sequence): $Em_7 - E^b m_7 - Dm_7$. This descending chromatic solution is acceptable, but the approach sounds better in a situation with ascending stepwise motion in the lead.

In the next example we will use a combination of techniques. Example 3.22, shown in Figure 3.26, contains non-diatonic tones in the lead part.

Example 3.22

Harmonization of non-chordal tones (case 1).

The lead voice P1 contains non-chordal and non-diatonic tones, the basic harmony is $B^b m_7 - E^b m_7 - A^b m_7$.

- Measure 1 in Fig. 3.26 starts with two non-chordal tones g and e^{\natural} (also non-diatonic) $[*1]$. Notes 1 and 3 (g and f) yield a local 7 - 6 diatonic stepwise motion on the 2nd degree in A^b major; the standard solution is the connection of two minor 7th chords on 3rd and 2nd degree (see Section 3.3.6).

The e^{\natural} can be harmonized using a leading tone chord. The combined result is $Cm_7 - Am_7 - B^b m_7$ (corresponding to positive root cycle pattern $R_3 + R_7$).

3.4. EXTENSIONS TO FOUR-PART SECTIONAL HARMONY

Figure 3.26: Harmonization of non-chordal tones.

- The following note ab [*2] is chordal, but is harmonized with the substitute chord $Db_{\Delta 7} = Bbm_7^9$.
- The non-chordal notes on beat 3 in m. 1 are harmonized with a secondary dominant A_{o7} .
- The non-chordal tone c in m. 2 [*3] is harmonized with an extended, altered secondary dominant $B_7^{b9/b13}$. On the chordal tone bb we use an extended dominant chord Eb_7^9 , equivalent to the substitute chord G_{o7} .
- The next non-chordal tone gb [*4] is non-diatonic. It is harmonized with an altered secondary dominant $Bb_7^{b9/b13}$. The same dominant, although in different forms, is also used on beat 3 and 4 of the same measure.
- Now we reach a flaw in the exercise. Harmonizing the non-chordal f in m. 3 [*5] with the secondary dominant Bb_7^9 leads to repeated notes in the lower voices.⁶ We will later correct that error.
- The three chordal notes in the last measures [*6] have been harmonized with an extended dominant Ab_7^9 .

In Example 3.23 and Figure 3.27 we look at a number of alternative solutions to this problem, that will also correct the repeated notes flaw.

Example 3.23

Harmonization of non-chordal tones (case 2).

Lead voice P1 contains non-chordal and non-diatonic tones, the basic harmony is $Bbm_7 - Eb_7 - Ab_7$.

⁶When there are multiple repeated notes in neighbouring parts, we may swap notes between the parts. The temporary voice-crossing is acceptable, and hardly noticeable in a phrase with homogeneous instrumentation.

CHAPTER 3. SECTIONAL HARMONY IN FOUR PARTS

(a)

(b)

(c)

(d)

Figure 3.27: Harmonization of non-chordal tones.

3.4. EXTENSIONS TO FOUR-PART SECTIONAL HARMONY

- The alternative in Figure 3.27.a uses a ‘drop 2’ voicing in the last two measures. The harmonization has not changed, except for the last four beats of the example. We will discuss these in detail.
- The repeated notes on beat 4, m. 2, have been eliminated using the progression $Fm_7 - Eb_7 - Ab_7$ [*1]. Notice that the penultimate note c [*2] has been harmonized using the secondary dominant Eb_7^9 .
- This example still has other flaws. First, by using the wider ‘drop 2’ voicing, the 7ths ab and db of the Bb_7 and Eb_7 respectively [*3] lie in an extremely low range. This yields unacceptably low acoustic roots for these chords.
- The progression $Bb_7 - Fm_7$ on m. 2, beat 4 [*4] is poor: it lacks functional harmonic sense (it is a negative root cycle progression R_{-5}) and therefore is weak.
- The alternative in Figure 3.27.b changes to ‘drop 2’ voicing just before the last measure. This eliminates the low ab of the Bb_7 chord, although the db is still in the low octave. The change of voicing does not take place on a diminished chord.
- The final measure has been harmonized using the extended form of the basic harmony $Ab_7^{9/13}$. Although somewhat improved, this solution still does not sound great.
- The alternative in Figure 3.27.c has beat 4, m. 2 harmonized using the secondary subdominant structure Fm_7 , the 2nd degree relative to the basic harmony Eb_7 (see Section 3.3.7).
- The final measure uses a secondary dominant structure $Eb_7^{9/b13}$ on the non-chordal tone f . So we end up with a $VI m_7 - V_7 - I = Fm_7 - Eb_7^{b13} - Ab_7^9$ cadence in Ab major, a combination of a negative and positive root cycle progression $R_{-7} + R_5$.
- The example uses close voicing; there is no range problem for the lower voices.
- The final alternative in Figure 3.27.d has beat 4, m. 2 harmonized with a different form of secondary dominant structure $Eb_{o7} = F_7^{b9} = Ab_7^{b9}$.

Chapter 4

Sectional harmony in five parts



Writing sectional harmony in five parts is a skill that is often required in contemporary big band arranging, where the saxophone section consists of five players. Since this section is the most frequently used in the big band and capable of incomparable fluency we find a lot of excellent writing for five saxophones and numerous *saxophone special choruses* (see Section 11.3) have been written for the five working horses in the band.

Basically, there are two categories of five-part sectional writing, where one is little more than a doubling of the lead voice of the basic four-part sectional harmony.

However, the second technique is considerably different and makes great use of *clusters* that are generated by writing the chords in 4th voicings. We will discuss both techniques in this chapter and look at examples.

There is less treatment of 5-part sectional voicing techniques in the arranging textbooks (see [9], Ch. 8, [30], p. 25, [42], p. 35). For ‘classical’ five-part saxophone section voicings, have a look at the Thad Jones charts for big band from the 1970s; try his composition ‘*Tiptoe*’ from the album *Consummation*.¹

4.1 The extended four-part sectional harmony

Writing *extended four-part sectional harmony* takes no more effort than writing for the four-part section. We use exactly the same techniques for the harmonization of chordal, non-chordal and non-diatonic tones in the leading voice, that we have already mastered in that chapter. ←

There is only one voice to be doubled and this is the lead voice. The result is that the melody is heard exactly one octave below the original and this gives it extra support. It is a standard technique of which you will encounter numerous examples in big band scores. It is used in the already mentioned ‘*Supersax plays Bird*’ recordings.

Let us now discuss an example using this technique (see Figure 4.1 and Example 4.1).

¹When my saxophone teacher introduced me to the music of the Thad Jones - Mel Lewis big band and showed

The musical score for Figure 4.1 is written in F major (two flats) and 4/4 time. It consists of six staves. The top five staves are labeled P1 through P5, representing five parts. The bottom staff is labeled H, representing the harmonic line. The key signature has two flats (Bb and Eb). The time signature is common time (C). The score is divided into five measures by vertical bar lines. The lead voice (P1) is a melodic line with some non-chordal and non-diatonic tones, marked with fingerings 1, 2, and 3. The other parts (P2-P5) provide harmonic support. The harmonic line (H) shows the chord progression: Fm7, Bb7, Gm7, C7, Fm7.

Figure 4.1: Sectional harmony in five parts, lead doubled an octave below.

Example 4.1

Sectional harmony in five parts, lead doubled an octave below.

The lead voice P1 contains non-chordal and non-diatonic tones. The basic harmony is $Fm_7 - Bb_7 - Gm_7 - C_7 - Fm_7$, corresponding to the root cycle pattern $R_5 + R_3 + 2R_5$.

- This example has been discussed extensively in the Chapter 3 on four-part sectional harmony (there it was written a minor 2nd higher). So see that chapter for the reasoning behind the harmonization.
- The lead part P1 has been doubled one octave below as P5. There is close voicing throughout the phrase.

Obviously, the use of five voices enables us to develop several alternative voicings. Now, we will show a number of these options. We start with Example 4.2 and Figure 4.2.

Example 4.2

Sectional harmony in five parts, mixed voicing, 'drop 2'.

The lead voice P1 contains non-chordal and non-diatonic tones; assign the parts using mixed voicing. The basic harmony is $Fm_7 - Bb_7 - Gm_7 - C_7 - Fm_7$.

me some scores, in particular 'Tiptoe', that was a life-changing experience.

Figure 4.2: Sectional harmony in five parts, mixed voicing, 'drop 2'.

- Here is the 'drop 2' voicing as applied to a five-part section. The lead is now supported by an inner voice P4.
- The bottom voice has the same intervallic relationship with the lead as in the four-part section.
- It is fairly regularly used unless the bottom voice gets into a too low range (see below for the solution of that problem).

We will now discuss two alternative voicings for the same problem (see Example 4.3 and 4.4).

Example 4.3

Sectional harmony in five parts, open voicing, 'drop 2 and 4'.

The lead voice P1 contains non-chordal and non-diatonic tones; assign the parts using open voicing (see Figure 4.3).

- An even wider voicing is obtained using the 'drop 2 and 4' technique. Strictly speaking (in classical music sense) this is not a fully open voicing. The part that now doubles the lead is P3.
- The bottom voice P5 has the same intervallic relationship to the lead as in the case of four-part sectional harmony, although it now is now at one octave below the four part version.

The musical score for Figure 4.3 is written in common time (C) with a key signature of two flats (B-flat and E-flat). It features six staves: five parts (P1-P5) and a harmony (H) part. The lead voice P1 contains three measures marked with '1', '2', and '3'. The harmony H is shown in the bottom staff with chords: Fm7, Bb7, Gm7, C7, and Fm7.

Figure 4.3: Sectional harmony in five parts, open voicing, 'drop 2 and 4'.

- This technique is not commonly used. There is a risk of loss of fluency at higher tempos.

Example 4.4

Sectional harmony in five parts, alternating voicing.

The lead voice P1 contains non-chordal and non-diatonic tones; assign the parts using mixed voicing and determine the appropriate points for transition (see Figure 4.4).

- Here is an example of mixed or alternating voicing. Close voicing has been used at the low points of the lead melody at [*]. The rest of the example uses 'drop 2' voicing. Pay attention to the points where the voicing is changed; This happens at either diminished chords or at wide leaps.
- The change from open to close voicing from the first to the second note is not very effective.

The musical score consists of five parts (P1-P5) and a harmony part (H). The key signature is B-flat major (two flats). The time signature is common time (C). The score is divided into three measures. Above the first measure, there are four asterisks in brackets: [*] [*] [*] [*]. Above the second measure, there are three asterisks in brackets: [*] [*] [*]. Above the third measure, there is one asterisk in brackets: [*]. The harmony part (H) shows the following chords: Fm7, Bb7, Gm7, C7, and Fm7.

Figure 4.4: Sectional harmony in five parts, alternating voicing.

4.2 Sectional harmony in fourths

Another technique for writing five-part sectional harmony uses *harmonic structures in fourths*. It is most frequently used when writing for a five member saxophone section in big band music or for the *woodwind section* in a studio orchestra or symphonic orchestra.

Two types of harmonic structures can be voiced as a chord in perfect fourths: ←

1. **Major chords with additions.** The *major chord with added 6th and 9th*: the S_9^6 chord.²
2. **Extended minor chords.** The *minor ninth chord with added 11th* (or, equivalently, *added 4th*): the $S_{m7}^{9/11}$.

These chord structures, based on the interval of the perfect 4th, can be found on the 3rd and 6th step of the diatonic major scale; the chord structure on the 3rd step corresponds to the S_9^6 (major chord with added 6th and 9th), the chord structure on the 6th step corresponds to the $S_{m7}^{9/11}$ (minor 9th chord with added 11th). The four consecutive perfect 4ths are the maximum number in the diatonic major scale (check this by trying to add another perfect 4th to either side of the two structures).

The voicing for both chord structures for all inversions is shown in Figure 4.5. The C_9^6 chord with the root in the lead (leftmost structure: numbers indicate the various members in the structure) yields four intervals of the perfect 4th. The other inversions will contain one

²See the symbol notation for chords in Section 1.1.3.

(a)

(b)

Figure 4.5: Sectional harmony in five parts, chords in 4ths. (a): left: the major chord with added 6th and 9th, top right: the alternative voicing with $\Delta 7$ replacing the root. (b): the minor 7th and 9th chord with added 11th.

interval of the major 3rd. The minor 9th chords yields a perfect chord in 4ths when the 3rd is in the lead (see the fifth voicing on the bottom system in the figure).

⇒ This basic voicing in 4ths can be slightly modified, yielding an *alternative voicing*, as is indicated by the [*] in the figure:

- In the *major chord with added 6th and 9th*, the S_9^6 , the root may be replaced by the major 7th, the $\Delta 7$. This yields another perfect chord in 4ths (see the fourth voicing in the top right system) and is particularly useful for when the root is in the higher register (the $\Delta 7$ in the lower voice may lead to a too low acoustic root of the chord). In short, for the major chord we have the replacement rule: $\Delta 7 = 1$;
- In the *minor ninth chord with added 11th*, $S_{m_7}^{9/11}$, the 9 may replace the root of the structure, as demonstrated in the fourth voicing in the bottom system. In short, for the minor chord we have the replacement rule: $9 = 1$;

Let us now turn to Examples 4.5 to 4.7, that demonstrate five-part sectional harmony in fourths.

Example 4.5

Sectional harmony in five parts, chords in 4ths.

Write five-part sectional harmony using chords in 4ths for a given diatonic the lead voice P1 (see Figure 4.6).

- The lead voice contains a number of stepwise $9 \searrow 1$ motions, see the multiple occurrences at [*1] in Fig. 4.6.a. The basic harmony is Gm_7 : this implies

Figure 4.6(a) shows a musical score for five parts (P1-P5) and a horn part (H). The key signature is one flat (Bb) and the time signature is common time (C). The lead part (P1) features a 9 \searrow 1 stepwise motion with chords [*1], [*1], [*3], [*2], and [*1] indicated above it. The bass line (P5) is marked Gm7. The horn part (H) has a rhythmic pattern of eighth notes.

(a)

Figure 4.6(b) shows a musical score for five parts (P1-P5) and a horn part (H). The key signature is one flat (Bb) and the time signature is common time (C). The lead part (P1) features a 9 \searrow 1 stepwise motion with chords [*2] and [*1] indicated above it. The bass line (P5) is marked Gm7. The horn part (H) has a rhythmic pattern of eighth notes.

(b)

Figure 4.6: Sectional harmony in five parts, chords in 4ths. (a): harmonization of the $9 \searrow 1$ stepwise motion in the lead using the diatonic parallel Am_7 chord. (b): More closed voicing is used to prevent too low lower parts, leading to repeated notes in middle voices.

Figure 4.7: Sectional harmony in five parts, chords in 4ths, close (cluster) voicing.

the replacement rule $9 = 1$ and therefore will yield repeated notes in the lower parts if both lead pitches are harmonized using the same chord. In order to prevent these, the diatonic parallel minor chord Am_7 (on the 3rd step of the F major scale) is used at these instances, yielding also a modal flavour to the phrase.

- At [*2] the lead voice has the 6 or 13 of the basic harmony (a non-chordal tone in the voicing in 4ths): in that case also the diatonic parallel Am_7 chord is used to harmonize the lead. The following lead pitch can be harmonized with either Gm_7 or Am_7 .
- At [*3] the wide voicing using structures in 4ths may get into a too low register for the lower parts. In that case a narrower voicing may be used, as shown in Fig. 4.6.b. This however leads to repeated notes in part P3, see the [*] in m. 1-2. Note that the g in the lead in m. 2 now is harmonized with the basic chord Gm_7 .
- The repeated notes can be prevented by choosing the appropriate point for switching from open to more closed voicing. In this example the entire phrase will have to be rewritten in closed voicing, as shown in Fig. 4.7, leading to a dense *cluster voicing* in the three inner voices.

Example 4.6

Sectional harmony in five parts, chords in 4ths, leading tone in lead voice.

This example is included in the full version of the book.

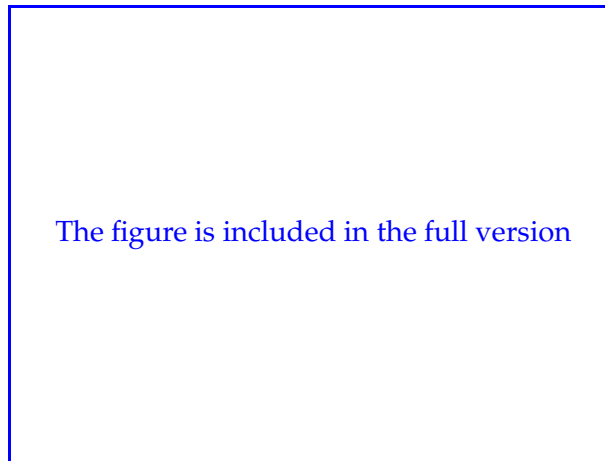


Figure 4.8: Sectional harmony in five parts, chords in 4ths, leading tone in lead voice.

Example 4.7

Sectional harmony in five parts, basic harmony contains mixed chord structures.

This example is included in the full version of the book.

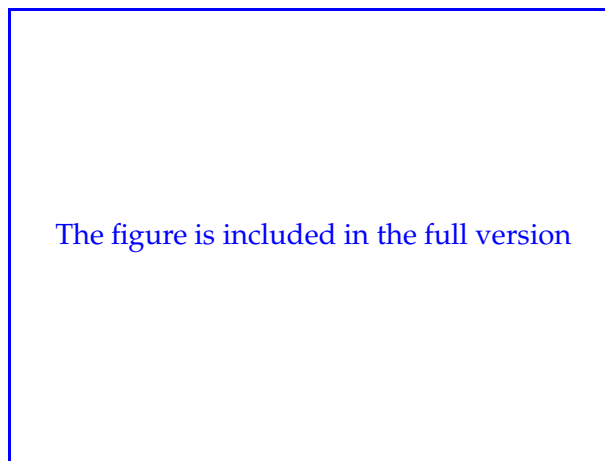


Figure 4.9: Sectional harmony in five parts, mixed chord structures.



The figure is included in the full version

Figure 4.10: Sectional harmony in five parts, maximizing the harmonization in 4ths.

This section is included in the full version of the book.

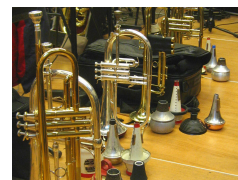
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Chapter 5

Ensemble techniques



In this chapter we will discuss several techniques of *ensemble writing*, i.e., for a group consisting of mixed instrumentation and of variable size. Obviously we will work with the standard big band instrumentation of five saxophones, four trumpets, four trombones plus rhythm section, but we will also have a look at smaller ensembles. We will assume here that the lead voice is the highest part in the ensemble.

There is considerable treatment of these techniques in the textbooks (see [9], Part 5; [30], p. 131 ff.; [42], Ch. 14-16). First the main aspects of ensemble writing will be discussed. Then the various techniques will be illustrated using examples.

This chapter focuses on ensemble techniques and voicings for the jazz big band. However, occasionally there will be a reference to examples with concert band or studio orchestra instrumentation and voicing.

5.1 Fundamental aspects

This section will discuss a number of fundamental aspects of ensemble writing. These have to be considered irrespective of the specific technique we will apply to the ensemble.

As we did before, our examples will start from a given basic harmony and, sometimes, a given lead voice. When writing for the ensemble take into account the following aspects:

- **Determine the range of the ensemble phrase.** Before writing any actual parts generate a clear idea of the range of the lead voice in your phrase. The phrase may have a length of between, say, 2 and 32 measures (a 'tutti special chorus', see Section 11.3 for a list of special chorus types). This range is affected by the instrumentation, in particular the compass of your lead voice. But it also affects the voicing in the upper range section. This will be the trumpets in case of a big band, but it might also involve a string or woodwind section.

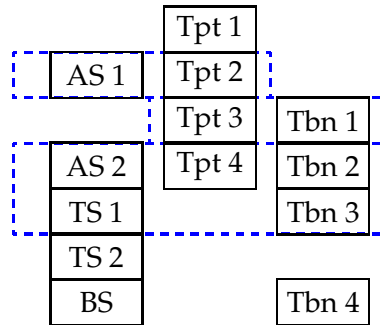


Figure 5.1: Example of ensemble voicing diagram for the jazz big band. The vertical assignment of voices is shown for saxophones (left), trumpets (centre) and trombones (right). Doubling of parts is indicated by blue dashed rectangles.

- **Determine the voicing of the leading section.** This will usually follow from the range of the lead voice. In general, this is the moment to decide on using cluster, close or open voicing. You might consider applying the strata technique approach, such as demonstrated for strings in Section 8.3, Example 8.5 for the leading section and for three parallel strata in Example 8.7.
- **Determine the relative range of the lower sections.** The next step is to decide about the range and the voicing of the other sections in the ensemble. We will indicate these ranges by the *voicing diagram* as illustrated in Figure 5.1. In this example we see the three sections of the big band; each column represents the voicing of a section from low to high. The trombones (abbreviated as Tbn) use a wider voicing than the trumpets (abbreviated as Tpt) that are in close voicing. We see an overlap between the three sections, indicated by the blue dashed rectangles.
- **Write the voices for the most dominant section first.** In the big band the brass will usually dominate over the saxophones. Therefore we start with the brass voicing and then continue with the saxophone voicing.
- **Check the outer voices.** Finally, we have to inspect the intervallic relations of the outer voices of each section. Table 5.1 contains a checklist for the big band. Obviously, this depends on the actual instrumentation. You will never find Tbn 1 above Tpt 1 (unisono is possible though) and usually the top saxophone voice AS 1 is one or more voices below Tpt 1.

Now, we will discuss the various techniques and show the examples.

5.2 Ensemble technique derived from four-part sectional harmony

This technique of ensemble writing is derived from the four-part sectional harmony approaches that we have studied extensively in Chapter 3. The problem we now have to solve is the proper distribution of the four basic voices over a larger ensemble with multiple instrument groups. You will have to decide on the correct doublings, create a clear lead voice and choose the type of voicing for each section.

Table 5.1: Checklist of outer voices between the sections in a jazz big band. For these pairs of voices check the intervals (consonance vs. dissonance).

Combinations of outer voices in full big band

Tpt 1 vs. Tbn 1	lead voices in high and low brass sections
Tpt 1 vs. AS 1	lead voices in high brass and saxophone section
Tpt 1 vs. Tbn 4	top and lowest voice in brass section
Tpt 1 vs. BS	top voice in brass section vs. lowest voice in saxophone section

Figure 5.2: Starting the ensemble voicing: sectional harmony in four parts.

In situations where a section consists of less than four voices you will have to combine it with another section and make sure that the combination of both has the full four part chords at all times. The first step in the procedure, however, is to compose the four-part sectional harmony for a given lead voice. Figure 5.2 is discussed in Example 5.1.

Example 5.1

Sectional harmony in four parts.

The lead voice P1 contains non-chordal and non-diatonic tones, the basic key is *G* minor.

- The non-chordal tones in the lead voice in m. 1 and m. 2 [*1] have been harmonized using two secondary dominant chords, $F\sharp_{o7}$ and B_{o7} , respectively.
- The non-chordal tone *f* in m. 2 [*2] has been harmonized with an extended secondary dominant chord Eb_7^9 .
- In m. 3 [*3] there is 6 – 7 stepwise motion on the 2nd degree of the scale (the key is *D* \flat major). The *c* in the lead therefore is harmonized with the 3rd degree Fm_7 chord.
- The *bb* in m. 3 [*4] is harmonized with the secondary dominant G_{o7} to prevent repeated notes towards the aiming chord Ab_7 .
- Beat 4 of m. 3 [*5] shows a chain of secondary dominants towards the aiming chord, here $Ab_{o7} - Eb_7 - Dm_7$.
- In m. 4 [*6] the *c* is harmonized with a secondary dominant $F\sharp_{o7}$. The aiming chord is G_7 .
- The rest of that measure plus the following uses secondary dominants to harmonize the non-chordal tones *a*, *d*, *f* and *d* [*7].
- In the final measure the chordal tone *c* [*8] is harmonized with the subdominant structure $A_{o7} = Eb_{o7}$. This is equivalent to a forward extension of the D_7 , a technique that we have seen before.
- The non-chordal tone *bb* in m. 6 [*9] is harmonized with the secondary dominant $C\sharp_{o7}$.
- The last three notes use a sequence of two dominant chords towards the aiming chord, i.e., $Eb_7 - D_7 - Gm_7$.

After completing the four-part sectional setting in the first step of the process, we will continue with the assignment of voices to the instrumental parts. In the following subsections we will demonstrate the assignment process for three instrument groups, from a full big band to an intermediate size and small jazz ensemble.

5.2.1 Instrumentation for full big band

Figure 5.3 shows the instrumentation of the fragment from the previous example for the full thirteen member big band (five saxophones, four trumpets and four trombones). We discuss the details of the voice assignment for that instrumentation in Example 5.2.

5.2. FOUR-PART ENSEMBLE TECHNIQUE

The image displays a musical score for a full big band, illustrating sectional harmony. The score is organized into systems for different instrument groups: AS1 and AS2 (Alto Saxophones), TS1 and TS2 (Tenor Saxophones), BS (Baritone Saxophone), TPT1 through TPT4 (Trumpets), TBN1 through TBN4 (Tenors), and RH (Rhythm). Each instrument part is written in a staff with a treble or bass clef, and the key signature is one flat (B-flat major or D minor). The score consists of 8 measures. The RH part includes a bass line with chord symbols: Gm7, Cm7, D7, Ebm7, Ab7, Dm7, G7, Cm7, Cm7/Eb, A#7, D7#9, Gm7, A#7, and D7. The other instrument parts feature melodic lines with various rhythmic patterns and articulations, including slurs and accents. The overall structure shows how a single harmonic concept is applied across all sections of the band.

Figure 5.3: Sectional harmony applied to full big band.

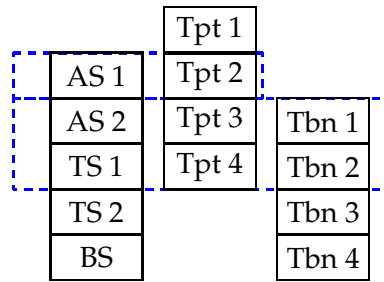


Figure 5.4: Voicing diagram full big band.

Example 5.2

Sectional harmony in four parts; full big band.

Assign the parts to the eight brass and five saxophones for a given four-part sectional harmony.

- The trumpets play full chords in close voicing. Tpt 1 is in its middle register. This example is a good range for this sectional technique.
- There is an overlap between the trumpet and the trombone section; we have Tbn 1=Tpt 3, Tbn 2=Tpt 4. They will support the lower trumpet voices, especially when these are in the lower register. The intervallic relationship between the brass outer voices is good (mainly consonant 3rds, interchanged with mild dissonant 2nds). Copying the trombones one octave below the trumpets would have led to a too low register for Tbn 4 and would have led to performance problems.
- The trombones also are in close voicing. Full brass are kept within not too wide a range for maximum fluency. Tbn 1 is in the high register in m. 2 and m. 3; this will require professional playing skills.
- Saxophones play in close voicing. There is overlap with the brass: we have AS 1=Tpt 2 and BS=Tbn 4. Again we see good intervallic relationships between Tpt 1 and the outer saxophone voices; there are occasional 2nds between Tpt 1 and AS 1. These are no problem, especially not in medium to up tempos.
- Figure 5.4 shows the voicing diagram. The overlap is clear; part doubling is indicated by blue dashed rectangles.

5.2.2 Instrumentation for reduced big band

Example 5.3

Sectional harmony in four parts; reduced big band.

This example is included in the full version of the book.

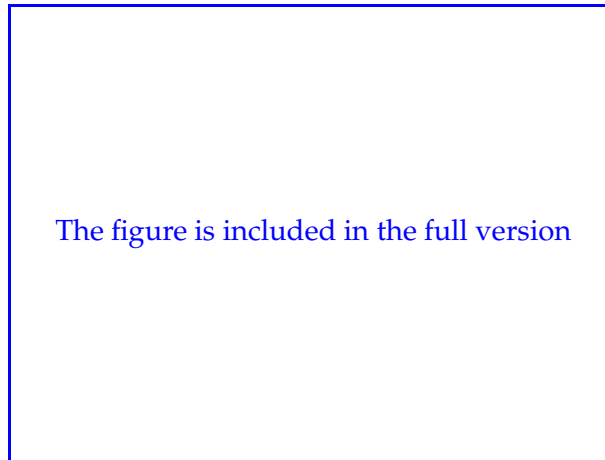


Figure 5.5: Sectional harmony applied to reduced big band.

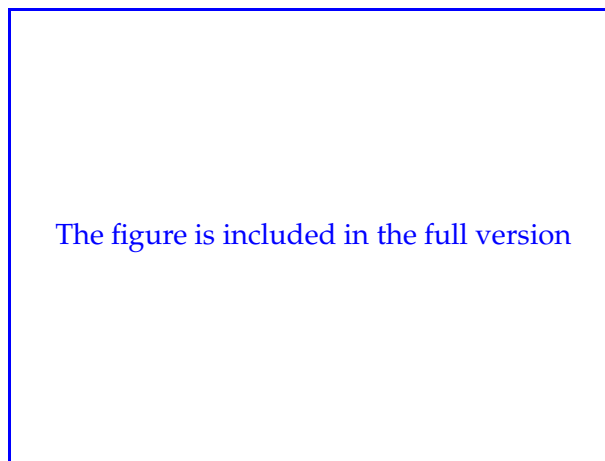


Figure 5.6: Voicing diagram reduced big band.

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The figure displays a musical score for an intermediate size band. It consists of eight staves. The top four staves are for saxophones: AS1 and AS2 (Alto Saxophones) in the treble clef, and TS1 and BS (Tenor and Bass Saxophones) in the bass clef. The next four staves are for brass: TPT1 and TPT2 (Trumpets) in the treble clef, and IBN1 and IBN2 (Baritone and Bass Trombones) in the bass clef. The bottom staff is the Right Hand (RH) piano accompaniment, which includes a series of chord symbols: Gm7, Cm7, D7, Ebm7, A7, Dm7, G7, Cm7, Cm7/Eb, A7, D7b9, Gm7, A7, D7. The score is in 4/4 time and features various musical notations such as eighth notes, quarter notes, and rests, with some parts including triplets and slurs.

Figure 5.7: Sectional harmony applied to an intermediate size band.

5.2.3 Instrumentation for intermediate size band

Figure 5.7 shows the instrumentation of the sectional harmony fragment for an intermediate size band (4 Sax + 2 Tpt + 2 Tbn), discussed in Example 5.4.

Example 5.4

Sectional harmony in four parts; intermediate size big band.

Assign the parts to the 4 brass and 4 saxophones for given four-part sectional harmony.

- The brass play 'drop 2' voicing. Both sections together have the full four-part sectional harmony. Within the sections there are many 4ths and 5ths between parts; this carries the risk of sounding harsh if the tone colour for both sections differs greatly. The risk would have been reduced and the fluency increased by simply playing in close voicing.
- The saxophone section plays a mixed voicing, open at the top and close for the lower voices. It was designed to fill the gaps that were left by the brass section (see the voicing diagram in Figure 5.8) with TS 2 and BS below the trombones. This leads to an internally unbalanced voicing and gets the TS into a pretty low region. Applying 'drop 2' voicing here while keeping the AS at its current position would still cover the gaps in the brass voicing and improve the voicing within the section.
- As the voicing diagram shows, there is no doubling of any part.

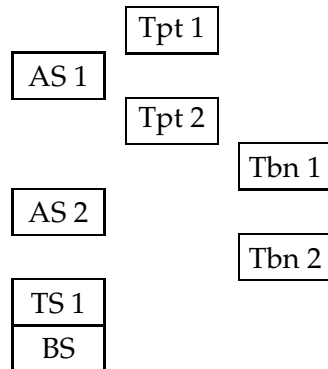


Figure 5.8: Voicing diagram reduced big band.

5.2.4 Combining trombones and saxophones

Example 5.5

Sectional harmony in four parts; trombones and saxophones.

This example is included in the full version of the book.

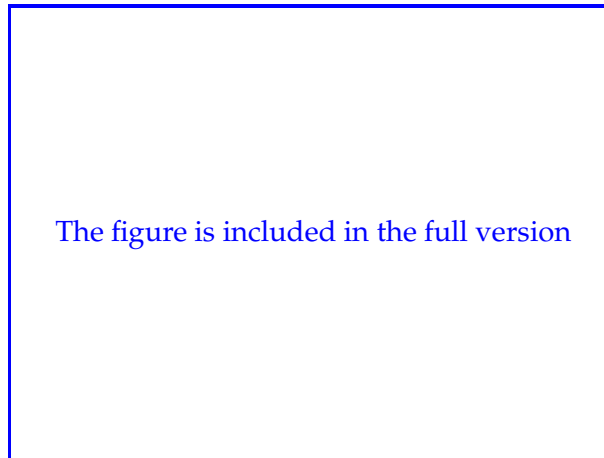


Figure 5.9: Sectional harmony applied to trombones and saxophones.

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The figure is included in the full version

Figure 5.10: Voicing diagram trombones and saxophones.

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Figure 5.11 consists of two musical examples, (a) and (b), illustrating brass section voicings. Example (a) shows four measures of music. The first measure is labeled 'Unbalanced' and shows a voicing for F7 with TPTS (Trumpets 1-4) and TBNS (Trombones 1-4) parts. The second measure is labeled 'Better' and shows a more balanced voicing for F7. The third and fourth measures show voicings for D7^{b9} with TPTS and TBNS parts. Example (b) shows ten measures of music. The first measure is labeled '[*1] [*3]' and shows a voicing for C Δ ⁹. The second measure is labeled '[*1] [*3]' and shows a voicing for C Δ ^{6/9}. The third measure is labeled '[*2]' and shows a voicing for C Δ ^{6/9}. The fourth measure is labeled '[*1] [*3]' and shows a voicing for Em11. The fifth measure is labeled '[*4]' and shows a voicing for Cm11. The sixth measure is labeled '[*5]' and shows a voicing for Dm9. The seventh measure is labeled '[*1]' and shows a voicing for D \emptyset 7. The eighth measure is labeled '[*6]' and shows a voicing for G7^{b9}. The ninth measure is labeled '[*6]' and shows a voicing for G7^{b9}. The tenth measure is labeled '[*1] [*3]' and shows a voicing for G7^{alt}.

Figure 5.11: Brass section voicings. (a): internal balance, (b): various chord types

5.3 Brass voicing for extended chords

The previous section discussed a number of examples, that were based on a given four-part sectional harmony voicing. From here on we will extend the number of parts, but before doing so, we will briefly touch on the aspects of *brass voicing*, i.e., the vertical distribution of chordal functions over the trumpet and trombone section in a big band, using extended chords (i.e., with higher chordal functions such as $b9$, $\sharp 11$, 13, etc.).¹ Example 5.6 elaborates on this subject.

Example 5.6

Voicings for brass section.

Assign parts to four trumpets and four trombones using extended chords. Figure 5.11 shows a number of voicing examples that we will now discuss.

- Figure 5.11.a demonstrates the voicing of the dominant 7th chord structures, S_7 , here F_7 and D_7^{b9} . Although the voicing in the first measures has an octave doubling between Tpt 1 and Tbn 1 (good), the balance within each section is poor: the trumpets are widely spread and (most important) the trombone

¹This aspect returns in Chapter 8, Section 8.3 where string voicings for extended chords are illustrated in Example 8.5.

section does not provide a good harmonic basis, since the essential 7th function and root are missing. The voicing in measure 2 is a clear improvement. The trombones now play the following chordal functions: 1, 3, 7 and 9, the trumpets play a Dm chord, adding the 13 to the F_7 chord. Also note the doubling of the Tpt 1 part in the lower octave: from concert F_5 upward this is an essential support for the lead trumpet voice.

- Measures 3 and 4 from the same example demonstrate another aspect. The overall orchestral balance benefits from an internal balance in each section. In this example that is demonstrated by assigning a full diminished seventh chord (3rd measure, S_{o7} to both Tpts and Tbns; the combined effect is an *octatonic scale*) or full triad (4th measure, D in trumpets and A_o to trombones) to each individual section.
- Figure 5.11.b shows various extended chord structures (i.e., with more upper chordal functions). A common element of all these voicings is that the trombones provide the essential chordal functions, i.e., the 3 for the major/minor chords and 3 plus 7 for all other chord types. At [*1] we notice the lower octave doubling of the high lead trumpet. At [*2] the voicing of Tbn 3 and Tbn 4 will yield a significantly lower acoustic root: they are playing the 3rd and 4th harmonic of the root C_1 . At [*3] we find full triads in the trumpets. The trombones may play an inverted chord, as is shown at [*4]. A *cluster voicing* is demonstrated at [*5].
- When voicing a dominant chord structure S_7 , try to prevent assigning the perfect chordal function 5 to the trombones. Instead, use a lowered ($\sharp 11 = \flat 5$) or raised 5th ($\sharp 5 = \flat 13$) in the upper voices, as is demonstrated at [*6].

5.3.1 Dominant seventh bitonal voicings

When voicing an *extended dominant 7th chord* the balance of the voicing is increased by assigning a full major or minor triad to the trumpets.

In total there are 12 possibilities, of which eight are based on the *octatonic scale* and four are derived from an extended series of 3rds: these are shown in Figure 5.12. The basic chord is C_7 and the characteristic, essential chordal functions 1, 3 and $\flat 7$ are assigned to three trombones. The trumpet section creates a *bitonal voicing* by using: ←

- either the *octatonic scale*, leading to major or minor triads on the roots $C - E\flat - F\sharp - A$ (the symmetric C_{o7} -chord);
- or *extended chords* in 3rds, leading to the major triad D (or its equivalent $A\flat$) or the minor triad Gm (and its equivalent $D\flat m$).

Use the transposed versions of this diagram to find bitonal brass voicing possibilities for given lead; see the examples in Section 5.4.

Figure 5.12(a) shows a musical score for Brass and Rhythm. The Brass part consists of two staves: TPTS (Trumpets and Trombones) and TBNS (Tenors and Baritone Saxophones). The Rhythm part is a single bass staff. The score is divided into eight measures, each with a chord symbol above it: C, Cm, E^b, E^bm, F[#], F[#]m, A, and Am. The TPTS staff contains chord voicings for each measure, while the TBNS and Rhythm staves contain simpler voicings and a consistent C7 rhythm pattern.

(a)

Figure 5.12(b) shows a musical score for Brass and Rhythm. The Brass part consists of two staves: TPTS and TBNS. The Rhythm part is a single bass staff. The score is divided into four measures, each with a chord symbol above it: D, A^b, Gm, and D^bm. The TPTS staff contains chord voicings for each measure, while the TBNS and Rhythm staves contain simpler voicings and a consistent C7 rhythm pattern.

(b)

Figure 5.12: Dominant 7th chord S_7 bitonal voicings. (a): structures based on the octatonic scale, (b): structures based on extended chords in 3rds.

5.4 Percussive voicing

The *percussive voicing* is frequently used to create a massive tutti big band sound at louder dynamics (fortissimo). Its characteristics are:

- Extended voicings (5- and 6-part chord structures are frequent), assigned to brass (trumpets and trombones) or the full ensemble (brass plus saxophones).
- Short phrases with irregular rhythms, many syncopations and interspersed with rests. Perfectly synchronized playing of articulations (such as $>$ or \wedge) and respecting the dynamics (e.g., a sudden juxtaposition of *mp* and *fff*) is essential and yields an impressive effect.²
- Functional support by the rhythm section: the *guitar* and *bass player* will frequently follow the rhythmic patterns in the horns (giving up the strumming guitar and *walking bass* patterns almost completely), the *drummer* will prepare and support the articulations (loud cymbal crashes and toms), while the *piano* player will either support the horns (copying the voicings in both hands) or plug in a few high notes during the rests in the horns.
- Careful voice leading in the horns is now released: repeated notes are now permissible. Augmented and diminished steps or leaps may occur in the middle voices.

5.4.1 Examples of percussive brass voicings

Now we will present a number of examples of percussive voicings for brass section, i.e., four trumpets and four trombones. In Examples 5.7 to 5.9 the lead voice is given, the basic harmony is indicated in the rhythm part.

Example 5.7

Percussive voicing for brass: blues chorus scheme.

Determine the eight-part brass voicing for given lead voice and basic harmony.

- The chord progression is based on an extended blues scheme, such as used in the jazz standard ‘*Blues for Alice*’, see Figure 5.13. The overall dynamics are *mf*.
- At [*1] the opening chord F (tonic chord) is voiced using the various extended chordal functions $6 = 13$, $\Delta 7$ and 9 .
- At [*2] there is an extended $Sm_7^{9/11}$ chord with the chordal function 11 in the lead. This chord type is used three times in the example.
- The lead at [*3] is in a fairly low playing register, leading to an impractical concert $b\flat_4 = B_3$, which requires careful intonation (all three valves pressed). Therefore it is better to leave out the 4th part in the trumpets and double the lead trumpet.

²For a masterclass demonstration of percussive voicing, listen to the Count Basie, Sammy Nestico and Thad Jones tutti choruses, and study the score.

Figure 5.13: Percussive voicing for brass.

- At [*4] we see an illustration of the avoidance of the perfect 5th chordal function 5 in the trombone section, and replacing it with the $d = 6 = 13$.
- At [*5] there is a leading tone exact parallel chord, as is obvious from the descending stepwise voice leading \searrow in all but the lead voice.

Example 5.8

Percussive voicing for brass: bitonal triads in the trumpets.

Determine the eight-part brass voicing for given lead voice and basic harmony.

- At [*1] in Figure 5.14 the voicing of the S_7 structure yields a minor second between Tbn 1, playing the major 3, and Tbn 2, playing the altered $\#9 = b10$. This voicing is frequently used by the legendary Thad Jones.
- The D^b7 chord at [*2] is an intermediary, alternating step chord. The trombone voicing stresses the exact parallel movement.
- The trumpet section voicing uses full triads only, and uses chords in the key of E^b only (one exception).
- The example is one realization from a set of possibilities. The full set of solutions to this voicing problem for brass is given in Table 5.2.

Example 5.9

Percussive voicing for brass: use extended chords only.

Determine the eight-part brass voicing for given lead voice and basic harmony.

- Figure 5.15 demonstrates a consistent block chord harmonization of the S_7 structure: the triads in the trumpets are based on extended chords. At [*1] we recognize the bitonal voicing demonstrated in m. 1 from Fig. 5.12.b, here as $\langle C|B^b7 \rangle$. At [*2] we use the voicing $\langle F|A7 \rangle$, equivalent to the voicing shown in m. 2 from the same figure.

Figure 5.14: Percussive voicing for brass using bitonal triads in the trumpets.

Table 5.2: Alternatives for bitonal voicing. The lead tone and basic dominant harmony are given. Possible triad voicings for trumpets are shown, that yield a bitonal voicing. E.g., the first combination has three options $\langle C(m)|C_7 \rangle$, $\langle Eb|C_7 \rangle$ or $\langle Gm|C_7 \rangle$ for the lead tone g .

Lead tone:	g	bb	bb	c	bb	g
Harmony:	C_7	$D\flat_7$	A_7	D_7	G_7	C_7
Triad in trumpets:	$C(m)$	Gm	$E\flat(m)$	$F(m)$	$B\flat(m)$	$E\flat$
(three alternative solutions)	$E\flat$	$B\flat(m)$	$F\sharp$	$A\flat$	$E\flat$	Gm
	Gm	$E\flat$	$B\flat m$	Am	Gm	$C(m)$

Figure 5.15: Percussive voicing for brass using bitonal triads in the trumpets.

- Like in the previous example the bass trombone Tbn 4 plays chord roots throughout. This gives a solid base to the percussive voicing and is frequently used.
- Although voice leading aspects can be somewhat relaxed in this technique, a detail should be mentioned regarding the lead voice. At [*3] we could have used the following chord sequence for the harmonization: $A\flat_7 - D_7 - G_7 - C$, i.e., a series of positive root cycles $3R_5$. However, the tone a in the lead over the $A\flat_7$ chord has the function b_9 , whose normal resolution would have been a stepwise downward motion. In this example the lead instead has an upward stepwise motion $a \nearrow b\flat$ and forces us to look for a more appropriate harmonization.

The previous example can be used to illustrate a procedure for the technique of percussive voicing, consisting of the following steps:

1. Start with the trombones. Assign the chord root tones to Tbn 4 (i.e., the bass trombone).
2. For dominant S_7 chord structures assign the essential chordal functions 3 and b_7 to two other trombones. For other chord types assign the chordal function 3 (the minor or major third) to one of the trombones.
3. Assign the trumpet parts for all chord types. You may use triads throughout for the dominant S_7 structures.
4. Return to the trombones and complete percussive voicing for the remaining parts, i.e., one trombone part for dominant S_7 chords, two trombones for other chord types. Carefully choose doubling pitches.

Example 5.10 deals with a *rhythmic background*: the rhythmic accents and the basic harmony are pre-defined and a voicing for a six-part brass section is to be determined. We will discuss four alternatives, using different approaches.

Example 5.10

Rhythmic background for brass.

Determine the 6 part brass voicing for given rhythmic accents and basic harmony.

- **Solution 1** in Figure 5.16.a demonstrates a voicing in the mid-low register using the following approach:
 1. strive towards a diatonic voicing in the key of C major; this will determine the selection of the chord extensions;
 2. if this fails for the dominant S_7 , then use the $S_7^{b_9}$ structure.
- Note in the example that the voicing in the trumpet section stays within the interval of a 6th (a 5th is typical), yielding a cluster or triad voicing.
- The interval between Tpt 1 and Tpt 2 is a 3rd or 4th, the dissonant interval of a 2nd is avoided. This interval does occur between Tpt 2 and Tpt 3.

Mid-low:

(a)

Mid-low:

(b)

Mid-high:

(c)

High:

(d)

Figure 5.16: Rhythmic background for brass. (a): mid-low register, diatonic extensions, (b): mid-low register, all extensions, (c): mid-high register, triads in the trumpets, (d): low register, basic S_7 chords only.

- As usual, the trombones carry the essential functions (3 and 7) of the chord structure. Dissonant intervals of the 2nd are avoided between either pair of trombones.
- Two secondary dominant chords have been used, i.e., $B\flat_7$ in m. 4 and D_7 in m. 8.
- **Solution 2** in Figure 5.16.b demonstrates a voicing in the mid-low register using the following approach:
 1. all chord extensions are allowed (release diatonic flavour requirement);
 2. trumpets use cluster type voicing.
- We have again respected the interval rules for the trumpets and assigned essential chordal functions to the trombones.
- Now at [*1] there is the interval of the 2nd between two trombones, at [*2] there is a sequence of two consecutive 2nds.
- Check the interval relation between Tpt 1 and Tbn 1.
- In m. 3 and m. 4, starting at [*3], there is opening contrary motion between (ascending) trumpets and (descending) trombones. This calls for a crescendo and has the effect of leading up to climax.
- **Solution 3** in Figure 5.16.c demonstrates a voicing in the mid-high register using the following approach:
 1. all chord extensions are allowed;
 2. the trumpets are voiced in triads;
 3. Tbn 1 supports Tpt 1 in the high register by doubling the lead at the lower octave.
- Note that again we find the interval of the 2nd between pairs of trombones (see m. 2, 3, 6 and 8);
- Solutions 2 and 3 sound more contemporary than solution 1; this is the effect of the non-diatonic and more dissonant chord extensions.
- **Solution 4** in Figure 5.16.d demonstrates a voicing in the low register using the following approach:
 - Use the basic seventh chord S_7 only.
- This example will sound most conventional and traditional. It is in deliberate contrast with the previous solutions.

5.4.2 Examples of ensemble voicings

Example 5.11

Percussive voicing for full big band (case 1).

This example is included in the full version of the book.

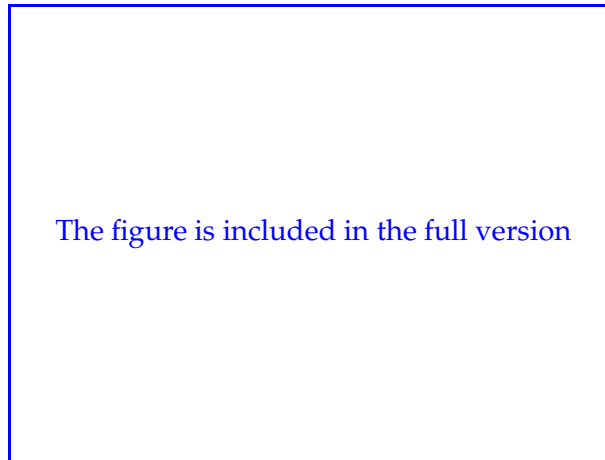


Figure 5.17: Percussive voicing for big band tutti (case 1).

Example 5.12

Percussive voicing for full big band (case 2).

This example is included in the full version of the book.

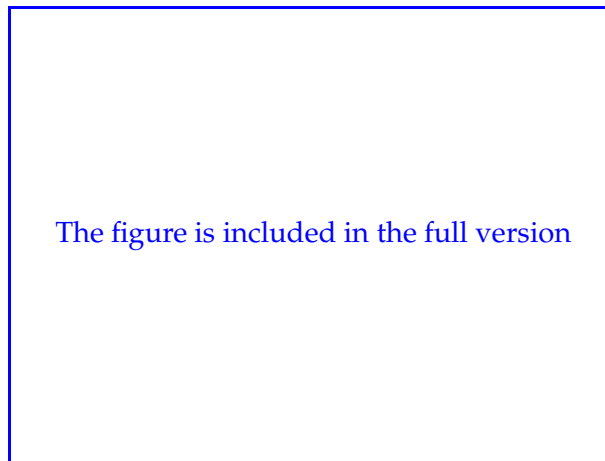


Figure 5.18: Percussive voicing for big band tutti (case 2).

Example 5.13

Saxophone voicing in big band tutti.

This example is included in the full version of the book.

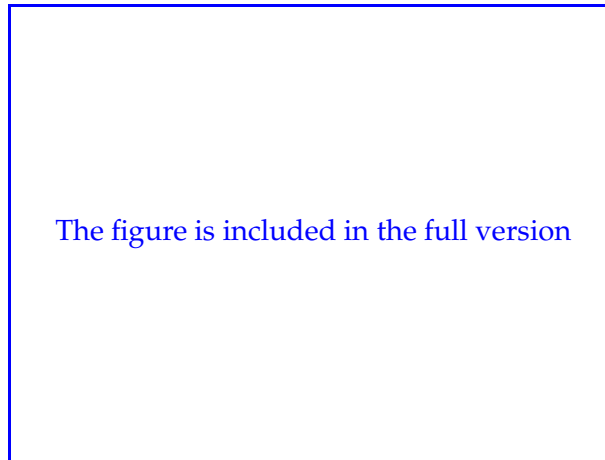


Figure 5.19: Saxophone voicing in big band tutti.

Example 5.14

Percussive voicing for full big band (case 3).

This example is included in the full version of the book.

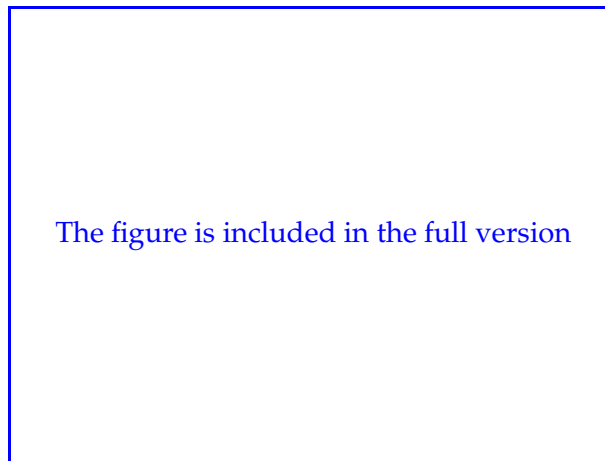


Figure 5.20: Percussive voicing for big band tutti (case 3).

Example 5.15

Percussive voicing for full big band (case 4).

This example is included in the full version of the book.

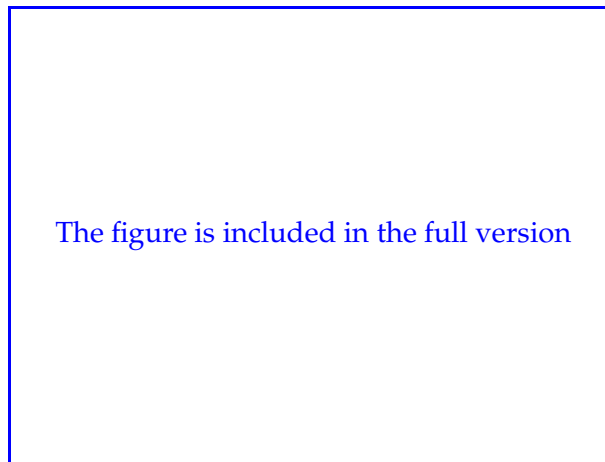


Figure 5.21: Percussive voicing for big band tutti (case 4).

Example 5.16

Ensemble voicing for intermediate size big band.

This example is included in the full version of the book.

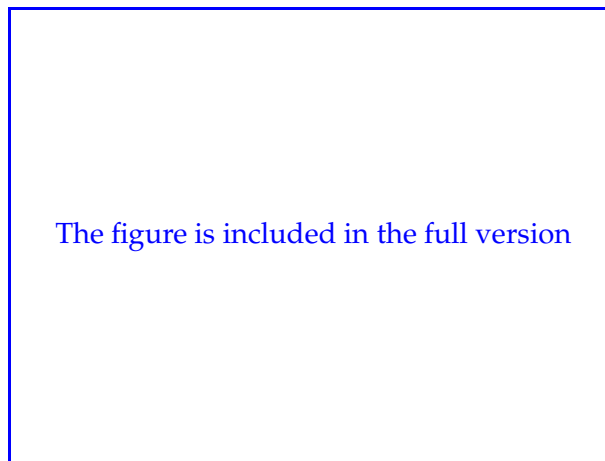


Figure 5.22: Bitonal ensemble voicing for intermediate size big band.

This section is included in the full version of the book.

Order the E-book from the webstore at:

<https://www.fransabsil.nl/htm/arrbook.htm>

[This page is intentionally left blank in the demo version of this book.]

5.5 Tutti voicings for concert band and studio orchestra

While this chapter concentrates on writing for jazz big band, the book contains a number of examples with tutti voicings for either concert band or studio orchestra. The detailed discussion of the section voicings can be found in the relevant chapters.

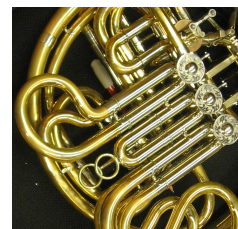
For completeness, here is a list of those examples:

Concert band tutti voicings: see Example 2.3 and Fig. 2.7 from *'Let it Snow'*, Example 7.2 and Fig. 6.5 from *'Bone in the Barrio'*, Example 6.9 and Fig. 6.7 from *'The Summer Knows'*, Example 11.4 and Fig. 11.8 from *'Autumn Leaves'*, and Example 11.10 and Fig. 11.14 from *'Roof Garden'*.

Studio orchestra tutti voicings: see Example 8.3 and Fig. 8.3 from *'I'll Remember April'*, Example 7.2 and Fig. 7.4 from *'Shotgun Soliloquy'*, and Example 8.4 and Fig. 8.4 from *'Mediocrity Mambo'*.

Chapter 6

Special techniques



This chapter presents a number of special arranging techniques. These will put the sectional and ensemble writing techniques from the previous chapters into perspective, and at the same time demonstrate various interesting alternatives to the former techniques. In a sense this chapter is a catalogue of alternative arranging techniques, that can be applied in order to deviate occasionally from the fairly standard big band jazz music idiom.

The examples in this chapter are taken from actual compositions and arrangements for symphonic wind band (concert band) with added rhythm section.¹ The main difference with the jazz big band ensemble is the separate woodwind section and the addition of soft brass instruments (horns and tubas) to the brass section.

The techniques will be presented in random order. Their application does follow a strictly structured approach, as was the case in most of the exercises in the previous chapters. Since multiple techniques are used in the examples in this chapter, there will be much cross-referencing to the figures below.

6.1 Bell chords

In sectional harmony and in the ensemble techniques all note attacks occur simultaneously for all instruments. In a *bell chord* the notes from the chord structure are played one after the other. Usually this happens in one direction, either from the lowest to the highest pitch (ascending bell chord) or, less frequently, from the top to the lowest note (descending bell chord).² ←

¹Full score excerpts and audio demo tracks for the examples from this chapter are available on the Website with URL <http://www.fransabsil.nl>.

²A well-known example in jazz music is the ascending bell chord at the beginning of the track *The Meaning of the Blues*, arranged by Gil Evans for the Miles Davis album *Miles Ahead*. A descending bell chord is found on

Figure 6.1: Three-part bell chords on the Fm tonic minor chord. There is also chromatically descending motion in the bass. From: ‘*The Summer Knows*’ (M. Legrand, arr. F.G.J. Absil) for concert band.

The time interval between attacks usually is constant, but the attacks might as well sound at different time intervals. The application of his technique is fairly common; most frequently it is used in breaks at the end of a musical phrase, or in an introduction. Its application to a harmonic background is demonstrated in Example 6.1.

Example 6.1

Ascending three-part bell chord for a given tonic minor chord.

Figure 6.1 shows a phrase from ‘*The Summer Knows*’, in an arrangement for concert band.

- The fragment starts with three-part bell chords for trombones on the tonic minor Fm chord with chromatically descending bass (see below, Section 6.4).
- This is an upward (ascending) bell chord with note entries at a constant time interval; this attack pattern creates an 8th note rhythm groove.
- Note how the lead melody, trombone section and the bass part deliberately have juxtaposed attacks (minimum coincident attacks), in order to maintain the rhythmical pulse.

Another bell chord for muted brass and saxophones in a concert band ballad arrangement is shown in m. 5 from ‘*My One and Only Love*’. For the discussion see Example 11.16 and Fig. 11.20.

the same album, at the end of *I Don’t Wanna Be Kissed*. For the source of both these 12-tone bell chords, listen to the 2nd movement of the Alban Berg *Violin Concerto*.

6.2 Harmonization with symmetrically distributed roots

Root progressions in the chapters on sectional harmony and ensemble writing were based on functional harmony. This implies that the roots moved along the degrees of diatonic scales; The progressions most frequently contain leaps of a diatonic fifth or third downward.³ This yields familiar chord changes such as the $I - II m_7 - V_7 - I$ or $I m - IV m - V_7^{b9} - I m$ cadences in major and minor, respectively. This is also the basis for the root cycle labeling, introduced in Section 1.1.3 and used in previous chapters. The familiar cadences in major and minor correspond to the root cycle progressions $R_7 + 2R_5$ and $R_5 + R_7 + R_5$, respectively. Both contain positive cycles only; they are strong, primary chord progressions.

However, there is an alternative system for root progressions, based on *symmetrically distributed roots*. Integer division of the twelve chromatic steps in the octave yields possible symmetries at root movement R_{2i} (major second), R_{3i} (minor third), R_{4i} (major third), and R_{6i} (augmented fourth, diminished fifth).⁴ The direction of the root movement may be either downward or upward. In the *Schillinger System of Musical Composition* [44] the use of symmetrically distributed roots is presented as a separate technique for harmonic progression, as an alternative to diatonic progressions.

The chord structure may remain constant (e.g., series of parallel dominant seventh chords S_7) or may be change during the root movement. When using this type of root progression, smooth voice leading by the smallest possible steps or leaps is essential. The use of symmetrically distributed roots at various intervals is demonstrated in Examples 6.2 to 6.5.

Example 6.2

Symmetric roots at the interval of a minor third R_{3i} for a given melody.

Figure 6.2 shows how the original and the modified harmonization of the main theme from 'One Note Samba' in an arrangement for concert band.

- The condensed score in the top figure shows the original harmonization with chromatically descending 7th chords in m. 1–4. This chord progression is replaced with a sequence based on descending symmetric roots at the interval of R_{3i} , i.e., the minor third, as shown in the bottom figure. The result is the chord sequence $Em_7 - Db_7^9 - Bb_7^9 - G_7^{b13}$, with changing chord structure.
- The same technique is applied in m. 5–8, where the diatonic root movement sequence of descending 5ths, i.e., $3R_5: Gm_7 - C_7 - F - Bb_7$, is replaced with $3R_{3i}: Gm_7 - E_7^9 - Db_7^9 - Bb_7^{\sharp 11}$, again with changing chord structure.
- The simple 'one note' melody in this example enables the alternative harmonization with symmetrically distributed roots. In general, it will require a bit of trial-and-error in order to allow such an approach.

³Check the basic harmonic progressions in the examples from the previous chapters.

⁴We can still use the root cycle notation, but now we must replace diatonic cycles by root progressions with a certain number of semitones Ni , where i indicates the semitone interval. E.g., the minor third interval is three semitones, $N = 3$, and therefore the root progression R_{3i} refers to roots leaping a minor third downward. Equivalently, R_{-3i} implies a root moving a minor third upward.

CHAPTER 6. SPECIAL TECHNIQUES

Bossa Nova $\text{♩} = 160$

L. Flg *mf* 1 2 3 4 5

H. Sax *mf* *f* *mf*

Rh. *mf* *f* *mf*

Chords: Em7, Eb7, Dm7, Db7-5, Ab7-5, Gm7

L. 6 7 8 9 10 11 12

H. *f* *mf* *f*

Rh. *f* *mf* *f*

Chords: C7, F, Bb7⁹, Em7, Eb7, Dm7, Db7⁹, C₆⁹

(a)

L. Flg *mf* 1 2 3 4 5

H. Sax *mf* *f* *mf* Tbn *mf*

Rh. *mf* *f* *mf*

Chords: Em7, Db7⁹, Bb7⁹, G7¹³, Ab7⁹, Gm7

L. 6 7 8 9 10 11 12

H. *f* *mf* *f*

Rh. *f* *mf* *f*

Chords: Eb7⁹, Db7⁹, Bb7⁹, A7-5, Ab₆⁹, Dm7/G, G7^{9/13}, C₆⁹

(b)

Figure 6.2: Harmonization with symmetrically distributed roots: minor third (R_{3i}). (a) original harmonization, (b) symmetrically distributed roots. From: 'One Note Samba' (A.C. Jobim, arr. F.G.J. Absil).

6.2. HARMONIZATION WITH SYMMETRICALLY DISTRIBUTED ROOTS

The musical score is arranged in four staves. The top staff is for Flutes (Flts), the second for Clarinets (Clars), the third for Brass, and the bottom for Bass (Rh.). The key signature has two flats (B-flat and E-flat). The Flutes part features a melodic line with a major third interval, starting on E4 and moving to G4. The Clarinets part provides harmonic support with chords. The Brass part has a cadential closing in G minor. The Bass part features a bass line with symmetrically distributed roots at the major third interval, starting on E3 and moving to G3. The chord progression for the bass line is: F7, Gm7/D, F7/Eb, Cm7, Eb/E, F/Bb, C7b9, Eb/F#, D/Ab, C/D, Gm, Gm/D, Eb7, D, Gm.

Figure 6.3: Harmonization with symmetrically distributed roots: major third (R_{4i}). Diatonic and exact parallel motion in the upper stratum for flute section. From: ‘*The Farmer’s Song*’ (F.G.J. Absil) for choir and concert band.

Example 6.3

Symmetrically distributed bass part at the interval of a major third R_{4i} for a given melody.

Figure 6.3 shows the instrumental coda of a folk song, ‘*The Farmer’s Song*’, about the hard labour on the land throughout the ages.

- This is a composition for choir and concert band, part of a theatre production. A dissonant musical texture supports the lyrics.
- The lead voice repeats the last vocal melodic phrase in m. 1–4, and is doubled with three-part diatonic parallel chords for flutes. The middle voices in clarinets fill out the basic harmonies.
- There is a traditional cadential closing in *G* minor for brass in m. 5–6.
- In m. 3–4 the bass part plays symmetrically distributed roots at the major third R_{4i} (i.e., $e - c - ab$ and their tritone-related counterparts $bb - f\sharp - d$). This yields passing shrill dissonances with the other parts (note the Eb/E and the $Eb/F\sharp$ chords in particular), strongly expressing the mood of this farmer’s song.

The use of chord changes based on symmetrically distributed roots may typically be found in introductions and codas. The previous example is a demonstration of that application. The use in the middle of a phrase was shown in Example 6.2. Since this requires solving a puzzle (trial-and-error), it is less frequently used.

However, now we will consider two applications in the middle of a phrase and on a very local scale.

Folk Dance ♩ = 92

Tpt

f

Sax

f

The image shows a musical score for a piece titled 'Folk Dance' with a tempo of ♩ = 92. It features three staves: a trumpet (Tpt) staff at the top, a saxophone (Sax) staff in the middle, and a bass line at the bottom. The key signature has two flats (B-flat and E-flat), and the time signature is 6/8. The trumpet part consists of a melodic line with slurs and accents. The saxophone part is marked with a forte (f) dynamic and features a complex rhythmic pattern of eighth notes with chromatic parallel motion. The bass line provides a steady accompaniment with a similar rhythmic pattern. The saxophone part is divided into two systems, with the second system showing a continuation of the chromatic parallel motion.

Figure 6.4: Harmonization with symmetrically distributed roots: chords in 4ths at the augmented fourth/diminished fifth (R_{6i}). Chromatic parallel motion in the lower saxophones. From: *'The Farmer's Song'*.

Example 6.4

Using chords in fourths with symmetrically distributed roots at the interval of the diminished fifth R_{6i} .

Figure 6.4 shows another fragment from *'The Farmer's Song'*.

- Throughout the song the harmonies gradually progress from a medieval to a contemporary idiom. The example shows the application of chords in fourths in the saxophones; two altos, one tenor and a baritone saxophone play meandering syncopated 8th note patterns.
- The application of symmetrically distributed roots at the diminished fifth, R_{6i} , takes place in the three upper saxophone parts (altos and tenor). The first chord in m. 1 consists of the pitches $c - f - bb$; together with the bass g this yields a Gm_7^{11} chord. The root sequence for these chords in 4ths is $(c - gb - c - f\sharp - d)_{m. 1} - (eb - d - f\sharp - d)_{m. 2} - (f\sharp - c)_{m. 3} - (e - bb)_{m. 4} - d$. This progression contains a number of these tritone-related pairs.
- The baritone saxophone part does not fit into this scheme. It is coupled to the tenor saxophone part (parallel at the minor seventh, see Section 6.5), adding even more dissonance to this phrase.

Example 6.5

Application of tritone-related dominant chords to a given lead texture.

The example in Figure 6.5 is a transitional phrase in the *montuno* section of a Latin mambo for solo trombone and symphonic wind band, *'Bone in the Barrio'*.

6.2. HARMONIZATION WITH SYMMETRICALLY DISTRIBUTED ROOTS

The musical score is for a piece titled "Latin - Mambo" in 4/4 time with a tempo of 160. It features a woodwind section (L. WW), saxophones (Sax), and a rhythm section (Rh.). The woodwinds play scalar runs in parallel thirds. The saxophones play a complex harmonic structure with tritone-related dominant chords. The rhythm section provides a steady accompaniment. The score includes dynamic markings such as *f*, *mf*, and *f*, and articulation markings like *a2*. The key signature is two flats (B-flat major/D-flat minor).

Figure 6.5: Harmonization with symmetrically distributed roots: tritone-related dominant chords (R_{6i}). Variable density setting in the saxophone section (see Section 6.6). From: 'Bone in the Barrio' (F.G.J. Absil) for concert band.

- The woodwinds play scalar runs in parallel thirds. The lower part in the upper staff (unisono French horns in m. 2–5 and later unisono trumpets in m. 6–9) quotes snippets from the main theme; note the ascending tendency of these motives.
- The saxophone section (two altos, two tenors) plays the harmonies and change every two measures from playing 4-part sectional harmony (as discussed in Chapter 3) to 2-part Latin *montuno riff* patterns (see the *a2*) and then back to sectional harmony. The 4-part sectional harmony (m. 2–3 and m. 6–7) consists of an ascending-descending lead voice with intermediate chords in the lower saxophone. In m. 2–3 the fundamental chord is $A\flat_6^6$, the intermediate chords contain pitches from the leading tone dominant chord $G_7^{\flat 9}$ and G_7^{alt} .
- The symmetrically distributed roots and the tritone-related dominant chords, R_{6i} , are found in m. 4–5 and m. 8–9. Here the $B\flat_7$ chord is temporarily replaced with the $E_7^{\flat 5}$ chord (beats 1 and 2 in m. 5) and the $G_7^{\flat 9}$ dominant chord with the $D\flat_7^{\flat 5}$ chord in m. 9, respectively. This yields a brief harmonic twist, due to the contrast with the diatonic scales in the woodwinds.

Another case of tritone-related symmetrically distributed roots is shown in the introduction to the concert band arrangement of the ballad 'My One and Only Love' in a later chapter.

This fragment is discussed in Example 11.11 and Fig. 11.15.

6.3 Intermediate leading tone harmonization

Example 6.6

Application of intermediate leading tone harmonization to a given melody.

This example is included in the full version of the book.

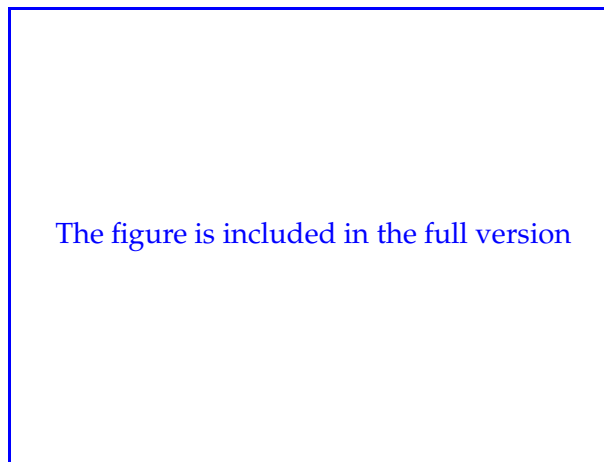


Figure 6.6: Intermediate leading tone harmonization

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6.3. INTERMEDIATE LEADING TONE HARMONIZATION

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6.4 Chromatic stepwise motion

⇒ In *chromatic stepwise motion* the motion of a particular voice in a harmonic setting is in ascending or descending semitone steps. The familiar example is the chromatic motion in the bass, but the same technique can be applied to any middle or upper voice; these are demonstrated in Examples 6.7 to 6.11.

Example 6.7

Chromatically descending bass line starting from the root chord through the seventh.

- Figure 6.1 with the phrase from ‘*The Summer Knows*’ for concert band discussed earlier, shows the ‘classical’ chromatically descending bass. The chord root F remains constant as the bass voice moves through the chordal functions $1 - \Delta 7 - 7 - (6)$ (root–major seventh–minor seventh–added sixth).
- In the example this yields the chord sequence $Fm - Fm^{+7}/E - Fm_7/E\flat - Fm^6/D$. The last chord is enharmonically equivalent to $D_{\emptyset 7}$. The descending bass continues its semitone descent towards $B\flat m/D\flat$.

The example above with the chromatically descending $1 - \Delta 7 - 7 - (6)$ pattern is known as the *passing 7th*. In the *Schillinger System of Musical Composition* [44] there is a generalization of this technique, including ascending patterns and melodies based on the passing 7th technique.⁵

Example 6.8

Double chromatically descending bass line for a given lead melody.

We will have another look at Figure 6.6, from ‘*The Summer Knows*’.

- This fragment in $\begin{bmatrix} 3 \\ 4 \end{bmatrix}$ meter also features a chromatically bass line, but now in two parallel lines, consisting of chord roots.
- Here is the sequence of quarter note bass pitches, with the upper chromatic line in brackets: $c\sharp - (f\sharp) - c - (f) - b - (e) - b\flat - (e\flat) - a - (d)$. This combines continuous motion with a strong feeling of cadential rootedness, through a sequence of $II m - V_7$ chord changes.

Example 6.9

Combined chromatic stepwise motion in multiple layers and instrument groups.

In Figure 6.7 from ‘*The Summer Knows*’ for concert band there is an intricate combination of chromatically ascending motion in the middle voice and a descending bass.

⁵On the Website with URL <http://www.fransabsil.nl> there is a link to the YouTube channel. There you will find a playlist with composition techniques, including an episode on the passing 7th generalized.

6.4. CHROMATIC STEPWISE MOTION

The musical score for 'The Summer Knows' (M. Legrand, arr. F.G.J. Absil) is shown in three systems: L. (Woodwinds), H. (Trumpets and French Horns), and Rh. (Trombones and Bass). The score illustrates chromatic stepwise motion in the middle voice (ascending) and bass pedal point (descending). The upper layers (trumpets, French horns, and woodwinds) show diatonic and exact parallel motion. The bass part features a chromatically descending pedal point, with the middle voice of the bass part in brackets. The overall impression is one of descending motion in the outer voices (woodwinds, trumpets, bass), which is counteracted by the contrary motion in ascending direction in the middle voices (French horns, trombones, and saxophones).

Figure 6.7: Chromatic stepwise motion in both middle voice (ascending) and bass pedal point (descending). Diatonic and exact parallel motion in the upper layers (trumpets, French horns and woodwinds). From: 'The Summer Knows' (M. Legrand, arr. F.G.J. Absil).

- The trombones play to chromatically ascending (semitone upward) phrases: $e - f - f\sharp - g$ and $e\flat - e\sharp - f - g\flat$ in half notes.
- The bass plays chromatically descending pedal points. With the middle voice of the bass part in brackets this yields: $a - (e) - a - (e\flat) - ab - (e\flat) - ab - (d) - g - (d)$, with both lines slightly out of phase.
- The overall impression of this phrase is one of descending motion in the outer voices (woodwinds, trumpets, bass), which is counteracted by the *contrary motion* in ascending direction in the middle voices (French horns, trombones and saxophones).



Example 6.10**Combined chromatically moving middle voices.**

- In Figure 6.4, the fragment from *'The Farmer's Song'* that we saw before, the lower saxophones (TS and BS) are moving both in chromatically ascending and descending steps. These meandering voices in legato semitones create additional tension to this already fairly dissonant phrase (see Section 6.2 for other aspects of this harmonization).
 - The interval between the two saxophones is constant: a minor 7th, with the upper voice (tenor saxophone) as part of chords in 4ths (three-part chords in 4ths for two altos and tenor saxophone).
-

Example 6.11**Chromatically ascending bass line for given lead voice.**

The score in Figure 6.8 shows how the chromatically ascending bass contributes to the building up of tension (see Section 11.1) towards the climax in the bridge of this concert band arrangement of *'Roof Garden'*.

- The bass guitar plays 16th note rock patterns on the ascending semitone sequences $db - d - eb - e\sharp - f - gb - g\sharp$ and $gb - g\sharp - ab - a\sharp - bb - b\sharp - c$.
 - Since the bass notes are all roots of dominant 7th chord structures, there is also considerable chromatic stepwise motion in the middle voices (clarinets and saxophones).
 - The ascending tendency is balanced with the descending leaps in the lead motif in trombones and French horns.
-

Another chromatically ascending bass line is shown in the modulating transition from the concert band ballad *'My One and Only Love'*, shown in Example 11.15 and Fig. 11.19, and in the coda from the same piece, see Example 11.14 and Fig. 11.18 (in the later chapter on building the complete arrangement).

6.5 Diatonic and exact parallel chord motion

Example 6.12**Application of exact parallel chords in a transitional phrase.**

This example is included in the full version of the book.

6.5. DIATONIC AND EXACT PARALLEL CHORD MOTION

The image displays a musical score for a concert band arrangement of 'Roof Garden'. The score is written in 4/4 time with a tempo of 100 beats per minute. The key signature is three flats (B-flat major/D minor). The score is divided into two systems, each with four staves: Lead Trumpet (L.), Horns (H.), Right Bass (Rh.), and a second instrument staff (likely Saxophone or Trumpet). The bass line (Rh.) features a prominent chromatic stepwise motion, moving from G^b13 to B^b13. The lead trumpet part (L.) plays a steady eighth-note pedal point. The score includes various dynamics such as *mf*, *cresc.*, and *ff*, and is marked with 'Rock'.

Figure 6.8: Chromatic stepwise motion in the bass. The lead trumpet(s) play a pedal point. From: 'Roof Garden' (A. Jarreau, arr. F.G.J. Absil) in arrangement for concert band.

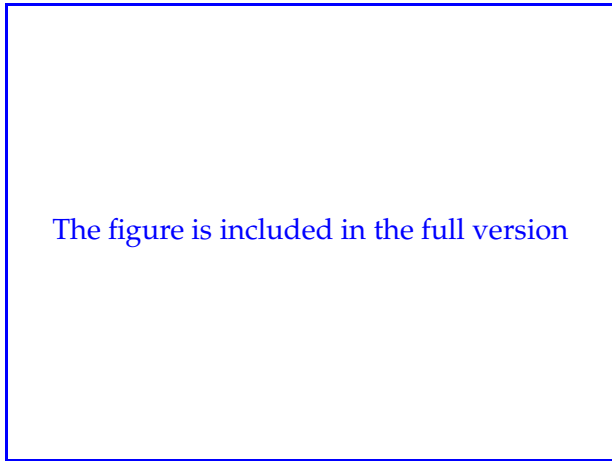


Figure 6.9: Exact parallel motion

Example 6.13

Application of parallel chord motion to a given melody.

This example is included in the full version of the book.



Example 6.14

Application of parallel chord motion to a given melody.

This example is included in the full version of the book.



Example 6.15

Parallel 3-part chords in 4ths.

This example is included in the full version of the book.

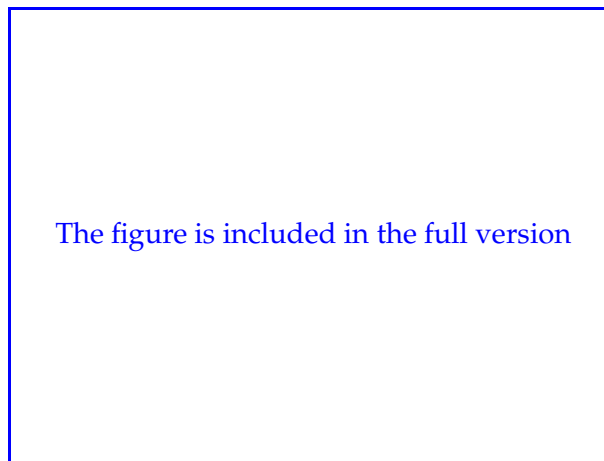


Figure 6.10: Parallel 3-part chords in ballad for concert band

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CHAPTER 6. SPECIAL TECHNIQUES

The image shows a musical score for the introduction of 'Autumn Leaves'. It is an up-tempo swing in 4/4 time with a tempo of 204. The score is divided into three parts: L. (Woodwinds), H. (Horns), and Rh. (Trombone). The woodwinds (WW) play triplet runs that start with two voices and gradually increase to four voices. The horns (H.) play a similar pattern. The trombone (Tbn) plays a solo lead melody. The bass line (Rh.) includes chords: Eb, F, Dm, Eb, Cm, D7#9, and Gm. The dynamic marking is *mf*.

Figure 6.11: Variable density in the introduction to an up-tempo swing jazz standard for solo trombone and symphonic wind band. Woodwind voicing is changing from 2-part to 4-part voicing. From: 'Autumn Leaves' (J. Cosma, arr. F.G.J. Absil).

6.6 Variable density

⇒ When the number of voices in a phrase is no longer constant we are using *variable density*. A constant number of voices is characteristic for almost all sectional harmony writing; that's why it is called 4- or 5-part sectional harmony.

Varying the number of voices in a phrase is an additional tool for dissonance and tension control. The extreme case of variable density is when an instrumental section is opening up from or closing into a *unisono* phrase. Variable density is shown in Example 6.16.

Example 6.16

Applying variable density as a background to a solo lead melody.

The example in Figure 6.11 is the introduction to an up-tempo jazz standard for solo trombone and band, a concert band arrangement of 'Autumn Leaves'.

- The woodwinds, here piccolo, flute, oboe, bassoon and the clarinet group, are playing triplet runs.
- The only other element in this section is an offbeat rhythm for pedal hihat (not shown in the score), supporting the groove and hinting at the swing character of the rest of this arrangement.
- Each woodwind phrase starts with two voices at the interval of a third. Then, through opening contrary motion, an open triad in 4-part voicing is reached. Along the way the density is increasing as the multipart setting becomes noticeable; starting with doubling in the woodwinds helps the synchronization in the performance.
- Note that the woodwinds are playing an incomplete $D_7^{\#9}$ chord in m. 5. It is the trombone playing the lead voice that provides the missing 7th as a long note in the previous measure.

The aspect of tension control will return in Chapter 11; check the use of variable density in the examples, discussed in that chapter. Creating variation within or between phrases and sections is often achieved through applying different orchestral density.

6.7 Pedal point

Example 6.17

Various applications of pedal points to either a given melody or harmony.

This example is included in the full version of the book.

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6.8 Classical music techniques

In jazz arrangements there is also a place for applying techniques originating from the classical music domain. The pedal point in Section 6.7 and the bell chords in Section 6.1 are examples of such techniques.

Here we mention two additional options. A *chorale harmonization* provides a harmonic background, that is characterized by smooth voice leading, long-held chords, and a combination of triads and seventh chords. When possible, voice leading is stepwise. Rules for the voicing of chord inversions are respected, and extended chords (ninth and higher chordal functions) are sparse. Additional harmonic interest is achieved using suspensions. When using a chorale setting, the rhythm section is either tacet (silent) or bass and harmony instruments (keyboard) must respect the voice leading in the other instruments. For an overview of classical theory of harmony, see [47] or [35].

Another option is using *counterpoint*. This could be a simple form of motif *imitation* in multiple voices, but might also be a multipart *fugue*. The main characteristic of counterpoint is the melodic independence of the individual voices. The harmonic progressions are the result of the combination of voices; chord structures can be classical (triads and seventh chords) or from the jazz idiom (extended chords). During counterpoint phrases, it is most likely for the rhythm section to remain silent (*tacet*). The double bass might play unisono (or at the lower octave) with the lowest voice in the counterpoint setting. An excellent introduction to tonal counterpoint, with lots of examples and exercises is [46].

The use of counterpoint is demonstrated in Examples 6.18 and 6.19.

Example 6.18

Apply a chorale setting to a given melody.

The melody in Figure 6.12 from the concert band arrangement of 'Autumn Leaves', is the closing phrase from the opening chorus of this jazz standard.

- The fragment is harmonized with a four-part chorale setting for clarinets. This orchestral colour hints at a soft, intimate and delicate organ sound.
- The harmonic structures are all seventh chords S_7 , with one exception: the Neapolitan 6th chord, A_b/C , in m. 5.
- Note the stepwise voice leading in all parts. Occasionally there is a leap (see m. 4), but here the classical music voice leading rule 'a leap is followed by stepwise motion in the opposite direction' is respected (see Chapter 9 for melodic aspects).
- Note how the suspensions in the clarinet parts in m. 3, 5 and 6 contribute to the classical music idiom.
- The pizzicato double bass is doubling the lowest part of the chorale setting at an octave below. The rhythmic subdivisions in the bass support the up-tempo swing rhythm; note the *walking bass* and 8th note swing pattern.

The same type of sonority is used in the double time 4-part counterpoint setting in the fragment from the ballad 'My One and Only Love', discussed in Example 11.16 and shown in Fig. 11.20.

CHAPTER 6. SPECIAL TECHNIQUES

The image shows a musical score for 'Autumn Leaves' in G minor. It features four staves: Trombone (Tbn), Clarinet (Clars), Horns (H.), and Basses (Rh.). The Trombone part is the solo lead, marked with a forte (f) dynamic and numbered measures 1 through 7. The Clarinet, Horns, and Basses parts form a four-part chorale setting in the background, marked with mezzo-forte (mf) dynamics. The Basses part includes a series of chords: Aø7, Aø7/G, D7/F#, Gm7/F, E7-5, Aø7/Eb, D7, D7-5, A7/C, C#-7, Dsus4, D7/F#, and Gm. The score concludes with a forte (f) dynamic marking.

Figure 6.12: Classical music technique: a four-part chorale setting for clarinets, as background to the solo trombone lead. From: 'Autumn Leaves' (J. Cosma, arr. F.G.J. Absil).

Example 6.19

Write a Baroque style fugue on a given motif.

- Figure 6.13, also from 'Autumn Leaves', shows a three-part fugue in G minor for wind quintet, which is the introduction to an up-tempo swing jazz standard. The fugue subject is a motif from the jazz standard melody (see the first four notes for flute, $g - a - b\flat - e\flat$).
- The order of the three fugue subject entries is, as is the rule in traditional Baroque music: tonic-dominant-tonic key.
- A special feature in this fugue is the sequence of entries in the *stretto* (the parts entering at shorter time intervals than during the fugue exposition); the four starting notes for French horn, clarinet, English horn and flute once again form the main motif $g - a - b\flat - e\flat$.
- The chromatic descending bass voice (bassoon) is repeated at an octave below, while the flute reaches the highest pitch in opening contrary motion. This contributes to a local climax.

Another example in counterpoint style, for strings and woodwinds, was shown in Section 2.3.5 in Example 2.7 from 'Shotgun Soliloquy', and in Chapter 8 in Example 8.1 from 'Venetian Violins'.

Allegretto $\text{♩} = 104$

The musical score is divided into two systems, each with five staves labeled L., H., Rh., H., and Rh. from top to bottom. The first system (measures 1-8) includes parts for Flute (Fl), Horn (EHn), and Bassoon (Bsn). The Flute part begins with a melody marked *mf*. The Horn and Bassoon parts enter later, with the Horn marked *mf* and the Bassoon marked *mf*. The second system (measures 9-16) includes parts for Clarinet (Clar), Horn (H), and Rhythm (Rh). The Clarinet part begins with a melody marked *mf*. The Horn and Rhythm parts enter later, with the Horn marked *f* and the Rhythm marked *f*. The tempo is marked Allegretto with a quarter note equal to 104 beats per minute.

Figure 6.13: Classical music technique: counterpoint (three-part fugue and imitation) for wind quintet, as an introduction to a jazz standard. From: 'Autumn Leaves' (J. Cosma, arr. F.G.J. Absil).

Chapter 7

Woodwind voicing



This chapter discusses voicing techniques for a woodwind section and the combination of homogeneous and heterogeneous or mixed woodwind instruments. Voicing diagrams and examples will elucidate the specifics.

7.1 Voicing multiple instrument groups in a woodwind section

The multi-player woodwind section likely will contain different subgroups: flutes, oboes, clarinets and bassoons. Voicing a chord for woodwinds implies the distribution of chord pitches to individual instruments in the section. This yields a number of options for balancing and blending the instrument groups.

The diagram in Figure 7.1 demonstrates alternative voicings of a given four- or six-part chord structure, $S(4p)$ or $S(6p)$.¹ The voicing is achieved by assigning the pitches from the chord structure to a single part from either a double or a triple woodwind section with two or three instrument subgroups. For one specific voicing approach not all chord pitches will be assigned; see the cases for $S(3p)$ and $S(5p)$ in the top and middle row, or the $S(4p)$ column in the bottom row.

The four types of voicing are, using the labeling from [41, 2]:



Juxtaposition. Vertical juxtaposition is also called *overlaying*. There is no overlap between any of the instrument groups. The approach is a top-down distribution over the subgroups, e.g., Fl - Fl - Ob - Ob (4 parts), as shown in Fig 7.1.a.

Overlapping. Some of the pitches are played by instruments from two groups; the number of different pitches in the chord structure is smaller than the number of instruments. An example is: Fl - (Fl + Ob) - Ob, 4 instruments and 3 pitches, shown in Fig 7.1.b. The overlapping approach with doubling has a pragmatic approach in concert bands; since

¹See the notation symbols in Section 1.1.3.

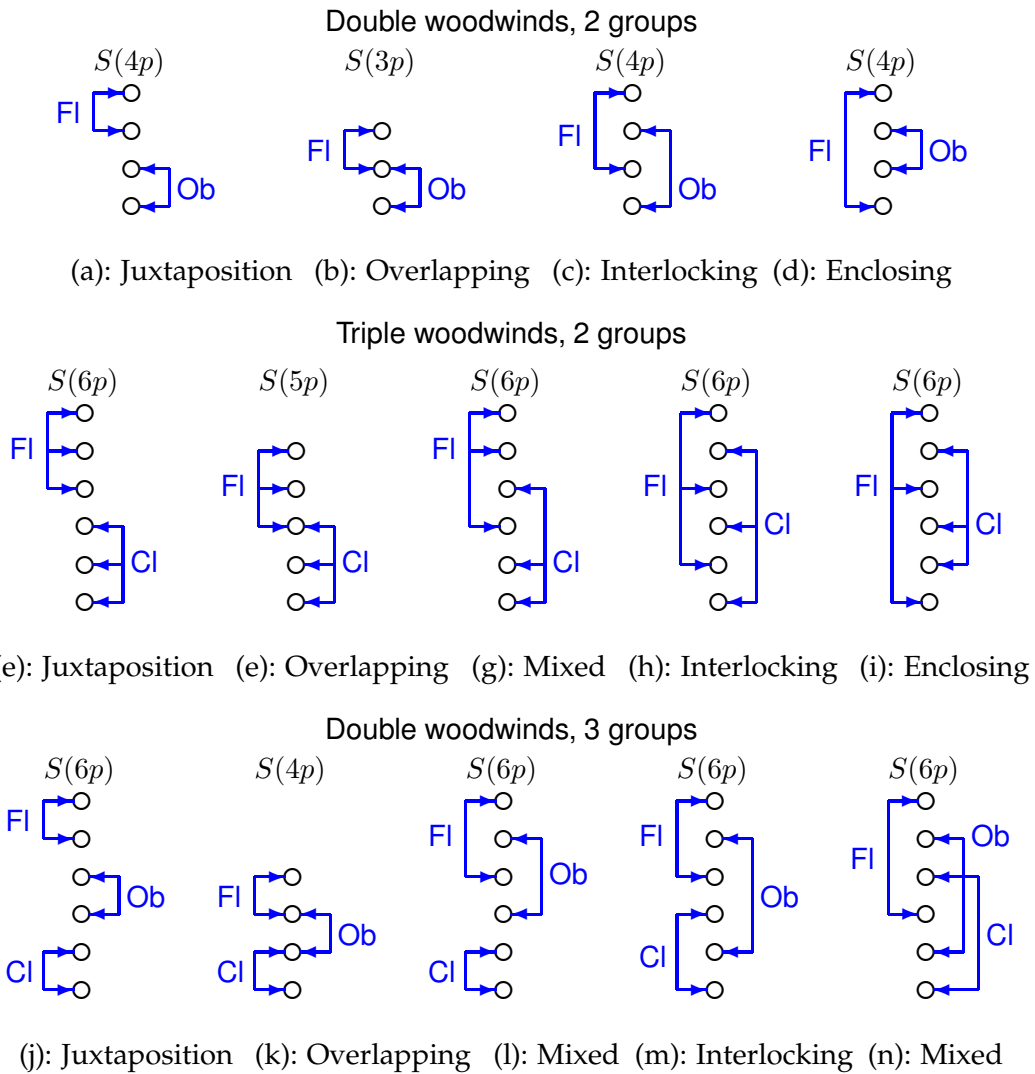


Figure 7.1: Woodwind voicing and blending. Non-exhaustive set of diagrams for double and triple woodwinds, demonstrating juxtaposition (overlapping), overlapping, interlocking (dovetailing), enclosing and mixed voicing.

7.1. VOICING MULTIPLE INSTRUMENT GROUPS IN A WOODWIND SECTION

mostly the players are amateurs, there is the chance that either a part is beyond their playing skills, or they are missing from a rehearsal or concert. This safety measure guarantees that important lines are being heard in case of an incomplete orchestra.

Interlocked. This is also called *crossed* voicing. Now, some of the groups are overlapping and intertwined. When there is a regular alternation of instruments from different groups, such as Fl - Ob - Fl - Ob (4-parts) or Fl - Ob - Cl - Fl - Ob - Cl (6 parts, not shown in the diagrams) this is called *dovetailing*, as illustrated in Fig 7.1.c.

Enclosed. One instrumental group is now enclosing another group, e.g., Cl - Ob - Ob - Cl, as shown in Fig 7.1.d. This yields a wide interval for the subgroup playing the outer parts.

The intervals within each subgroup are smallest for juxtaposition and overlapping voicing, widening for interlocking and enclosing voicing. This may have consequences for the blending and balancing, as the two instruments from the same subgroup are moving into differently sounding registers. Note, that the diagrams in the middle and bottom row of Fig 7.1 are non-exhaustive; there may also be mixed forms of voicing. However, they still illustrate the opening voicing within a subgroup (either flutes, oboes or clarinets) moving from left to right, i.e., from juxtaposition towards enclosing voicing.

See Example 7.1 for the music notation of these woodwind voicing approaches.

Example 7.1

Woodwind voicing of chord structure.

The voicing principles from Fig. 7.1 are shown in music notation in Fig. 7.2. These approaches are applied to a first and second inversion major triad with pitch doubling, i.e., $S_6(4p)$, $S_4^6(4p)$ or $S_6(6p)$, $S_4^6(6p)$.

- The voicings at the top are for two pairs of woodwinds (two flutes and two oboes). Notes from a first inversion triad S_6 (G/B and C/E) are distributed over these instruments. From left to right we see overlaying (i.e., no overlap), overlapping, interlocking (dovetailing), enclosed and a transposed version of the interlocking voicing. Both instrument groups play in their middle register.
 - Measure 1 and 3 both yield consonant intervals within the subgroups: thirds and sixths, respectively. The best blending with homogeneous sound is achieved in m. 1.
 - The overlapping voicing in m. 2 uses three pitches only, and the oboes now play a perfect consonant fourth.
 - The enclosed voicing in m. 4 will disturb the blending, since now Flute 2 plays in its softer lower octave; the sound is significantly different from Flute 1.
 - This effect worsens as we move to m. 5, where both flutes are in the softer low to middle register, while Oboe 2 is in a particular, outspoken register; the oboes will now dominate over the sound of the flutes.
- In the middle figure there are triple flutes and clarinets.

- On the left, m. 1, there is vertically juxtaposed voicing, m. 2 shows overlapping between Flute 3 and Clarinet 1 for a 5-pitch chord structure $S(5p)$, m. 4 demonstrates dovetailing, while in m. 5 the flutes enclose the clarinets.
- Measure 3 shows a mixed voicing. Overlaying keeps both groups within the same octave; the flute triad is doubled at the lower octave for clarinets. Measure 4 and 5 bring Flute 3 in the low range, where it will be dominated by Clarinet 1 and 2, now in their mid-high range.
- The lower figure shows how the same chord is distributed over three groups: pairs of flutes, oboes and clarinets.
 - Once again, we start in m. 1 with overlaying voicing. In the overlapping situation there are only four different pitches.
 - Measure 3 is a mix of crossing (flutes and oboes) and overlaying (clarinets in the low register). Note the intervals within each group, being either perfect or imperfect consonances (for a 7th or extended chord the distribution of the dissonant intervals would also require consideration).
 - The example on the right, m. 5, has octave doublings within each group, but with each instrument in a particular octave with a specific sound; this will not yield a good blending and may sound like six different instruments are having a balancing problem.

Of course, for multiple woodwinds there will regularly be mixed forms of voicing, as the diagrams in Fig. 7.1 demonstrate. The orchestration textbook by Rimsky-Korsakow [41] discusses this aspect in great detail for all the orchestral instrument families.

Also remember that the arranger has the choice between *constant* and *variable voicing*. A certain vertical ordering of instruments may change at any time, if that helps the overall woodwind sound. So feel free to move from juxtaposition to overlapping or interlocking and back. This may be required when a certain instrument is moving into a differently sounding register or outside its playing range. Look for wide leaps with a pitch direction turning point in the lead melody or the end of a short phrase (breathing points or a rest) as the appropriate point of changing the woodwind voicing. We will see a number of these cases in the examples.

7.2 Homogeneous and heterogeneous woodwind combinations

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7.2. HOMOGENEOUS AND HETEROGENEOUS WOODWIND COMBINATIONS

Juxtaposition Overlap Crossing Enclosing Crossing

1 2 3 4 5

The figure illustrates five different woodwind voicing techniques across three instrument groupings:

- Top: Double woodwinds (pairs of flutes and oboes).** Shows two staves (Fl. and Ob.) with notes in 4/4 time. The voicings are: 1. Juxtaposition (Fl. G4, Ob. F4); 2. Overlap (Fl. G4, Ob. G4); 3. Crossing (Fl. G4, Ob. A4); 4. Enclosing (Fl. G4, Ob. F4); 5. Crossing (Fl. G4, Ob. F4).
- Middle: Triple woodwinds.** Shows two staves (Fl. and Cl.). The voicings are: 1. Juxtaposition (Fl. G4, Cl. F4); 2. Overlap (Fl. G4, Cl. G4); 3. Crossing (Fl. G4, Cl. A4); 4. Enclosing (Fl. G4, Cl. F4); 5. Crossing (Fl. G4, Cl. F4).
- Bottom: Three groups of double woodwinds (flutes, oboes and clarinets).** Shows three staves (Fl., Ob., Cl.). The voicings are: 1. Juxtaposition (Fl. G4, Ob. F4, Cl. F4); 2. Overlap (Fl. G4, Ob. G4, Cl. G4); 3. Crossing (Fl. G4, Ob. A4, Cl. A4); 4. Enclosing (Fl. G4, Ob. F4, Cl. F4); 5. Crossing (Fl. G4, Ob. F4, Cl. F4).

Figure 7.2: Woodwind voicings; juxtaposition, overlapping, crossing and enclosing. Top: double woodwinds (pairs of flutes and oboes). Middle: triple woodwinds. Bottom: three groups of double woodwinds (flutes, oboes and clarinets).

Table 7.1: Homogeneous woodwind voicings

The table is included in the full version

Table 7.2: Heterogeneous woodwind voicings

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7.3 Woodwind voicing examples

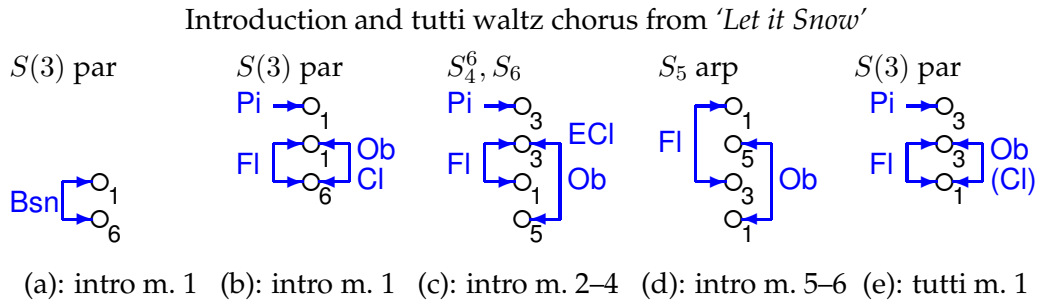
In Chapter 6 on special techniques there are many examples with woodwind section voicing. Let's have a closer look at a number of woodwind voicings from the examples in this book.

Example 7.2

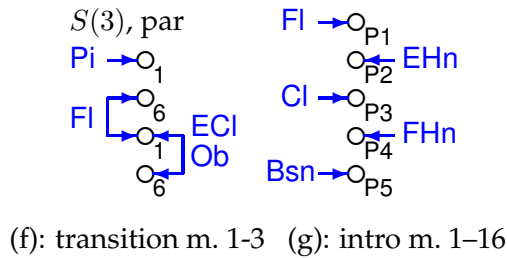
Woodwind voicings for concert band and studio orchestra.

The voicing diagrams for this set of examples are shown in Fig. 7.3.

- The use of woodwinds the concert band arrangement of *'Let it Snow'* was discussed in Example 2.3 (see Fig. 2.7). We will have a more detailed look at both fragments.
 - In the opening measure the first 16th note run is for two bassoons in parallel 3rds, taken over at the higher octave by a heterogeneous group of piccolo (*8va*), two flutes, oboes and clarinets; these pairs are doubling parts in the mid-high register.
 - The voicing changes in m. 2 to parallel diatonic triads in inverted position (mixed voicing). Finally, in m. 5 there are arpeggiated triads for interlocking flutes and oboes.
 - In the tutti chorus, the second fragment in the example, with 16th note ascending and descending runs, there is another case of flutes and oboes, doubling in parallel 3rds with the piccolo *8va*, or clarinets in parallel thirds. Keep in mind that in the concert band the clarinet section consists of between 10 and 20 players.
- The second example is a transition fragment from *'Bone in the Barrio'*, in Example 6.5 and Fig. 6.5. The pairs of flutes and oboes are playing parallel 6ths and 3rds, respectively. There is overlapping voicing in the high register. The E \flat -clarinet doubles the lead part unisono, the piccolo at the higher octave *8va*.
- The counterpoint fugue introduction to *'Autumn Leaves'* in Example 6.19 and Fig. 6.13, features the classical music wind quintet. In this fragment the English horn replaces the oboe, since this fragment is in the low-middle register. There is the standard vertical order of the wind quintet parts with clarinet and French horn swapping position in m. 14.
- The studio orchestra tutti climax from *'Shotgun Soliloquy'*, is shown in condensed score in Fig. 7.4. This four-measure fragment has a doubled lead melody over a bolero rhythm background with staccato notes. The tutti voicing for beat 2 in m. 3, the Gm_7 chord, is shown in Fig. 7.4.h. The woodwinds are in mixed voicing, i.e., piccolo and flutes juxtaposed, flutes and oboes overlapping, oboes and bassoons juxtaposed (the clarinet doubles the lead melody). In the brass section, trumpets and trombones are juxtaposed (for this specific chord) or overlapping, and crossing with the French horns.



Montuno section transition 'Bone in the Barrio', fugue introduction 'Autumn Leaves'



Tutti climax section from 'Shotgun Soliloquy'

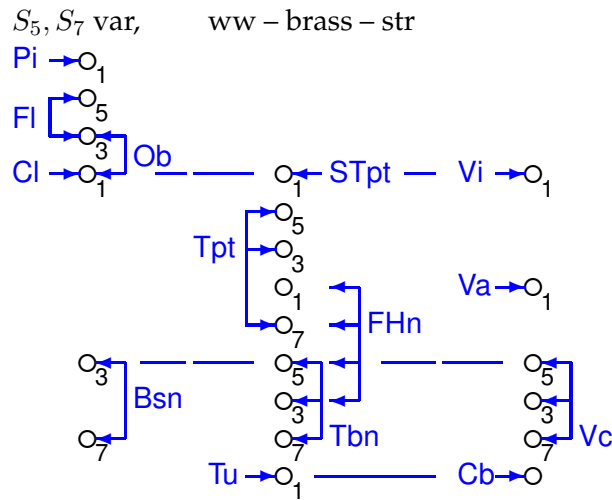


Figure 7.3: Woodwind (and tutti) voicing for concert band and studio orchestra. Par: parallel, var: various inversions. The small digits in the diagrams indicate the chordal function. The measure numbers refer to the numbers in the figures.

7.3. WOODWIND VOICING EXAMPLES

Adagio triste $\text{♩} = 54$

Pi+Fl+Ob

Bsn

FHn

Tpt

Tbn

Vi+Glk

Va+Cl+Tpt

Vc

Cb

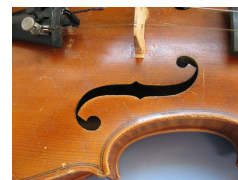
Pizz.

The image displays a complex musical score for a tutti climax in 'Shotgun Soliloquy'. The score is written in 4/4 time with a tempo of Adagio triste (♩ = 54). It features multiple staves for various instruments: Pi+Fl+Ob, Bsn, FHn, Tpt, Tbn, Vi+Glk, Va+Cl+Tpt, Vc, and Cb. The woodwind parts (Bsn, FHn, Tpt, Tbn) are characterized by dense, rhythmic patterns of sixteenth notes, often with triplets and sixteenth-note groupings. The string parts (Vi+Glk, Vc, Cb) provide a harmonic and rhythmic foundation, with some parts featuring sustained notes and others playing rhythmic patterns. The percussion part (Pizz.) is indicated at the end of the score. The overall texture is dense and powerful, typical of a tutti climax.

Figure 7.4: Tutti climax voicing in 'Shotgun Soliloquy' (F.G.J. Absil).

Chapter 8

String section voicing



This chapter presents voicing approaches for the string section. Several specific string section aspects and playing techniques will be discussed.

8.1 The size of the string section in an orchestra

The size of the string section is different for the symphony orchestra, the string orchestra and the studio orchestra. Table 8.1 presents the numbers of players as given in a number of textbooks for either symphony, chamber or studio orchestra [1, 2, 4, 31, 23, 50].

In Section 2.3.5 the internal balancing of the string section and the 2:3 ratio rule was mentioned. We will now look a bit further into this issue.

Figure 8.1 shows typical string player numbers for popular and jazz music recording sessions, for the classical music chamber orchestra (strings only) and for the symphony orchestra. In a typical popular music recording session, there is no contrabass in the string section (the bass function is provided by the rhythm section bass player). The size of a strings only chamber orchestra corresponds to the numbers in a typical large radio or studio orchestra. Obviously, actual numbers may differ from those given here; very popular nowadays is the use of a string quartet in popular music recording.

The blue lines in the figure indicate the 2:3 ratio balancing rule, centered around the violas as anchoring point. As can be seen, all string sections lack sufficient upper range players for a natural acoustic balance. The solutions are either careful orchestration techniques, such as having all violins playing unisono, doubling the violins with violas at the octave below. Or, alternatively having the celli play *divisi*, such as the *div. a 2*, i.e., split the group into two parts, in fact halving the number of players per part. The alternative is electronic amplification of the strings. Table 8.1 gives an overview of typical size ranges of the string section in an orchestra.¹

¹The arranging book by Don Sebesky [50] has a chapter with score examples, that illustrate the potential and

Table 8.1: Typical size of the string section in various ensemble types. Data compiled from [1, 2, 4, 31, 23, 50]. **Vi 1:** 1st violins, **Vi 2:** 2nd violins, **Va:** violas, **Vc:** cellos, **CB:** contrabass.

Author	Vi 1	Vi 2	Va	Vc	CB	Instrumentation
Adey	16	14	12	10	8	Symphony orchestra
Adler	16-18	14-16	10-12	10-12	8-10	Symphony orchestra
Blatter	12-18	10-17	8-14	6-12	5-10	Symphony orchestra
	5-6	4	3	3	3	Chamber orchestra
Del Mar	16	14	12	10	8	Symphony orchestra
Kennan	10-16	8-14	6-12	6-12	5-10	Symphony orchestra
	4-8	3-6	2-4	2-3	1-3	Chamber orchestra
Sebesky	12		4	4		Maximum for most recordings
	8		2	2		Regular recording string group

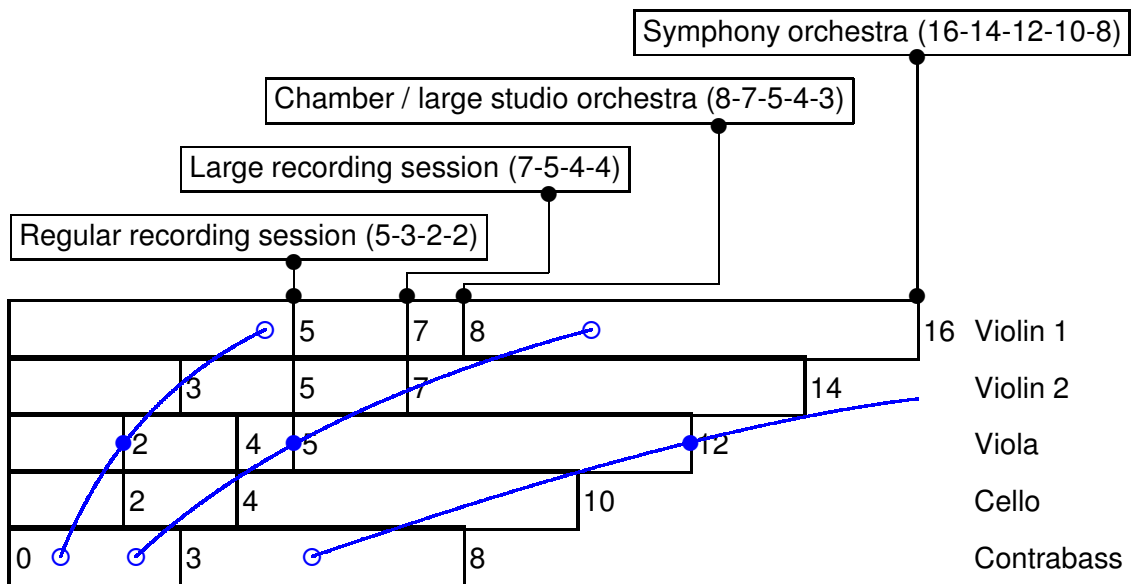


Figure 8.1: Balancing the string section. Typical number of players shown for four ensembles. Blue curves: the 2:3 rule for balancing unisono playing, anchored at the violas.

Another element in the blending of the string sound is the fact that due to left hand vibrato and imperfect pitch playing, the result is pitch modulation between string players. This pitch modulation introduces widening of the spectral bandwidth around the intended pitch (see Section 2.3.8). This aspect effect is somewhat critical in the lower strings, where the number of players is limited. Take the case of two contrabass players; there will be only one pair, thus one combination that leads to modulation; most likely the individual players can still be identified. However, adding a third player yields three pairs and therefore a much richer set of intermodulations with a far more blended sound.² Of course, beyond three players the combinations will lead to a large set, and the modulation effect grows exponentially. That is a typical characteristic of the symphony orchestra string sound.

8.2 Unisono strings

Example 8.1

Unisono violin lead melody.

This example is included in the full version of the book.

The figure is included in the full version

Figure 8.2: Unisono violin lead melody

Example 8.2

Unisono high string voicing in a studio orchestra tutti climax.

This example is included in the full version of the book.

limitations of the smaller, typical string groups in jazz and popular music. It is a great book, the quality of the strings chapter has no equivalent in other arranging books. So make sure you read it.

²In an interview Vince Mendoza mentioned, that he requires a minimum of three double bass players in the string section, when doing a project with his regular Metropole Orchestra or other orchestras: "Always use odd numbers in the lower strings".

Example 8.3

Unisono string voicing in a studio orchestra arrangement.

This example is included in the full version of the book.

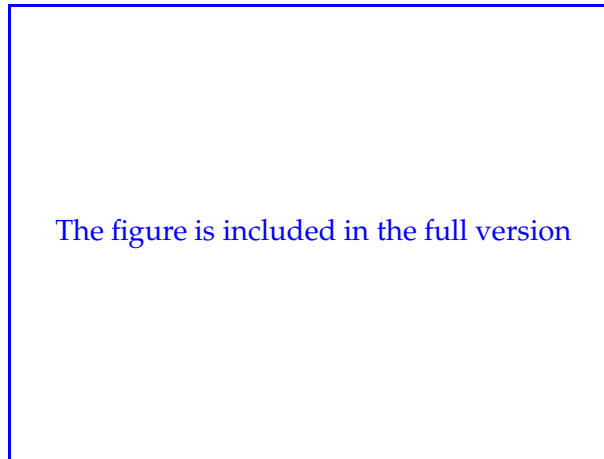


Figure 8.3: Unisono string voicing in studio orchestra arrangement

Example 8.4

High strings playing unisono.

This example is included in the full version of the book.

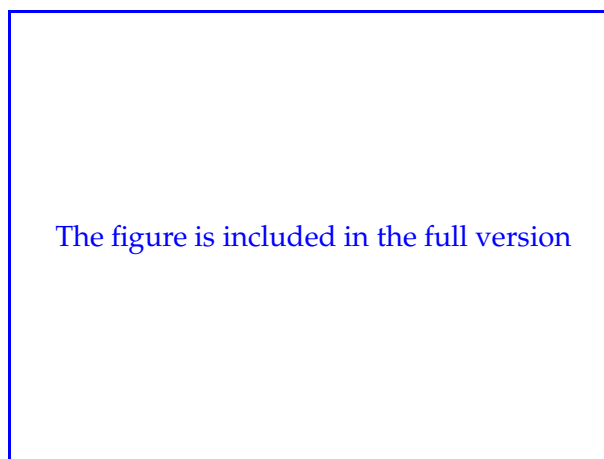


Figure 8.4: High strings playing unisono

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8.3 Sustained harmonic backgrounds

In jazz and popular music the most frequently used role for the string section is to provide a harmonic background, consisting of sustained notes, with typical whole and half note durations. The voicing is half-open (close voicing in the middle parts and opening up towards the outer voices), and there is mostly stepwise motion voice leading in the parts.

This technique is based on classical music harmonization principles; the strings adhere to these principles more than the saxophones and brass. Therefore the traditional voicing considerations must be respected:

- Extended chord structures beyond the 7th chord S_7 must be in root position (with the chord root in the bass). Inversions are not allowed for S_9 , S_{11} or S_{13} .³ However, if there is a rhythm section playing, the root will be in the double bass or bass guitar and is frequently omitted from the string section background. Typically assign the chordal functions 3 and 7 to the celli as the lowest string parts.
- The higher chordal functions 7, 9, 11 and 13 must appear in the higher parts, respecting the acoustic harmonic series (see the upper harmonics of a fundamental pitch in Fig. 2.10).
- Doubling should concentrate on the lower chordal functions 1, 5 and 3 (root, 5th and 3rd) and must also respect the harmonic series. So there will be more doubling of the 5th than doubled 3. Be most cautious about doubling the chord 7th, and use doubled 9 sparingly. This doubling rule holds for solo playing by the string section.

Note, that the altered extensions $\sharp 11 = \flat 5$ and $\flat 13 = \sharp 5$ are in fact replacing the chordal function 5; this will affect the voicing in the sense that these altered 5ths may be found in lower string parts. The rules above apply when all the chordal functions are present; so both 5 and 11 as is the case in an extended minor chord $Sm_7^{9/11}$, or both the 5 and 13 as is the case in an extended dominant chord S_7^{13} .

Based on these principles Example 8.5 demonstrates three alternatives for a four-measure harmonic progression for the string section alone. It is a terribly contrived 6-part string section setting, that will possibly fail, when applied to a real orchestral arrangement.

Example 8.5

Sustained harmonic background for six-part string section.

See Fig. 8.5 for three alternative string section voicings of the same fragment. The numbers above the notes indicate the chordal function. The celli are playing *divisi*.

- Traditional voice leading exercises use 4-part settings. A 6-part exercise leads to conflicts when respecting the voice leading rules. Treatment of dissonant chordal functions (preparation and downward stepwise resolution), preventing voice crossing, no doubling of the function 3 (third) with the chord in first inversion, no parallel 5ths or 8ths. This compliance is very hard to achieve with six parts. So the example contains errors: hidden 5ths

³See the notation for chord structures and chordal functions introduced in Section 1.1.3.

CHAPTER 8. STRING SECTION VOICING

Violin 1

Violin 2

Viola

Cello

Contrabass

Andante $\text{♩} = 92$

1 2 3 4

5 6 7 8

9 10 11 12

13

D^6_9 G^{Maj7}/D $E7/D$ A^{m7}/C $F\#7/C\#$ B^{m7}/D B^b/D $A9sus4$ $A13$

Vi. 1

Vi. 2

Vla.

Vc.

Cb.

5 6 7 8

9 10 11 12

13

D^6_9 G^{Maj7} $E7/G\#$ A^{m7} $F\#7/A\#$ B^{m7} B^b $A9sus4$ $A13$

9 10 11 12

13

D^6_9 G^{Maj7} $E7/G\#$ A^{m7} $F\#7/A\#$ B^{m7} B^b $A9sus4$ $A13$

Figure 8.5: Sustained harmonic background for 6-part string section, playing solo. Three alternatives for a given chord progression. Top: respecting basic rules for chordal function doubling and positioning of higher chordal functions. Middle: unbalanced voicing with improper doubling. Bottom: three-strata approach according to Schillinger [44].

and 8ves do exist. A working and useful alternative is to write a 4-part setting and then double two parts, but that would have prevented a demonstration of multiple doublings.

- The top voicing is hampered by chord inversions: 2nd and 3rd inversion $S_3^4 - S_2$ in m. 2 and 1st inversion S_5^6 in m. 3. Here, the potential for using extended chords is limited. Higher chordal functions are assigned to violins and violas. All chordal functions 9 resolve by downward stepwise motion. On beat 4 in m. 2 this yields a doubling of the 3 in Vi 2 and Vc 2, however in closing contrary motion. There are downward moving parallel 9ths in m. 3–4 between Vi 2 and Vc 2.
- The middle voicing, m. 5–8, has more chords in root position. But now a deliberate unbalance in the chordal functions has been created. In m. 6 the first inversions S_5^6 receive higher functions (9, $b5$, $b13$, respectively). Many higher chordal functions are in the lower parts; compare m. 1 and m. 5 for the top and middle setting. However, in the latter the voicing $6-9-5-\Delta 7-3$ yields a chord in 4ths, which is not bad after all. It is m. 6–7, where the unbalance is audible; note the doubled 3 on beat 2 and 4 in m. 6 (in contrary motion, though), the series of 7ths in the lead voice Vi 1 in m. 6, and the doubled 7 on beat 1 in m. 7. Reversing the 5 and 13 in m. 8 between Vi 1 and Vc does not change the type of mild dissonance (major 9th vs. minor 7th) and is a matter of taste.
- The bottom setting, m. 9–12, is based on an entirely different approach: the Schillinger technique for writing in three *strata* (layers) is applied [44]. The strata (represented by the symbol Σ) and their functions are: lower layer Σ_1 , 1-part CB with functions 1 and 3, middle Σ_2 , 2-part Vc 1 - Vc 2 with functions 1 and 5, and upper Σ_3 , 3-part Va - Vi 2 - Vi 1 with chordal functions 3, 5, 7, Neither doubling nor higher chordal functions occur in first inversion 7th chords S_5^6 . The middle stratum, sticking to root and 5th of the chord, yields the celli moving both in leaps and stepwise motion. All function 9s resolve by downward stepwise motion, as do most 7s. The final measure, m. 12, is an exception to this three-strata approach; note the 7 and the suspended 4 – 3 in the celli. This third setting is audibly different from the other two voicings and sounds more stable and classical. This voicing can only be used for a strings solo setting; do not use this when a string section is playing a background to a rhythm section.

8.4 Create motion in the string parts

Example 8.6

Create motion in string section setting.

This example is included in the full version of the book.



The figure is included in the full version

Figure 8.6: Motion in string section writing

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8.5 Exact parallel voicing

Example 8.7 shows exact parallel motion in the slow introduction of an arrangement for studio orchestra. See Section 6.5 for a description of this technique. The string section plays parallel chords in 5ths, the definite pitch percussion (celesta and glockenspiel) play parallel triads.

Example 8.7

Exact parallel chords in 5ths for strings.

Fig. 8.7 show the first eight measures from the slow introduction to a studio orchestra arrangement of 'I'll Remember April'. The voicing is with parallel chords in perfect consonant 5ths.

- ⇒
- This section of the introduction is written for *tremolo bowing* *divisi* strings, playing *sul ponticello* (near the bridge), celesta and glockenspiel, and trumpets with harmon mutes.
 - The lead voice in the violins is based on the first phrase from the original song melody, a well-known jazz standard.
 - The strings (7-6-5-4-2) are divided into two layers or *strata*: the upper layer are the violins, divided into three parts, and in the lower layer there are violas and *divisi* celli. The contrabass is doubling the celli at the lower octave. This requires sufficient numbers of string players (medium to large size studio orchestra).
 - Two instrumentation possibilities with different voicing diagrams for this three parallel strata example are shown in Fig. 8.8; the left voicing diagram puts weight at the bottom with the doubled root and the violas in the lower stratum, the alternative voicing on the right has more weight at the top and a different sonority.
 - Both layers are playing a kind of counterpoint; there is contrary motion between the layers. The two strata use different note duration values, while the overall tension of the chords is controlled. The opening chord is F_9^6 , ending the phrase on $Am_7^{9/11}$ in m. 3, the second phrase is slightly more dissonant, starting on $Ab_{\Delta 7}^{\sharp 11}$ in m. 5, ending on $Cm_7^{9/11}$ in m. 7.
 - Over the sustained string chords in m. 3–4 and 7–8 there is also exact parallel motion in the celesta and glockenspiel. In this case the parallelism is based on triads in 1st inversion position $S_6(E\flat - F - G - A\flat - B\flat)$ in m. 3–4 and $S_6(D\flat - E\flat - F - G\flat - A\flat)$ in m. 7–8.
 - The muted trumpets support the closing harmonies in m. 4 and 8, with timpani glissandi completing the Béla Bartók textural idiom used for this introduction.
 - When the introduction to the Latin piece sets in, there is another case of exact parallel chords: the high strings play exact parallel triads, see the riff introduction in Example 11.8.

8.5. EXACT PARALLEL VOICING

The musical score is set in 4/4 time with a tempo of 60 (Slow). It consists of two systems of staves. The first system includes a grand staff (treble and bass clefs) for Glk+Cel, Timp, and Tpt (Harmon mute). The second system includes staves for Vi 1+2 sul ponticello, Va+Vc, and Cb sul ponticello. The score is divided into measures 1-4 and 5-8. Dynamics include *mf*, *pp*, and *p*. The string parts feature exact parallel chords in 5ths, with independent note durations and contrary motion between the two 3-part strata.

Figure 8.7: Exact parallel chords in 5ths for strings. The strings are divided into two 3-part strata, with independent note durations and contrary motion. Slow introduction from a studio orchestra arrangement of 'I'll Remember April' (G. de Paul, arr. F.G.J. Absil).

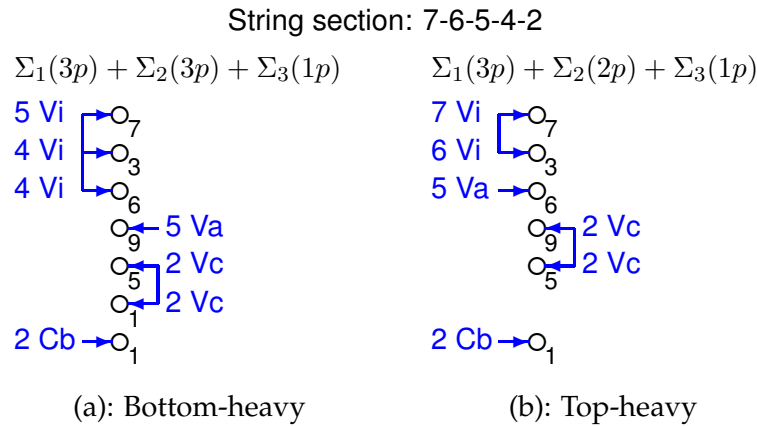


Figure 8.8: String section voicing diagram for parallel chords in 5ths. Introduction with three strata 3Σ (top-down numbering) for a 6-part chord $S(6p)$. Shown is the voicing of beat 1 in m. 1, the $F_{\Delta 7}^9$ chord. Two alternative voicings put more weight in the lower (left) or high strings (right). From: 'I'll Remember April' (G. de Paul, arr. F.G.J. Absil)

The example also contains *sul ponticello*, playing near the bridge, one of the special playing techniques listed in the next section.

8.6 Special playing techniques

In Section 2.3.5 a number of special string playing techniques were listed. Here we will discuss them a bit further and demonstrate applications.

8.6.1 Pizzicato

Example 8.8

String section playing pizzicato and tremolo.

This example is included in the full version of the book.

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The figure is included in the full version

Figure 8.9: String section playing pizzicato and tremolo

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8.6.2 Tremolo bowing

The use of vary rapid alternating up- and down-bowing using only part of the bow, i.e., *tremolo* is a familiar effect for creating suspense and tension. Example 8.8 and Fig. 8.9 show a string section playing a tremolo bowed cluster chord. Another case of string section *tremolo* bowing is the slow introduction with chords in parallel 5ths in Example 8.7 from 'I'll Remember April'.

8.6.3 Divisi playing

Example 8.9

String section playing playing divisi and unisono.

This example is included in the full version of the book.

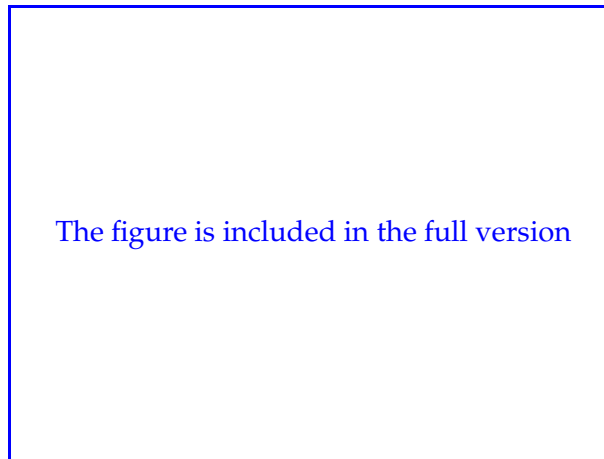


Figure 8.10: String section playing divisi and unisono.

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8.6.4 Bowing near the bridge and on the fingerboard

Usually the bow is used midway between the end of the fingerboard and the bridge. However, the player may alter the frequency spectrum (see Section 2.3.8 and Fig. 2.10) of the string sound by deliberately playing on the fingerboard (more near the middle of the strings), i.e., *sul tasto*, or very close to the bridge, i.e., *sul ponticello*. The former bowing technique creates a gentler, mellower string sound, by exciting more of the lower harmonics, the latter will trigger more of the higher (in)harmonics and yield an eerie, shriller sound. The combination of *tremolo* and *sul ponticello* is a frequent flyer for a thrilling sound in horror movies.

Special bowing techniques, such as *sul ponticello* and *sul tasto* were illustrated in the slow introduction with parallel chords in 5ths in Example 8.7 from *'I'll Remember April'*.

8.6.5 Multiple stops

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8.7 Small string groups

In smaller scale productions, the number of string players will be reduced, even to a quartet (two violins, viola, and cello), trio (violin, viola, cello) or duo (two violins, or two celli). In the classical music repertoire there are numerous examples for studying writing for string quartet, since Joseph Haydn started the form and Ludwig van Beethoven set the standard. Great examples of 20th century string writing are the Maurice Ravel *Quartet in F major* (1903) and the six string quartets by Béla Bartók.

When the small string section is carefully balanced with the rest of the group or ensemble, their use can be of great beauty, both in an acoustic setting or combined with electronic instruments. Somehow the strings always seem to blend in any ensemble sound.

The use of a small string group is shown in the following two examples (see Example 8.10 and 8.11). They are both from sequencer music productions with lots of synthesizers, percussion and electronic sound effects. These string parts were played with samples; however they were written using an acoustic voicing and orchestration approach. The first example is for string quartet, the second for cello quartet, a rather unique but very useful combination.

Example 8.10

String quartet background in funk rock production.

In Fig. 8.11 a string quartet provides a sustained harmonic background to a 16th note funky rock rhythm, 'Funky Duck'.

- The score shows the string quartet parts and a simple sketch of the funky rhythm section; the bass synthesizer part is written out and the harmonies are indicated.
- The chamber music string group enters in the second chorus with a sustained four-measure harmonic background over a busy rhythm, here shown in m. 1–4.
- There is some motion in the parts; note the descending appoggiaturas 9 – 8 and 6 – 5 in m. 1–2 in Vi 2 ($e \searrow d$) and Va ($b \searrow a$), the appoggiatura 9 – 1 in the Vc in m. 4 ($a \searrow g$). The db in the Va in m. 4 is a dissonant neighbouring note on the weak part of the measure.
- Note the ascending lead violin part, as the bass is moving into the lower register (m. 4). The result is opening contrary motion.
- In the middle section of the piece we hear this background with doubled Electric Piano chords (with tempo-synchronized echoes), but without the bass.
- The strings then continue their sustained harmony in the B-section, here shown as m. 5–8, over an alternating $Am_7 - F_{\Delta 7}$ harmonic pattern.
- There is slightly more harmonic tension in the strings, as the numbers of descending appoggiaturas is increasing.
- Note the (chromatically) stepwise descending Vc part in m. 5–8 (the 1 – $\sharp 7$ passing 7th pattern over the Am_7 chord continues into the appoggiatura 9 – 1 over the $F_{\Delta 7}^9$ chord), and the dissonant $b - a$ 2nd interval between Vi 1 and Vi 2 in m. 8 (the $b = \sharp 11$ of the F major chord).

Funk Rock ♩ = 92

Violin 1
Violin 2
Viola
Cello
Syn Bass

5
Vi. 1
VI. 2
Vla.
Vc.
SynBs

Figure 8.11: String quartet background in funk rock production. This relaxed, sustained background contains a number of appoggiatures. Shown are the A section (m. 1–4) and B section background (m. 5–8). From: 'Funky Duck' (F.G.J. Absil)

Example 8.11

Cello quartet background in Latin bossa nova production.

In Fig. 8.12 a cello quartet provides a sustained harmonic background and delivers a punch in the middle section of *'Bossa Groove'*.

- This is an unusual instrumentation; however, the *divisi* cello quartet has a unique timbre that blends easily with other instruments, such as solo woodwinds or a saxophone section.
- First this quartet plays a sustained harmonic background in the mid-high register over a Latin rhythm section in this lively bossa (see m. 1–9).
- The special effect is the return of the same material in the middle section of the piece, shown as see m. 10–17 in the example. Now the cello quartet is featured as a solo group with electronic percussion and sound effects in the background (no rhythm section).
- The setting is different now and full of motion; ascending patterns of 8th notes, staccato playing, accented notes and the occasional pizzicato (plucked) note in the lower parts. For the aspect of motion in string parts, see Section 8.4.
- The upper celli Vc 1 and Vc 2 are now moving into the very high register (see m. 16–17). The normal playing range is an octave plus 5th above the open string. Here the cello will play thumb positions on the *A* string.
- This eight-measure pattern is repeated a number of times, as the sound undergoes electronic filter modulation with increasing distortion.

8.7. SMALL STRING GROUPS

Latin Bossa ♩ = 126

The score consists of the following parts and measures:

- Cello 1, 2, 3, 4:** Measures 1-6, playing a sustained harmonic background in 4/4 time. Dynamics: *mf*.
- DBass:** Measures 1-6, playing a rhythmic accompaniment. Dynamics: *mf*. Chord symbols: $C\Delta$, $E6$, $F9$.
- Bridge (Measures 7-17):**
 - Vlc. 1, 2, 3, 4:** Measures 7-9: Sustained harmonic background. Measures 10-17: Lively solo section with imitation and motion. Dynamics: *f*. Articulation: *arco*, *pizz.*
 - DB.:** Measures 7-9: Sustained harmonic background. Measures 10-17: Lively solo section. Chord symbols: $A\flat add9$, $C\Delta$, $C\sharp m7$, $F9$, $A\flat^6_9$.

Figure 8.12: Cello quartet in Latin bossa nova production. A sustained harmonic background (m. 1–9) is transformed into a lively solo bridge section with imitation and motion (m. 10–17). From: ‘Bossa Groove’ (F.G.J. Absil)

Chapter 9

Melody



Writing a beautiful melody is not a technique, it is a gift. Some composers have a natural talent for pouring out great melodies, for others it is a lifelong struggle.¹

Arranging a song from the standard repertoire means that you will work with a given melody. Your melody writing talents will be challenged when composing countermelodies, introductions, codas, bridges, and special choruses. These formal elements are discussed in more detail in Chapter 10 and 11.

Analysing a given source melody in terms of the properties dealt with in this chapter will help you to identify its characteristic features. That in turn may determine the general mood of the arrangement, the local technique for a specific section, or help to find snippets of the melody that can be used as motifs in other formal elements.

This chapter presents guidelines for analysing or writing melodies. These are based on empirical rules, that can be found in textbooks on classical composition and counterpoint such as [20, 24, 44, 45, 46]. Some of the guidelines apply only to diatonic scales, but not necessarily with seven steps. Other are equally valid in the 12-tone chromatic system.

9.1 Motion in melodies

Melodies in jazz and popular music imply a sequence of pitches with different durations from a diatonic scale along a timeline, as shown in diagram in Fig. 9.1 which has time t along the horizontal and pitch p along the vertical axis. The black circles along the p -axis indicate the pitch collection, i.e., the local diatonic scale.

¹Whereas Johannes Brahms was a rich source of excellent melodies (e.g., check the opening melody in the third movement *Poco Allegretto* in his *Symphony No. 3 in F Major, Op. 90*) Ludwig van Beethoven apparently had to make an effort. Unless one respects its position in the long *Symphony No. 9* the closing 'Ode an die Freude', now the European Union national anthem, sounds rather, well, lacking joy IMHO. However, it's great for hooligan singing, drunk mass gatherings and out-of-tune official ceremonies.

9.1.1 Types of motion

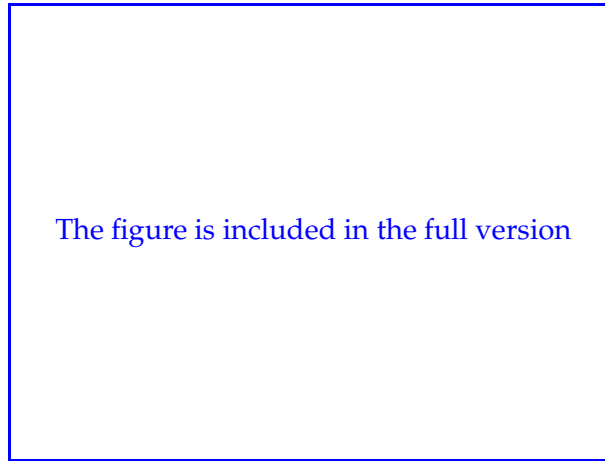


Figure 9.1: Unisono violin lead melody

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9.1.2 Melody direction axes

A good melody has *direction*. Along the melody there are sections with either an *upward* or *downward directional axis*. In the former case the local melody motion is dominated by ascending steps or leaps, in the latter case these are descending.

⇒ The *secondary axis* refers to a situation where two melody directional axes are at work simultaneously. Both axes can be either *parallel*, i.e., moving in the same direction, or in *contrary* direction, as shown in the diagrams in Fig. 9.1.b and c. Note that the slope, the gradient of both axes may be different. Thus, parallel axes might yield a converging pattern with a crossing point; the usage here is different from the strictly parallel definition in mathematics.

The secondary axis is relevant for both solo melodies and multipart settings. For the use of secondary axes in solo melodies have a look at the Baroque music solo sonatas and partitas by Johann Sebastian Bach for violin and cello. There the secondary axes are suggesting multipart harmonic progressions for solo instruments.

In a multiple part setting the application of two directional axes creates *opening* or *closing contrary motion*, as illustrated in Fig. 9.1.c. Opening contrary motion, with the lead voice ascending while the bass voice is descending, is used as a means to create tension and as a preparation of an instrumental climax. This is illustrated in a number of examples from this book.²

9.1.3 Melodic curve

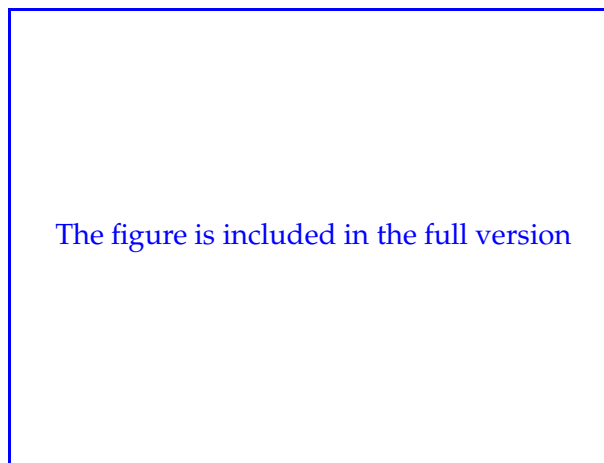


Figure 9.2: Unisono violin lead melody

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²Look for the term *contrary motion* in the index of the book, and you will have the references to the relevant examples.

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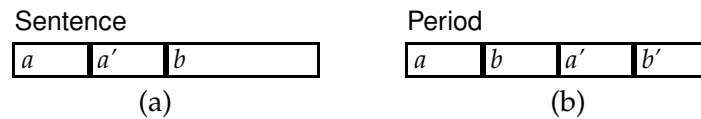


Figure 9.3: Classical music melody structure. (a) sentence, (b) period.

9.2 Types of melodies

There are two basic types of melodic structures in classical music (see Fig. 9.3):

The sentence. The *sentence* consists of three phrases $aa'b$, with a and b motivic melody fragments. The a motif is repeated once, before the contrasting b motif sets in. The typical eight-measure sentence is subdivided into $2 + 2 + 4$ measures. When the first a is on the tonic chord, the second a' is modified to sound over a dominant chord. The b motif has the function of commenting on the repeated statement of the a motif.

The period. The *period* has a binary subdivision with symmetry: the four phrases are $aba'b'$, where, like in the sentence melody, the b is a contrasting phrase, and the accent indicates some form of variation. Here, the a and b motif also have a somewhat *call-and-response* flavour. A regular, symmetric eight-measure period has a $2 + 2 + 2 + 2$ subdivision.

Interpreting jazz standards and pop songs in terms of these traditional structures will help to identify and separate the constituting elements and phrases.

9.3 Examples of melody types

We will look at a limited number of melodic fragments from the examples in the book in great detail and describe these in terms of melodic properties. The first, Example 9.1, is a textbook melody with appropriate characteristics. The other two show irregular melodies, one with an early high point (see Example 9.2), and one leading to a climax at the end (see Example 9.3).

Example 9.1

Classical lead melody.

The introduction to the studio orchestra composition ‘*Venetian Violins*’ was discussed in Example 8.1 (see Fig. 8.2). The instrumentation is for strings only, the voicing technique is classical music 4-part counterpoint style. The graphical representation of this melody is shown in the pitch-time diagram in Fig 9.4.

- The eight-measure introduction has an ascending pitch tendency, as shown by the two upward diagonal directional axes. The highest point is on beat 4 in measure 6 (the high pitch a), near 70% of the total length. This is close to the Golden Ratio number of 62%.

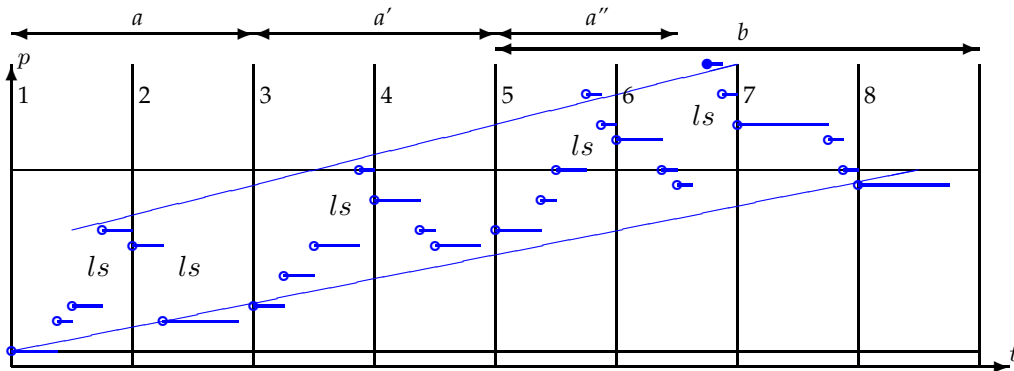


Figure 9.4: Introduction melody in classical style. Shown are the highest point (closed circle), the directional axes (thin blue diagonal lines), the phrase structure (a, b) and the leap-step pairs (ls). From: 'Venetian Violins' for studio orchestra (see Fig. 8.2).

- The motion is mostly stepwise with ascending steps dominating the first half, and descending steps in the latter third. There are up to four consecutive steps in the same direction (see m. 2–3 and 4–5). The upward leaps are followed by downward steps, as indicated by ls symbols in the diagram.
- The melody has a regular $aa'b = 2 + 2 + 4$ bars sentence structure. The a phrase is repeated in a slightly varied rhythm (a') on the mediant degree f of the d minor scale. The b phrase starts with another variation of the a'' phrase.
- Rhythmically, there is slightly more activity in the second half of the fragment, as indicated by the number of 8th note attacks.

Example 9.2

Melody with unconventional structure.

This example is included in the full version of the book.

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The figure is included in the full version

Figure 9.5: Unisono violin lead melody

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Example 9.3**Guitar lead melody with late high point.**

The introduction to the studio orchestra composition ‘*Venetian Violins*’ was discussed in Example 8.1 (see Fig. 8.2) and Example 9.1. Now we will look at the electric lead guitar melody, shown in Fig 9.6. It is played during the second A statement with the fast high violin legato 16th-note patterns (not shown here). The melody is represented in the pitch-time diagram in Fig 9.7. The guitar sound is in the style of Hank Marvin and the Shadows. The key is *D* minor.

- This is a 16-measure phrase with the solo guitar rising (m. 1–4), descending (m. 5–8) and then in the second half ascending over almost two octaves to the apex with a climax $c - bb$ at the end (m. 15–16).
- The harmonic progression is $Dm - Bb_{\Delta 7} - (Bb_{\circ 7} = C_7^{b9}) - F_{\Delta 7}^{\sharp 5} - Gm_7 - E_{\emptyset 7} - A_7^{b9}$. corresponding to root cycles pattern $R_3 - R_7 - R_5 - R_7 + R_3 + R_5$, with positive cycles and primary root movement only.
- The long, sustained guitar notes are great for vibrato, bending and distortion effects. The rhythm and longer note duration values in the guitar part also nicely contrast with the continuous high 16th note violin line.
- The phrase structure is $abcdc'd'$, with some similarity between the a and c motif. All four motifs are characterized by an upward leap, followed by one or more descending steps, marked as ls in the diagram. Note the 8th note turns before the upward leaps in the c phrase.
- The rhythmic accents in the background from the opening statement are repeated, but for a different instrumentation (the marimba replaces the harp, and mid register flutes and low clarinets double the pizzicato strings).

CHAPTER 9. MELODY

The musical score for Figure 9.6 is written in 4/4 time and consists of two systems of staves. The first system (measures 1-8) features an electric guitar (EGtr) solo melody in the top staff, starting with a D^m chord and a f dynamic. The accompaniment in the middle and bottom staves includes woodwinds (2 Fl, 2 Cl), marimba (+Mar), and pizzicato strings (+Str Pizz) with a mp dynamic. The second system (measures 9-16) continues the melody and accompaniment, with changes in chords such as $F^{\Delta^{\sharp 5}/A}$, $Gm7$, E^{\flat}/B^{\flat} , and $A7^{\flat 9}$.

Figure 9.6: Electric guitar solo melody in the second A statement from ‘*Venetian Violins*’ (F.G.J. Absil). The background is for woodwinds, marimba and pizzicato strings (violin 16th note patterns not shown).

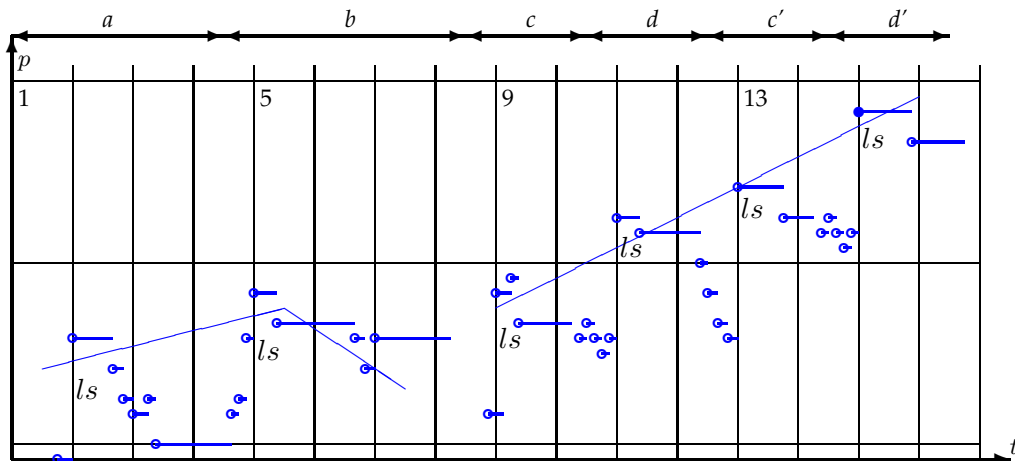


Figure 9.7: Electric guitar solo melody with late climax. Shown are the highest point (closed circle), the directional axes (thin blue diagonal lines), the phrase structure (a, b) and the leap-step pairs (ls). From: ‘*Venetian Violins*’ for studio orchestra.

Part III

Assembling the piece

“Buildin’ da house”

Chapter 10

Musical forms in jazz and pop music



This chapter presents a number of standard forms in jazz and popular music. We will discuss shorter and longer forms, the composition of a complete piece from a set of building blocks, and the aspect of musical style. This chapter is neither a study in musicology, nor an encyclopedia lemma. Trying to be complete is an illusion; the materiel presented here is meant as an awareness trigger for the arranger. You might be familiar with the subjects in this chapter and skip most of it. However, if there does not ring a bell, then it is time to delve deeper into these subjects, consult other sources and become knowledgeable in forms, styles and characteristics by reading and listening. The content of this chapter must be part of the intellectual and music background of the arranger.

10.1 The building blocks

A finished piece of music consists of a number of units or building blocks. Through musical evolution a set of *standardized formal units* has emerged in jazz and popular music. These have a more or less fixed length in measures and a typical duration between twenty and thirty seconds (this obviously is tempo-dependent). The building blocks in their turn may contain smaller scale elements, such as a section, a melodic phrase or sentence, a standardized chord progression. The three best-known jazz and popular music forms, discussed below, consist of four, three and two smaller scale elements [25, 3]. Longer forms do exist but are relatively rare in jazz and popular music; see Section 10.2.1.

10.1.1 The 32-measure AABA song form

The *AABA song* form implies a *32-measure chorus*, subdivided into 4 eight-measure *sections*, as shown in Fig. 10.1. The form is derived from the classical music ternary song form ABA. It consists of an opening phrase with main melody in the first A section. Here you might find classical music melody forms such as the *sentence* or *period*; see Section 9.2. The second

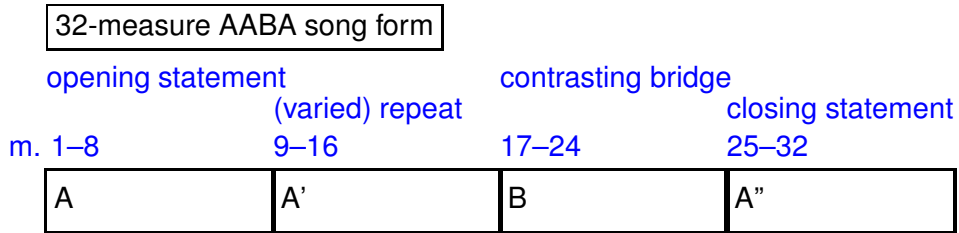


Figure 10.1: The four-element, 32-measure AABA song form.

eight measures are a repeat of A with some variation or an alternative ending. Then there is the contrasting middle section B, also referred to as the melody *bridge*. The song form closes with a final statement of the opening phrase, the third A section.

⇒ Numerous Tin Pan Alley, musical and movie songs are based on the 32-measure AABA song. From this repertoire a collection of several hundreds of *jazz standards* has emerged, such as collected in *The Real Book* series. In special cases also the chord progression has become fixed, such as in the *Rhythm* chorus, named after the AABA Gershwin song 'I've Got Rhythm', paraphrased and re-used many times during the swing and the *bebop* era.

10.1.2 The blues form

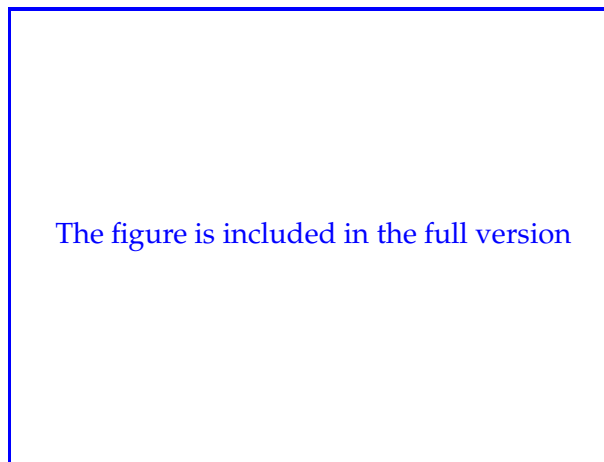


Figure 10.2: The three-element, 12-measure blues chorus

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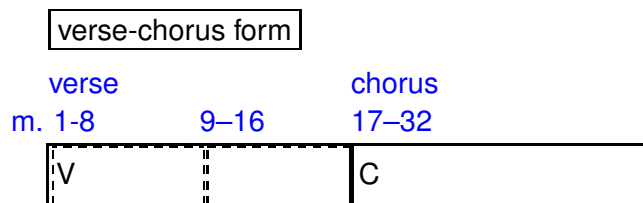


Figure 10.3: The verse-chorus pair form. A 32-measure template is shown, but the actual length may differ.

10.1.3 The verse-chorus form

The *verse-chorus* pair, shown in Fig. 10.3, is the template building block for contemporary popular music songs, the *pop song*. There are traces of religious and folk origin; it has elements of the *call-and-response* style. Both the verse and the chorus usually have a regular structure (see the dashed boxes in the figure). Most songs consist of melodic phrases with even numbers of measures, typically multiples of four. The figure shows a 32-measure verse-chorus pair, but actual numbers may differ from this template.

10.1.4 Folk and world music

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10.1.5 Additional formal elements

In order to create a complete piece of music with a typical duration between three and five minutes, there will be other formal elements and sections than the elementary building blocks. These additions will create either unity or variation. It is the responsibility of the arranger to control the *degree of coherence* within the piece of music. Whereas the building blocks are a given source for the arranger, the additional elements require creativity. This is where the arranger most likely will become a composer.

The challenge lies in creating new material, that has a certain relation with the source material. The arranger may use snippets or basic ideas from the building blocks. This may be a melodic phrase or motif (even an interval, a characteristic leap in the melody), a signature *hook*, a rhythm, a chord change. This helps in creating coherence within a piece. This approach also has a pragmatic reason; don't waste all your best ideas on just one song. Keep ideas in store for other work.

The additional sections in a jazz and popular music piece are:

Introduction. In general, a composition does not start with the first chorus; there is an introduction, in brief the *intro*. Inviting dancers to the floor, fading in during radio play, these are typical functions of the intro. The introduction usually sets the mood and style (tempo, groove, musical idiom) of the following music, unless the arranger is going for a surprise attack.

Coda. One could stop at the last measure or the final building block, but that is no good idea and will leave an unbalanced impression. The coda will consciously round-off the piece. It might summarize the essentials, or create a final climax (a clear end). The fade-out ending is useful for radio play.

Bridge. In the AABA song form we already referred to the B section as the bridge. On a somewhat larger scale we also may encounter a *bridge* section between the building blocks. Typical purposes of the bridge are: create temporary contrast and variation, modulate to a new key, or provide room for improvisation. In many jazz arrangements it is omitted, in a pop song it is a must have. A synonym for the bridge, a special section in the middle of the piece, is the *transition*.

Development section. This section is common in longer forms in classical music. It is a standard component in the *sonata form*. The composer takes one or more characteristic elements from the *exposition* and re-processes these in all sorts of disguises, using variation, imitation, re-harmonization, modulation through a number of keys. Classical music development techniques have remained in the toolbox of the contemporary arranger. Yet, development of source material is rare in jazz and pop music. It leads to irregular phrases and forms, requires memory and cognitive association from the listener. This concentrated involvement is somewhat contrary to the setting for most jazz and popular orchestra music. The jazz improvisation is the closest equivalent to the classical music development. The arranger will almost never be in a situation to write a development section.

In Section 11.2.3 various characteristic types of introductions and codas will be discussed. Section 11.2.4 discusses bridges and transitions. There we will see examples of these characteristic types.

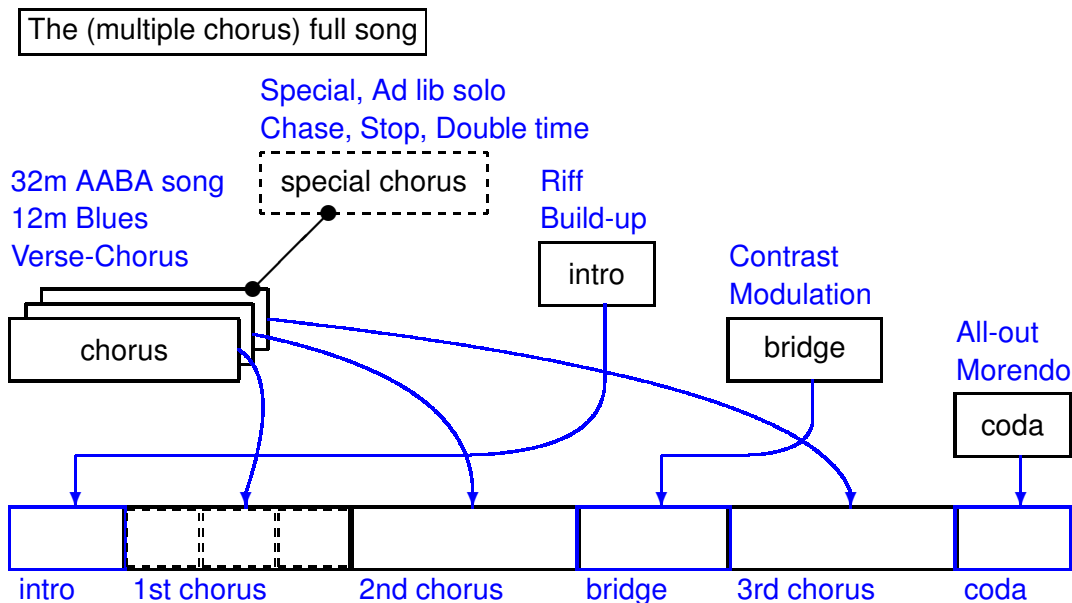


Figure 10.4: The full song form with typical duration of 3-5 minutes, consisting of a number of building blocks, juxtaposed with additional elements such as the introduction, bridge and coda.

10.2 The full piece

The full piece consists of the previously discussed building blocks and additional formal elements. These have to be arranged in a sequence in order to create a meaningful complete musical piece. That process is illustrated in Fig 10.4, where the breakdown of a typical three-to-five minute piece is shown in diagram. The building blocks are the main units, here labeled as choruses; they could be either an AABA song, blues chorus or pop song verse-chorus pairs. There will be a series of these, juxtaposed with an introduction, a bridge and a coda. Neither the number of choruses nor the presence of transitory elements is fixed. Some of the blue labels in the diagram, such as the special and ad lib chorus, will be elucidated in Chapter 11.

The arranger may want to design and finalize the total form, before starting to write the score. Depending on the event and production, the formal design is a necessary step, somewhat equivalent to a film music cue design process. It also will give an idea about which techniques will be applied where during the piece.

10.2.1 Longer forms

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10.3 Musical style

Jazz and popular music may be categorized into different *styles* or *genres*. The arranger will be expected to know the different styles in pop and jazz, and grasp the essentials and special characteristics in each genre.

A great help in this field are books for drummers, percussionists and bass players; these may be considered as catalogues of jazz, pop and world music styles. They contain numerous style examples with typical patterns; accompanying audio material is a fast learning tool for discovering appropriate tempi, style characteristics and feel. It is a good idea to have a style collection on the arranger's bookshelf or in your internet browser bookmarks.¹

So here's a list of familiar styles, compiled from a set of 'handbooks' for drums, percussion, bass guitar and some other stuff in the library [6, 17, 21, 29, 32, 56]:

Swing. The essential element in this type of jazz music is the *swing* style performance of groups of 8th notes, usually indicated as: *with triplet feel*. In other words: groups of two equal 8th notes will be performed as triplet 4th note - 8th note pairs (with 2:1 duration ratio). However, this ratio is tempo-dependent. Slow (ballad) to moderate swing pieces will tend towards a dotted 8th - 16th note distribution (3:1 ratio), also known as *bounce*, medium swing and *shuffle* rhythms adhere to the triplet distribution (2:1 ratio), while fast up-tempo swing pieces will tend towards an almost regular 8th note distribution (say, around 1.5:1). The experienced drummer will know what ratio to choose. And there is a historical style transition from 4-beat to '2 in the bar' swing style during the 1930s, affecting the kick drum and double bass part. ←

Pop, Rock and Blues. This wide field of popular music is a collective term for many subgenres. Common denominator characteristics are a regular $\left[\frac{4}{4} \right]$ meter and a *groove* in either 8th or 16th notes. Always mark the type of groove in the score, and make sure it is also in the drum part. Here we find styles such as: boogie, country & western (Nashville, bluegrass, cajun), gospel, heavy metal, rhythm & blues, rock (disco, funk, fusion, hard rock, jazz rock, punk), rock & roll (twist), soul (Memphis, Motown, Philadelphia). Not all of these styles will work well in an orchestral idiom; some is great in combination with smaller ensembles (brass and sax horn section, string group). ←

Latin-American. Classifying the vast domain of Latin-American music could be done on a geographical basis. Characteristic are the syncopated and accented even 8th note repetitive patterns for the different dance and ceremonial styles. Know when and how to apply the fundamental *clave* (2-3 and 3-2), *tumbao* and *cascara* rhythms. Learn the *montuno* patterns for the various *salsa* styles: bolero, cha-cha-cha, danzón, guaguancó, guajira, guaracha, mambo, songo. Discover the *Afro-Cuban* styles, in $\left[\frac{6}{8} \right]$ meter, such as the bembé and naïgo. Think of Caribbean rhythms: calypso, cumbia, merengue, ska, soka and Jamaican reggae. From the South-American continent, know Brazilian styles: bossa nova, samba and the dances from the northern region, Columbian music, etc. ←

¹While studying these drum and bass style books, why not enter subsets of these patterns as MIDI files on the computer? You will combine a detailed study of these patterns with building a library of patterns, to be imported into your music notation software. This might become a timesaver at some point, when you are trying to meet an impossible deadline.

Ballroom dance music. These could be classified according to meter. Yielding, in $\left[\begin{smallmatrix} 4 \\ 4 \end{smallmatrix} \right]$ meter: boogie-woogie, charleston, jive, march, polka, foxtrot, paso doble, quickstep, rumba, and tango. In $\left[\begin{smallmatrix} 3 \\ 4 \end{smallmatrix} \right]$ meter there are: waltz, and tarantella. The same dance forms, applied to jazz standards and part of the pop song repertoire returned in *easy listening* orchestral recordings in the 1960s. This genre is not the ideal testing ground for arranger experiments. Create your own sound, if you must; that's what Mantovani, Herb Alpert and James Last have been doing. Just don't smoke screen the dance rhythms; these have been canonized since the Habsburg Empire, approximately.

Folk and world. Just to make things more complex: here's another 'world' of its own, with innumerable national and regional variants and styles. Just to mention a few: Afro-Pop (kwasa-kwasa, soukous, zouk), Argentinian tango nuevo, Balkan fanfare, Irish jigs and reels, Mexican mariachi, Spanish flamenco. On a supranational and larger scale there are: Arabic music with its characteristic *maqām* improvisation and the *wazn* rhythmical patterns. Indian *raga* with the different tone system and rhythmic pattern classifications. When the arranger is faced with these styles, it will be for very specific project with hopefully sufficient preparation time and support to get acquainted with the style. Otherwise it is better left to a person with a specialized background in the genre. Here are some books to consider as an introduction to world music from various continents: [5, 22, 28, 36, 53].

However, if the case arises, the arranger will likely be faced with unfamiliar musical instruments (see Section 2.3.7), scales and rhythms. Do realize that the use of certain non-Western scales in world music implies that some arranging techniques may no longer be applied.²

Modern pop music. Under this label we will find: acid, drum 'n bass, electronic dance music (EDM), hip-hop, house, rap, trance, dubstep and DJ's. Upon first inspection, this field might seem irrelevant to the contemporary arranger and orchestrator. However, in initiatives where classical music organizations want to attract a younger audience, it is not unlikely that live concert events, including DJ's and rappers might be organized. These projects are a real challenge to the arranger; close coordination with the electronic music producer is essential in order to maintain a proper balance with the acoustic instruments. Usually, forget about subtleties in strings and woodwinds. Make sure the lead melodies and the beat are somehow heard.

10.4 Move on to arranging

With the total musical form determined, the arranger may begin his 'real' work. The tempo, duration and timescales are known now, as are the general mood of the song or for each of the pieces in a multiple number production. Probably the musical style has been identified by now.

²The arranging techniques in Part II and III are in general based on the 7-step diatonic scale (the modes) and the equal-tempered 12-pitch chromatic scale. Sectional harmony and extended tutti chords will sound different (to say the least) in other tuning systems. Techniques such as the use of pedal point, bell chords, variable density, diatonic parallel chords and some symmetrically distributed roots may still be (limited) applicable.

It is time to start arranging the piece, controlling the overall tension and balance, and the detailed application of arranging techniques and instrumental colouring to each subsection.³ Overall considerations and detailed aspects and approaches to a finished piece are presented in the next chapter, where more examples will be shown.

³Make sure you know the restrictions and production boundary conditions before you start writing the first score. Remember the shortlists and tips in Section 2.4.

Chapter 11

The arrangement



This chapter deals with the arranging and completion of a finished piece of music, a complete arrangement. Various arranging aspects will be discussed, such as building a tension curve, applying and combining techniques from the toolbox in Part II. The chapter concludes with a list of relevant music notation categories in score and parts.

11.1 Creating a tension curve

In Section 10.2 we constructed a full piece of music from a set of building blocks: choruses, introduction, bridge and coda. The arranger can now start to work on a detailed level and determine the application of specific techniques to sections from the piece, i.e., a local approach.

However, the design of the arrangement also implies control of a number of musical aspects on a global scale. These can be summarized in a *tension curve*, that includes aspects such as melodic curves (high and low points), harmonic consonance and dissonance, dynamics (soft-loud), orchestration (instrumentation, register, special playing techniques and effects) and part density (between unisono and tutti). The total duration of the arrangement follows from the tempo. ←

A typical tension curve for a full song is shown as a blue diagram in Fig. 11.1. Note how there is an overall tension increase over the duration of the piece. The formal elements of the template song are shown in black; there are multiple choruses (AABA song, blues or verse-chorus pairs), an introduction, bridge and coda. The dashed boxes in the second chorus are there to remind us of the fact, that a chorus contains subsections, such as musical phrases and sentences (the template shows a three-part subdivision of the chorus, as would be the case for the blues).

The figure shows a number of alternative tension profiles. An increase in tension can be in *steps* along a staircase pattern, such as during the crossing from the first to the second chorus, or *gradual*, as is shown during the bridge (this also holds for a tension decrease,

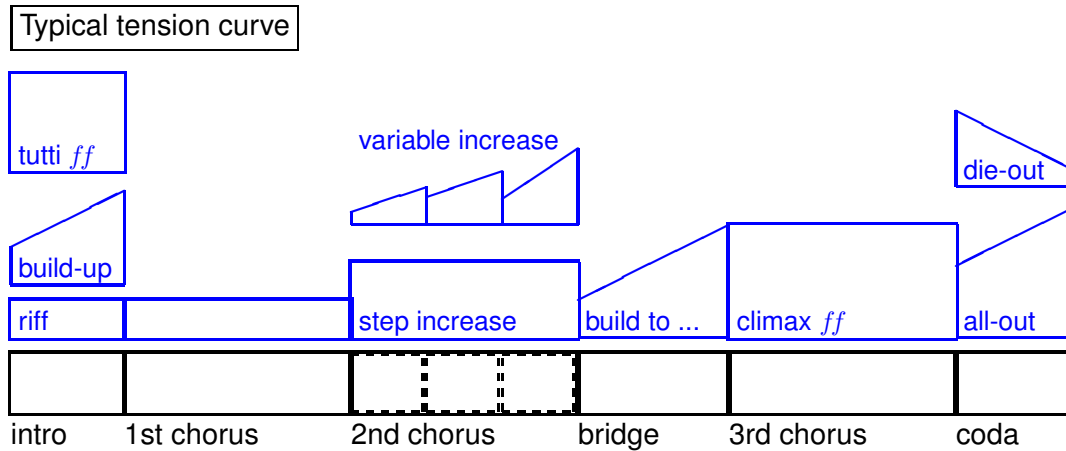


Figure 11.1: Typical tension curves for a piece of music. The multiple chorus musical form is shown in black, the tension curve in blue. Alternatives are shown for various sections of the arrangement (see discussion in the text).

obviously). The stepwise increase can be achieved by moving from a unisono lead melody to five-part sectional harmony or a repeat of the melody in the higher octave, but now with brass accents in the background. The gradual tension rise can be achieved dynamically by a crescendo, getting louder from *mf* to *ff*, or by opening contrary motion in a tutti block chord voicing.

⇒ The piece typically has multiple climaxes. Shown is a *global climax* in the third chorus, and a number of local climaxes in the alternative tension curves for introduction, second chorus and coda. In general, the global climax is expected between 60% and 70% of the total duration. Here the *Golden Ratio*, that we encountered in the guidelines for a good melody in Section 9.1.3, may hold once again. This yields an expected climax at $0.618 \approx 62\%$ of the total length.

Variable tension in the second chorus can be achieved for example by closing every vocal melodic sentence with a rhythmic break for brass section with drum accents. Or, alternatively, by moving from a string sustained harmonic background during the first section to background 16th note upward woodwind arpeggios in the second section, and a big band tutti voicing in the third section. At the start of the bridge there is typically a sudden decrease, a drop in tension; this is not the only solution, but it makes the design of the overall climax easier (think in terms of relative tension differences). The typical alternative tension curves for introduction and coda will be discussed in Section 11.2.3.

⇒ *Harmonic tension* can be controlled by a number of parameters; an overview of these is shown in Fig. 11.2. Five categories of parameters are listed in the figure. The label *tension* refers to the highest chordal function: for a triad it is the 5th (the triad consists of root, third and 5th, i.e., $S_5 = [1, 3, 5]$), for a 7th chord it is the function 7. Extended chords start with function 9 and may include the functions 11 and 13 and their alterations. Varying the chord structure during a phrase will affect the local tension curve.

An obvious parameter is the chord *type*: major, minor, dominant 7th, etc. Sometimes the chord type is fixed, such as in a closing V-I dominant-tonic cadence $S_7 - S(m)_5$ in a major or minor key. However, when taking into account the possible application of substitute

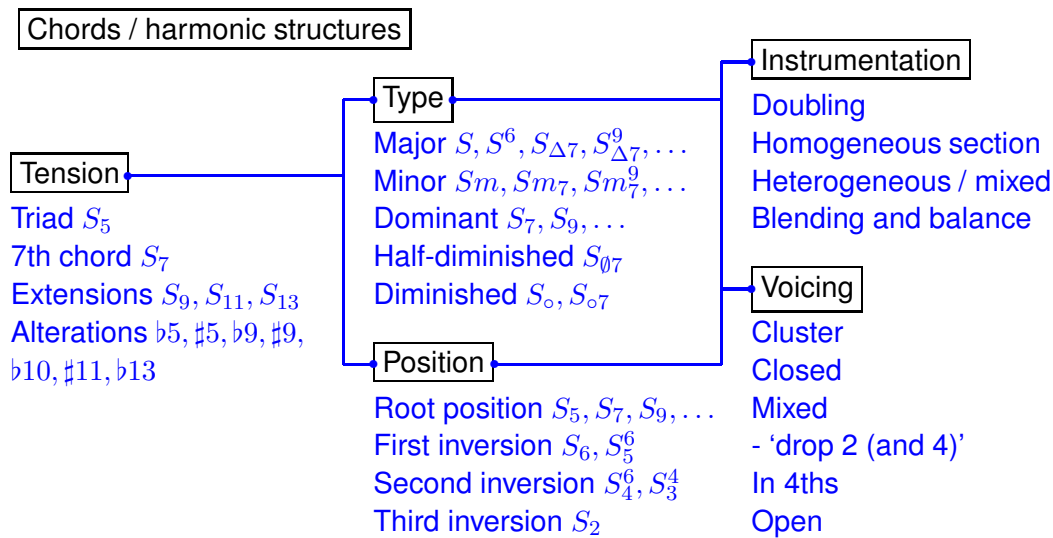


Figure 11.2: Parameters that influence harmonic tension. These are grouped into five categories (shown in black).

chords (see Section 3.3.4, where this option is discussed for sectional harmony), there is more freedom to move from major 3rd to minor 3rd type chords.

Chord *position*, i.e., the use of inversions, is another variable in harmonic tension. Moving from root position to higher inversions will decrease harmonic stability and increase tension. As a guideline, be careful with series of inverted chords, and use extended chords only in root position.

Chord *voicing* and *instrumentation* also contribute to the harmonic tension, but for these it is hard to generalize. Very close (cluster) and open voicings increase the tension, some playing techniques also yield tension (strings tremolo, brass with straight mute, French horns with *bells up in the air*). There are a great many options and combinations in these categories. As an arranger develop the awareness and develop deliberate usage to the harmonic tension parameters.

11.2 Using the toolbox

This section is included in the full version of the book.

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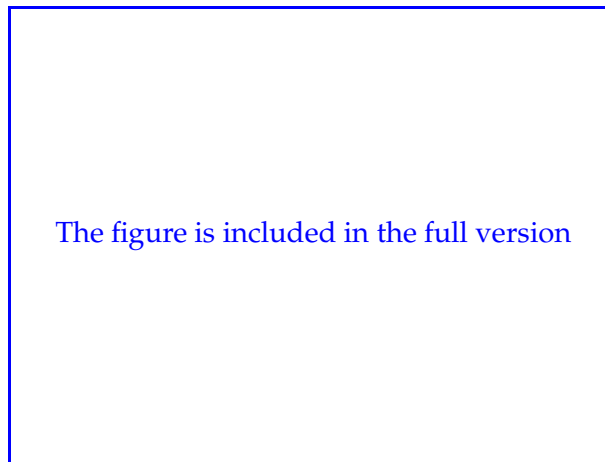


Figure 11.3: The techniques toolbox in diagram

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11.2.1 Combine elements

We may use a somewhat structured approach when selecting techniques from the toolbox, and adhere to a set of rules:¹

1. Use a *sparse set* from the toolbox. Be efficient and don't waste all the techniques on every piece of music. Limiting yourself to a subset of techniques will create unity and coherence within a single piece and leave more variation between multiple pieces.²
2. Select a *main element* from Fig. 11.3 for each individual (sub)section. In any case always be aware of the dominant element in a musical setting; there is one, for sure. ⇐
3. Combine *up to three elements in parallel*. Note that in jazz and pop music the rhythm group and vocals also count as an element. Going beyond three elements must be a deliberate choice; three elements in parallel should do.³ ⇐
4. Decide on when to *change the set of elements*. This has to make sense musically; the *transition* to a new section seems a logical spot to do so. But it might also be on a more local scale, at the end of a musical phrase. Also, the realtime, tempo-dependent, experience is relevant. Change regularly, before the sound of the technique becomes boring. Keep the listener interested; an attention span of around 30 seconds may serve as a practical guideline for changing the arranging technique.

Fig. 11.3 mentions *unisono* playing at both the section and ensemble (tutti) level. That special technique has been mentioned as an extreme case of variable density in Section 6.6. To make an impressive thematic statement, play it unisono; that effect works perfectly when juxtaposed with multi-part chord structures.⁴

Some technique combinations make no sense; this obviously holds for trying to combine four-part with five-part sectional harmony. Another incompatible combination is imitative counterpoint with sectional harmony.

Consider the combination of techniques with *different note attack timescales*, i.e., with different rhythmical characteristics and durations. This aspect is illustrated in diagram in Fig. 11.4. For example, use the first technique with a typical duration of whole notes in parallel with a second technique with average duration of 8th notes. Combinations with equal durations sound blurred and are not easy to discern for the listener. Also try to place the shorter note attacks from one technique during longer note durations in another technique. A useful combination with different timescales in Fig. 11.4.b might be: T₁ sustained ⇐

¹Some readers may prefer the cooking analogy, where for preparing the dish selecting ingredients, mixing and spicing are the equivalent. Note that these rules are in fact guidelines, that need not be respected strictly. The rules represent empirical data and are common practice.

²It is a well-known beginner's error for an arranger to use the full set in the first score. I fell into that trap: my first jazz big band score had dots and beams all over the place, on every page, showing-off all possible techniques to the detriment of the total piece. Try and refrain from this temptation.

³In contemporary music productions, especially in the popular music sector, multiple sound layers are most common. Probably inspired by the '*wall-of-sound*' concept and enabled by modern multitrack recording and sequencing technology this is easy to do; the balance is then created at the mixing stage. However, in the acoustic and the concert performance domain a balanced sound is harder to achieve; that's how the three parallel element approach emerged in the 1930s through 1950s, I guess.

⁴For a virtuoso case of jazz big band tutti unisono playing, listen to Bill Holman's arrangement of '*Just Friends*'.

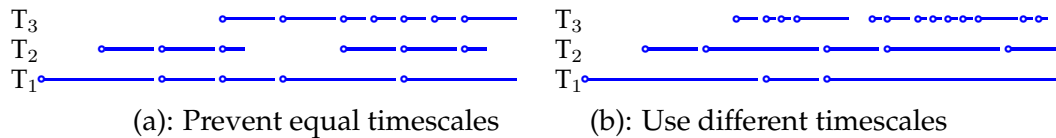


Figure 11.4: Combining techniques (T_1 to T_3) at different note duration timescales. Prevent the combination on the left with many coinciding attacks with equal note durations. The timescale and note attack separation on the right is much clearer. (Circles indicate note attacks, lines represent note durations.)

harmonic background, T_2 the rhythm section bass part, and T_3 the lead melody. Or, alternatively, T_1 a sustained pedal point, T_2 a unison melody and T_3 accented extended block chords.⁵

We will now illustrate the application of the techniques toolbox with a number of examples, starting from simple, basic element combinations to the more intricate multiple element fragments; see Example 11.1 to 11.6. The first three examples are arrangements for big band.

Example 11.1

Instrumental background in vocal chorus.

Fig. 11.5 shows a vocal chorus from *'Like a Lover'* (D. Caymmi) in a medium tempo Latin arrangement for big band.

- The parallel elements in the first chorus (m. 6–19) are: (1) the solo vocal, as the main element; (2) the rhythm section. In the second chorus (m. 20–33) a new element is added: (3) the unisono instrumental countermelody. Finally, in m. 28–30 the third element becomes the trombone section. Note that the vocal line typically has a timescale of 8th notes; when the singer is combined with trombones, the latter play typical durations of either 4th or half notes (on the sustained chords).
- Two instrumental combinations are used: alto saxophone and flugelhorn play a motif from the main theme (m. 18–20, 32–33), tenor saxophone and trombone play a unisono countermelody. Note how the rhythmic activity (short vs. long notes) is swapping between vocals and countermelody.

Example 11.2

Rhythm and saxophone background in an ad lib solo chorus.

Fig. 11.6 shows an ad lib solo chorus from *'How High the Moon'* (W.M. Lewis) in an up-tempo swing arrangement for big band.

- The parallel elements are: (1) the ad lib solo, as the main element; (2) the rhythm section; (3) the saxophone section background.

⁵In the examples in this book with multiple techniques in parallel, try to identify the timescales for each.

1 Latin $\text{♩} = 120$ 2 3 4 5 6 Voc 7 8

9 10 11 12 13 14 15

16 17 18 19 20 21

22 23 24 25 26 27

28 29 30 31 32 33

Chord symbols: Rh, C Δ 7, G¹³_{SUS4}, mf, C Δ 7, D/C, Bm7, Em7, A⁷_{SUS4}, A⁷₉, D⁹₆, G⁷₁₃, F Δ 7, G/F, AS+Flg, Tbn+TS, mp, C Δ 7, G¹³_{SUS4}, C Δ 7, D/C, Bm7, Em7, A⁷_{SUS4}, A⁷₉, D⁹₆, G⁷₁₃, Tbn, F Δ 7, mf, G/F, C Δ 7, G¹³_{SUS4}.

Figure 11.5: Instrumental background in vocal chorus. From: 'Like a Lover' (D. Caymmi, arr. F.G.J. Absil) for big band.

CHAPTER 11. THE ARRANGEMENT

1 Up-tempo Swing $\text{♩} = 240$ Sax 2 3 4 5 6

mp

Rh Cm7 Cm7 F13 Bb

mf

Bbm7 Eb7^{b9} AbΔ7 Dm7 G7 C

mf

Dm7 G7 Em7 Eb7^{b9} Dm7 G7^{b13} CΔ7 DbΔ7 EΔ7 G7sus4

Figure 11.6: Rhythm and saxophone background in an ad lib solo chorus. From: *'How High the Moon'* (W.M. Lewis, arr. F.G.J. Absil) for big band.

- The saxophones (AS 1 - AS 2 - TS 1 - TS 2) are playing four-part accents (m. 1), juxtaposed with unisono lines (m. 2–8), and sectional harmony with diatonic and exact parallel chords (m. 11–12). The typical note duration is juxtaposition of 8th note groups with dotted half note (see m. 2–4); this timescale differs from the 4th note walking bass accompaniment in the rhythm section.

Example 11.3

Tutti special chorus for big band.

Fig. 11.7 shows another fragment from *'How High the Moon'*; a tutti special chorus

that follows directly after the previous example (note the measure numbering).

- The elements in m. 17–27 are: (1) the ensemble block chords in brass and saxes, as the main element; (2) the rhythm section.
- The brass and saxes are juxtaposing extended chord voicing with unisono motifs (see m. 21 and 25).
- In m. 28 there is a change: a five-part saxophone voicing becomes the main element, while the rhythm section continues as the secondary element.
- The piano player might add a few fills in the gaps between the tutti phrases. The drummer will prepare the tutti accents.

The other examples in this section are from two arrangements and a composition for concert band, see Example 11.4 to 11.6.

Example 11.4

Juxtaposing multiple techniques in ad lib solo chorus.

Figure 11.8 shows a fragment from ‘*Autumn Leaves*’ (J. Cosma) in an arrangement in up-tempo swing style for concert band.

- The fragment is at the end of an ad lib solo for trombone; the written-out template is shown in m. 1–16. The trombone plays in the high register.
- The arrangement here is building up towards a climax, that concludes the solo and prepares for a special chorus, The local climax is in m. 12–13.
- Let’s see how multiple elements from the toolbox are combined in this example. In m. 2–11 we have: (1) the solo trombone as the main element; (2) the rhythm section accompaniment with the walking bass; (3) the unisono saxophone countermelody in triplet and swing 8th note groups; (4) the brass accents; (5) the unisono French horn line. This is a very busy fragment; yet the layers operate mostly on different note duration levels. In m. 12–13 there is a change of elements: (1) the solo trombone; (2) the rhythm section; (3) brass and saxophone ensemble voicing, dynamic level fortissimo. In the special chorus, m. 18–23, the elements are: (1) brass and piccolo multi-part voicing.
- The saxophones play a unisono line (2 AS + 2 TS) in the middle-high register in m. 1–6. The four French horns also play a unisono line, a stepwise descending countersubject in the mid-low register, in contrast to the ascending saxophones. Note that the attacks in saxophones and horns follow each other. They are deliberately non-synchronized, in order not to interfere.
- The brass (4 trumpets and 3 trombones) add another layer with accents in a mixed 5- and 6-part voicing, using extended chords. Note how the brass accents fill in the sustained notes in the saxophones in m. 2–4. In m. 8–9 there is opening contrary motion.

CHAPTER 11. THE ARRANGEMENT

Up-tempo Swing $\text{♩} = 240$

17 Tutti *mf* 18 19 20 21 *fp*

22 *f* 23 *mf* 24 25 *f* 26 *fp* *f*

27 28 Sax *f* 29 30 31

32 33 Brs+Sax 34 35 36

Em7 Ebm7 Ab7 Dm7 G13^{b9} CΔ7

Cm7 F13 B^b A^o7/B^b B^b B^bm7 *f*

E^b13^{b9} A^bΔ7 Dm7 G13^{b9} C Dm7 D^o/G

Em7 Ebm7 Dm7 Galt C Drums

Figure 11.7: Tutti special chorus for big band. From: 'How High the Moon' (W.M. Lewis, arr. F.G.J. Absil) for big band.

- In m. 11 the saxophones prepare the climax, changing to close voicing four-part harmony. Then the entire big band section (5 Sax, 4Tpts and 3 Tbns) plays a crescendo climax with extended chords.
- A low dominant pedal point d in m. 14–15 for baritone sax, unisono trombones and soft brass (baritones and tuba), concludes this chorus.
- Then a new technique sets in: m. 17 is the opening of a *special chorus* for the complete brass (4 Tpts, 4 FHns, 3 Tbns, Bar and Tu; the first six measures are shown). There is no support from the rhythm group. The voicing changes continuously between unisono and 6-part, between close and half-open (mixed). The brass loudness equivalence rule is adhered to (see Section 2.3.4): when the French horns play the lead melody part *8ba*, they play unisono.
- The piccolo provides a ‘bite’ to this instrumentation, playing the lead part an octave higher.
- The initial motif in this special chorus is based on the first four notes from the original song theme ($O = g - a - bb - eb$). It is used in melodic inversion, see m. 17–18 ($I = eb - d - c - g$), m. 20–21 ($I' = bb - a - g - d$) and m. 21–23 ($I'' = d - c - bb - f$). The motif appears in the original form in m. 19–20 ($O' = f - g - a - d$). Gradually this motif changes as the chorus progresses (not shown here).

Example 11.5

Changing techniques in a longer fragment.

We will see how the techniques and elements change in a somewhat longer fragment from a concert band arrangement of ‘*Just the Way You Are*’ (B. Joel), shown in Fig. 11.9 and 11.10. We will label and number the elements as we discuss the measures from this fragment. The rhythm section is playing a Latin 8th groove.

- The transition to the bridge B section, m. 1–2, opens with unisono French horns in an 8th note rhythm (1) over a harmonic background for two cup muted trumpets and two cup muted trombones (2).
- Next, in m. 3–10 the main element is the unisono melody in the saxophones (1), i.e., 2 AS + 2 TS, with a somewhat accented harmonic background by French horns and doubling clarinets (2). A brief cup mute trumpet phrase (3) fills in the sustained melody note in m. 6–7.
- A tutti phrase for brass, saxophones and woodwinds (1) builds with a crescendo towards a climax in m. 12–14. The drums (2) will prepare and underpin the short and long accents. Note the woodwind arpeggiated triads in m. 14.
- In m. 15–17 the melody is played by AS 1, Tpt 1 and Fl *8va* (1), with a harmonic background by the three trombones (2).

CHAPTER 11. THE ARRANGEMENT

Up-tempo Swing $\text{♩} = 240$

The score is for an up-tempo swing piece in 4/4 time with a tempo of 240 beats per minute. It features a solo chorus with the following parts and dynamics:

- Sax:** Measures 1-5 and 11-15. Dynamics include *f*, *ff*, and *mf*.
- Solo Tbn:** Measures 1-5. Dynamics include *f*.
- Brass:** Measures 6-10 and 16-23. Dynamics include *f*, *mf*, and *fp*.
- Hns:** Measures 6-10 and 11-15. Dynamics include *f* and *ff*.
- Rh:** Measures 6-10 and 16-23. Dynamics include *f*, *mf*, and *fp*.

Chord changes are indicated below the bass line, including Rh, Gm, A \flat 7, D7, Gm, G7, Cm7, F7+5, B \flat Δ , E \flat Δ , A \flat 7, D7, Gm, G \flat 13+11, Falt, Ealt, E \flat 13+11, and A \flat 7.

Figure 11.8: Juxtaposing multiple techniques in ad lib solo chorus. From: *Autumn Leaves'* (J. Cosma, arr. F.G.J. Absil) for concert band.

- The bridge section concludes in m. 17–18 with big band accents (1) and more three-part woodwind arpeggios (2).
- The main melody is played in m. 19–25 by the lead trombone (1), with a countermelody in unisono flute and clarinet (2) and a five-part sectional harmony background in the saxophones (3). The countermelody is in a different octave from the main melody. Separation between saxophones, trombone and woodwind countermelody is achieved by juxtaposing the note attacks (see the coordinated accents and syncopations in each of the three elements) and using different note durations. The saxophones play syncopated half note units, the melody is in quarter and 8th notes, while the high countermelody uses 8th and 16th note patterns.

Example 11.6

Combining multiple techniques Latin montuno section.

We will look from a different point of view at Example 6.5 and Figure 6.5 with a montuno section from *'Bone in the Barrio'* for concert band.

- There are multiple parallel elements: (1) woodwinds, playing in the mid-high register in parallel 3rds, (2) saxophones, playing arpeggiated four-part chords and montuno patterns, (3) the rhythm section, (4) French horns and trumpets playing an ascending syncopated motif in m. 2–3 and m. 6–9, respectively.
- This is another busy fragment, with elements 1 and 2 fighting for the priority role of main element. For a good performance the conductor has to balance the concert band sections. There could be a shift in focus every measure; from woodwinds in m. 2 (highest point) to saxophones in m. 3 (crescendo to high point), horns in m. 4 (idem), and repeating this focus shift for m. 6–9 (with the trumpets replacing the horns).

11.2.2 Crossing borders

Example 11.7

Overlapping technique at section borders.

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CHAPTER 11. THE ARRANGEMENT

Latin $\text{♩} = 120$

1 Hns 2 3 4

Sax

Muted Brs Hns *f*

Rh $E\flat\Delta^9$ $B\flat m7$ $G\Delta^7/C$ $C7^{\flat 9}$ $Fm7$ $B\flat 7$

5 6 Mute Tpt 7 8 9

$Gm7$ $C9$ $C7^{\flat 9}$ $Fm7$ $B\flat 7$ $E\flat\Delta 7$

10 11 WW 12 13

Brass *fp* *ff*

$B\flat m7/E\flat$ $A7at$ $A\flat m7$ $D\flat 7^{13}$ $D\flat 7/B$ $B\flat m7$

f *ff*

Figure 11.9: Changing techniques in the song bridge (B section). From: 'Just the Way You Are' (B. Joel, arr. F.G.J. Absil) for concert band.

The musical score is divided into three systems, each with a piano part (top two staves) and a saxophone/tuba part (bottom two staves).
 System 1 (Measures 14-17):
 - Piano part: Treble clef, complex chords and arpeggios. Bass clef has a simple bass line.
 - Saxophone/Tuba part: Treble clef, melodic lines. Bass clef has a simple bass line.
 - Dynamics: *f* (forte) is indicated in the piano part at measure 17.
 - Chords: Eb13#11, Abm7, Db713, Bb7sus4.
 System 2 (Measures 18-21):
 - Piano part: Treble clef, complex chords and arpeggios. Bass clef has a simple bass line.
 - Saxophone/Tuba part: Treble clef, melodic lines. Bass clef has a simple bass line.
 - Dynamics: *mf* (mezzo-forte) and *f* are indicated.
 - Chords: Bb13#9, EbΔ9, Cm7, AbΔ7.
 - Performance instruction: 'Solo Tbn' is written above the tuba staff in measure 19.
 System 3 (Measures 22-25):
 - Piano part: Treble clef, complex chords and arpeggios. Bass clef has a simple bass line.
 - Saxophone/Tuba part: Treble clef, melodic lines. Bass clef has a simple bass line.
 - Dynamics: *f* is indicated.
 - Chords: Cm7, B7alt, Cm7/Bb, A7alt, AbΔ7, Db9, G7, Cm7, B7alt.

Figure 11.10: Changing techniques in the song main theme (A section). From: 'Just the Way You Are' (B. Joel, arr. F.G.J. Absil, cont'd).

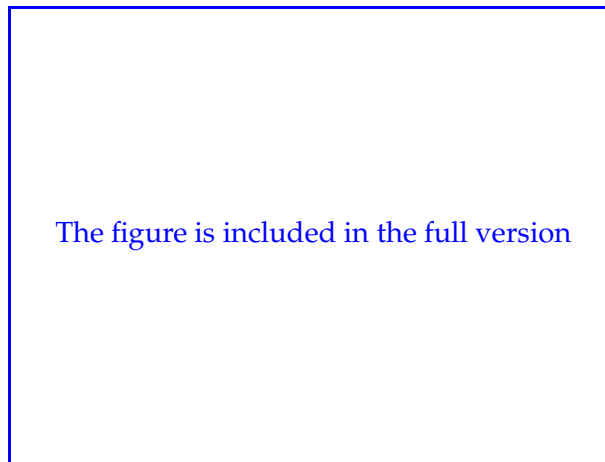


Figure 11.11: Overlapping techniques at section edge

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11.2.3 Start and stop

In Chapter 10 on musical forms in jazz and popular music, we saw in Section 10.1.5, that longer pieces are likely to start with a separate *introduction*, abbreviated as *intro*, and conclude with a *coda*, as was shown in the total form diagram in Fig. 11.1. These two elements have a preparatory and a summarizing function, respectively, and they appear in typical forms with specific tension patterns, that will be elucidated below.

The introduction

The *introduction* occurs in two common forms, with different tension patterns, as shown in blue in Fig. 11.1:

The riff or vamp intro. The *riff* introduction, also known as the *vamp*, implies a short pattern, usually between one and four measures long, that is repeated a number of times. The riff element is a melodic or rhythmic phrase, usually over a simple chord change, The repeating pattern may undergo slight changes, but its basic goal is to create a rhythmic *groove*. Thus, the tension level remains constant, as shown in the figure.

Riff and vamp patterns may also occur in other sections of the score; another favourite spot is as a background to an ad lib solo improvisation. The Nelson Riddle arrangements for Frank Sinatra and Ella Fitzgerald contain numerous riff-type introductions.⁶ The riff is equivalent to the *hook* in a pop song.

The riff/vamp type of intro will often continue during the first phrase of the main melody. The chord changes will usually require slight modification or stopping of the riff. This pattern may then return as an overlapping technique between the first and second sentence, or later in the arrangement is a unifying element.

The build-up intro. The main characteristic of this type of intro is the increase in tension and dynamics (usually a crescendo to fortissimo *ff*). It more or less launches the main melody or theme. When used in the middle of a piece at the end of a section, it may prepare the featuring of a soloist, or a special chorus. We saw an example of the latter application in Example 2.2, where the jazz big band brass section 'launched' the saxophone section special chorus.

We will now present some examples and focus on the type of introduction. Two of these are based on the riff principle; see Example 11.8 and 11.9 for studio orchestra and big band, respectively. The third example, for concert band, is a juxtaposition of a riff introduction, followed by the build-up type; see Example 11.10. A pure build-up introduction type in a ballad is shown in Example 11.11, another concert band arrangement.

Example 11.8

Riff introduction to Latin piece.

Figure 11.12 shows the introduction from 'I'll Remember April' (G. de Paul) in an arrangement in Latin-Swing style for studio orchestra. This fragment is the continuation of the slow introduction, that we already saw in Example 8.7.

⁶As an example, listen to the Nelson Riddle arrangement of Cole Porter's 'I've Got You Under My Skin' for Frank Sinatra on the album *Songs for Swingin' Lovers*. The *Songbook* albums for Ella Fitzgerald also contain numerous examples of the riff/vamp type of introduction and accompaniment.

- Now the Latin rhythm sets in with a two-measure riff for double bass, drums and percussion. It is a montuno pattern, with a pedal point on tonic and dominant (*c* and *g*) of the main key *C* major. The pattern is repeated four times, before the main theme sets in on m. 9.
- In m. 5, the high strings enter, with all violins *divisi à tre* (Vi 1 and Vi 2 divided into three equal subgroups), and Va one octave below the lead violins. They play a descending scale of exact parallel triads: $D - C - B\flat - A\flat - G\flat - F - E\flat - D$ in first inversion position. This yields a bitonal chord structure $\langle D|C \rangle$, that also sounds like an ambiguous dominant 7th chord in third inversion $S_2 = D_7/C$.
- The five-part parallel voicing technique continues as the jazz big band sets in, with soft saxophones, bucket mute trumpets and trombones in the middle register. Lead trombone and guitar are doubling the lead trumpet at the lower octave. The tonic chord enters on m. 12 as a major chord with added 6th and 9th C_9^6 . Before that the parallelism creates a Lydian modal impression with the characteristic $f\sharp$ and the other sharps that are created by ascending chromatic leading tone chords (see m. 9 and 12). In m. 13 the entire setting is transposed a major 2nd down.
- The voicing diagram for this five-part tutti setting is shown in Fig. 11.13. The saxophones and brass play in 'drop 2' voicing. As can be seen from the voicing diagram, four instruments play the lead melody: Tpt 1 - (AS 2 + Tbn 1 + Gtr). The lead alto, AS 1, is playing parallel consonant 6ths with the lead trumpet.

Example 11.9

Riff introduction to vocal chorus.

We return to Fig. 11.5, showing the introduction to the vocal chorus from 'Like a Lover', in a medium tempo Latin big band arrangement.

- The rhythm section plays a syncopated two-measure tonic-dominant vamp pattern (see the bass line and $C_{\Delta 7} - G_7^{\text{sus}4}$ chord changes, m. 2–3) that carries over into the vocal chorus. This riff pattern is picked-up at the end of the vocal melody line; see m. 16–17 and m. 30–31.

Example 11.10

Juxtaposition of riff and build-up introduction to rock piece.

Figure 11.14 shows the introduction from 'Roof Garden' (A. Jarreau) in an arrangement in 16th rock style for concert band.

- In this introduction, two techniques are juxtaposed. In m. 1–8 there is a two-measure *riff* for rhythm section and saxophones (m. 1–2, 5–6) or French

Latin $\text{♩} = 96$

The musical score is divided into three systems, each with a grand staff (treble and bass clefs) and a separate bass line. The first system (measures 1-6) features a piano (p) string section (Str) with a tremolo (tr) effect, starting in measure 5. The second system (measures 7-11) includes a saxophone (Sax) part starting in measure 9, and a muted brass and guitar section (Muted Brs+Gtr 8ba) starting in measure 9. The third system (measures 12-15) continues the instrumental parts. Dynamics include *mf* (mezzo-forte) and *mp* (mezzo-piano). The score includes various musical notations such as slurs, accents, and repeat signs.

Figure 11.12: Riff introduction to latin piece. From: *'I'll Remember April'* (G. de Paul) for studio orchestra.

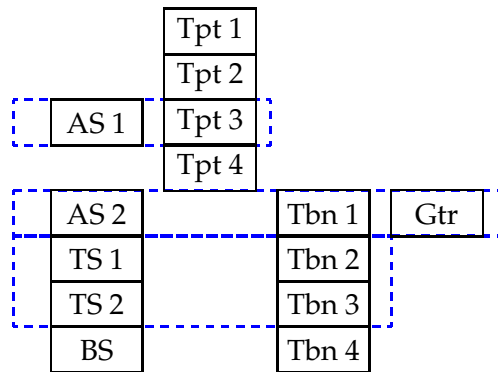


Figure 11.13: Voicing diagram for five-part parallel big band tutti setting. Opening chorus from 'I'll Remember April' (G. de Paul, arr. F.G.J. Absil) for studio orchestra.

horns and trombones (m. 3–4, 7–8). In m. 11–12 the technique changes to a crescendo *build-up* intro, concluded with a solo drum break. The rock riff idiom returns in the opening statement of the main theme (not shown here).

- The two-measure riff is written as syncopated four-part sectional harmony in parallel 4ths, first played by AS 1-2 and TS 1-2 (BS joins in on the tutti in m. 9). The FHN part in m. 3–4 is doubled, in order to maintain a balance with the three trombones.
- The trumpets play a *riff motif*, also with a perfect 4th voicing flavour, and they are later doubled by woodwinds (flutes and oboes) in the higher octave.
- In m. 9-10, there is an exact parallel ensemble voicing on an altered dominant 7th chord structure $S_7^{\text{alt}} : Ab_7^{\text{alt}} - A_7^{\text{alt}} - \dots - Db_7^{\text{alt}}$. The crescendo ends on fortissimo *ff* with a fall-off and a sustained trill on *g* in the high woodwinds.

Example 11.11

Build-up introduction to ballad for concert band.

The introduction to the ballad 'My One and Only Love' (Mellin & Wood) in an arrangement for concert band is shown in Figure 11.15.

- The introduction is based on a theme (m. 1–2) that is derived from a characteristic motif in the song melody: after an upbeat ascending pentatonic scale $g - a - c - d - e - b - g$ the five notes $a - d - b - g - f$ (the original key is *C* major) are treated sequentially in the melody. This arrangement is in the key of *bb* major; the main melody motif thus becomes $M = g - c - a - f - eb$. Here, we see a slightly modified melodic inversion $I(M) = a - f - g - c - d$, plus the transposed version at the tritone $I(M)_{6i} = eb - b - db - gb - ab$.

Rock $\text{♩} = 100$

1 2 3 4

Sax *mf*

FHn Tpt

Tbn+Cl *mf*

Rh *mf* Cm7¹¹ Dm7¹¹ Cm7¹¹ Dm7¹¹ Ebm7¹¹ Dm7¹¹

5 6 7 8

WW *fp* *f* *fp*

FHn *fp* *f* *fp*

fp *mf* *fp* *f* *fp* *f* *fp*

9 10 11 12

fp BSN *mf* *f* *mf* *ff*

mf *f* *mf* *ff*

A7^{alt} A7^{alt} B7^{alt} B7^{alt} C7^{alt} D7^{alt} G7^{alt} A7^{alt} A7^{alt} B7^{alt} B7^{alt} C7^{alt} D7^{alt} Drum break

mf *f* *mf* *ff*

Figure 11.14: Juxtaposition of riff and build-up introduction to rock piece. From: 'Roof Garden' (A. Jarreau, arr. F.G.J. Absil) for concert band.

CHAPTER 11. THE ARRANGEMENT

Ballad $\text{♩} = 62$

1 WW+Vib $\text{—} \text{—} \text{—}$ 2 [T.Bells] 3

p Sax *cresc.* Hns

pp

Tbn

Tuba+Arco Bass *mf* *cresc.* *mp*

p *cresc.* *mp*

4 5 6 Pi+Fl+Glk *ff*

Brass *f* Brs+Sax *ff*

f *ff*

f

Figure 11.15: Build-up introduction to ballad for concert band. From: 'My One and Only Love' (Mellin & Wood, arr. F.G.J. Absil) for concert band.

- The harmonic structures are, like the melodic motif, based on R_{6i} (diminished 5th, tritone) symmetrically distributed roots (see Section 6.2). The trombone chords $Dm - Cm - Abm - Gbm$ (m. 2–3) together with the bass part yield $Dm_7 - Cm_7/Bb - Abm - Gbm_7/Fb - Gbm/F$. Note that the dominant chord in the key Bb major in m. 5–6 is without the dominant 7th eb .
- There is opening contrary motion between upper and lower parts. There is also a crescendo effect. And finally the motif is presented in melodic diminution (starting in quarter notes, then 1/4 triplets, 8th notes, 16th notes, and finally 32nd notes). These three effects contribute to the building up of tension towards a *stretto* climax; see the fortissimo *ff* in m. 5.
- In m. 5 the piccolo, flute and glockenspiel play a quote from the bridge of the song ($a - g\sharp - f\sharp - a$), a pentatonic ascending scale ($f\sharp - g\sharp - b - c\sharp - d\sharp$, quoting the A section upbeat melody). Doing so, they play a B_7^{13} chord, that has a tritone relation with the Gbm/F chord structure in the lower brass. Note that the $d\sharp = eb$ is thus providing the minor 7th of the full dominant chord.
- A number of these features will return in the coda of the same arrangement, see Example 11.14, thereby creating a bridge form and textural unity.

The coda

Example 11.12

Morendo (dying-out) coda of a mambo for studio orchestra.

This example is included in the full version of the book.

Example 11.13

All-out coda to swing piece for concert band.

This example is included in the full version of the book.

Example 11.14

All-out coda to ballad for concert band.

This example is included in the full version of the book.

This section is included in the full version of the book.

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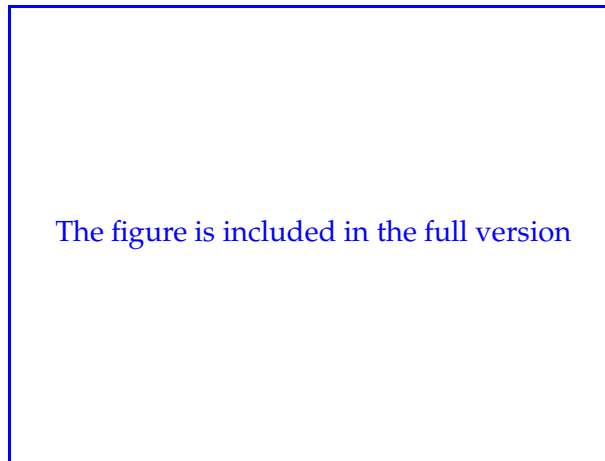


Figure 11.16: All-out coda to swing piece for concert band

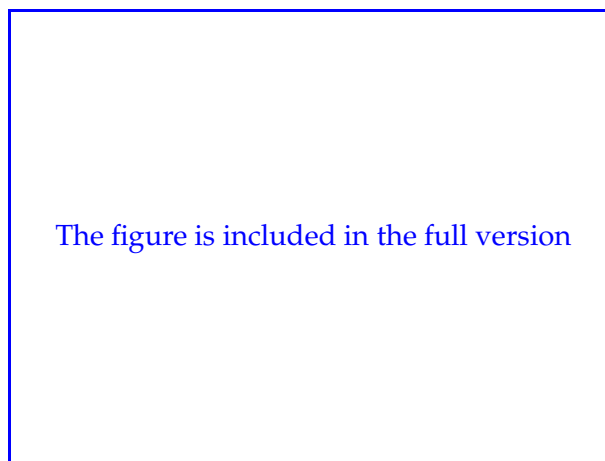


Figure 11.17: Tutti voicing diagram for all-out coda for concert band

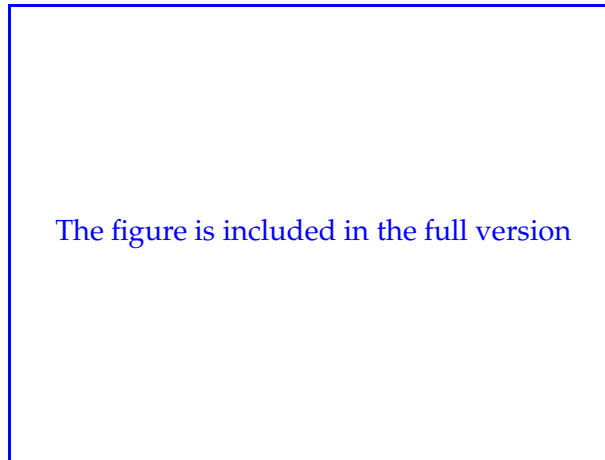


Figure 11.18: All-out coda to ballad for concert band

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11.2.4 Contrasting bridge and transition

The bridge as a formal element in a piece of music means two things, as was mentioned in Chapter 10. It either refers on the local scale to the contrasting B phrase in the AABA song form (as shown in Fig. 10.1), or to a contrasting middle section in a longer piece, as illustrated in Fig. 11.1. Here we use the latter meaning.

The bridge is used to connect two basic building blocks from the piece (such as the AABA song chorus or a verse-chorus pair). It does so by creating temporary relief and some form of *contrast*, by changing the dynamics (playing softer), or rhythmic groove, or instrumentation (thinned-out orchestration), etc. It creates renewed interest and acts as a *transition*.

⇒

Another application of the bridge is to *modulate* to a new key; Example 11.15 demonstrates this use.

⇒

Example 11.15

Modulating bridge in ballad for concert band.

Figure 11.19 shows a modulating bridge from ‘*My One and Only Love*’ (Mellin & Wood) in an arrangement for concert band.

- The transition starts in the key of $B\flat$ major in m. 2 and ends on the dominant chord E_7^9 in m. 5. Then there is the sudden move to the new key of C major, instead of the expected A major. These two roots lie on the same tonal axis $a - c - e\flat - f\sharp$, and this minor third key relationship provides a frequent modulation target in classical music from the Romantic era.
- In this transition a number of features from earlier in the arrangement return. First, there is the melody from the song’s B section, which is paraphrased here by the oboe and clarinet. The triplet 16th motif is familiar from the introduction to the song (see Example 11.11) and will return once more in the coda (see Example 11.14). The transition ends with the 32nd note pentatonic ascending scale, that has been concluding the climax in the intro and has been used as an overlapping motif between sections.
- The 16th note groove, another double time feel fragment (see Example 11.16 and Section 11.3), is provided by upward leaps in the bassoon and lower clarinets.
- The tension increase towards a climax is helped by the crescendo and the chromatically ascending bass line.
- The new chorus starts in m. 6 with a pure woodwind voicing. Note the chromatically descending clarinet parts, playing a re-harmonization of the main melody with a series of parallel diminished chords.

Another bridge was shown in Example 6.11 and Fig. 6.8 from the concert band arrangement of ‘*Roof Garden*’. There we discussed the chromatically ascending bass line and the increasing tension towards a climax in the bridge. The approach to the bridge section is similar for the two examples.

This concludes the discussion of the typical forms and tension curves of introduction, the coda and the bridge of the arrangement. These are additions to the elementary building blocks, the choruses. Let us now proceed with non-standard forms of the chorus itself.

Ballad $\text{♩} = 62$

1 2 Pi+Fl 3 4 5 6 7 8

Bsn+Cl *mp* Hns *cresc.*

Ob+Cl *mp* Tbn *mf*

mf *cresc.*

F7⁹ B^b7 B⁷ Dm7/C A7⁹/C# D1

4 5 6 7 8 9 10 11 12

Fl+Ob *mp* Cl *mp*

mf *f* *mp*

B7⁵/E^b Bm7/E E7⁹ E7⁹ C⁶

Figure 11.19: Modulating bridge in ballad for concert band. From: 'My One and Only Love' (Mellin & Wood, arr. F.G.J. Absil).

11.3 Special choruses

Example 11.16

Double time section in ballad for concert band.

This example is included in the full version of the book.

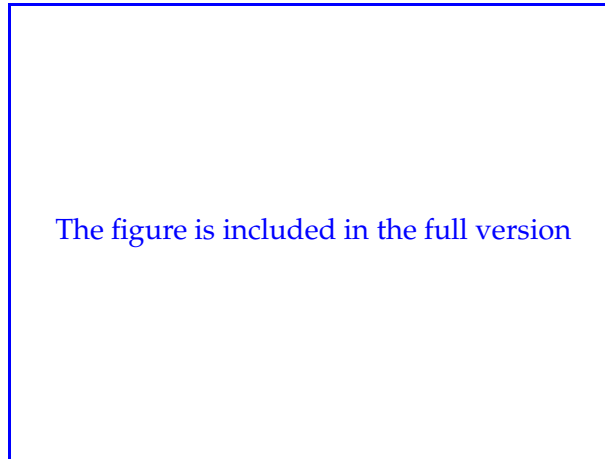


Figure 11.20: Double time section in ballad for concert band

This section is included in the full version of the book.

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11.4 Notate the details

All the arranger's creativity and craftsmanship will find its way into the score. During the design and implementation phase, the building of the 'house', the arranger will likely have developed detailed ideas about the interpretation, beyond the assigning of pitches to instruments and selecting arranging techniques from the toolbox.

Whenever possible these details should be entered into the musical score. They will prevent discussion during rehearsals, facilitate reading and interpretation by dedicated musicians. It offers the best guarantee for a proper rendering of the arranger's intentions. Also the conductor is given the best source information, when studying the score and developing his own view. So, use the opportunity and make sure the score has everything in it, that you are certain of.

The layout and vertical staff order in the score were discussed in Section 2.4. Some pragmatic score preparation considerations, with arranger life insurance characteristics, were given in Section 2.4.3, but there are other score and part attributes, that require attention and careful notation. Use the checklist:

Tempo indications. Give the basic tempo at the top of the score, above the time signature (the meter). Use words *Slow*, *medium fast* and BPM numbers (or a range, such as *120-132 BPM*). Write the gradual and sudden tempo changes: speeding up (*acc.*), slowing down (*rit.*, *rall.*), new tempo, return to original tempo (*primo tempo*).

Musical style. Indicate the basic style and music genre: swing, rock, Latin, bossa, shuffle (see the non-exhaustive list in Section 10.3). For a groove indicate the time unit: 8th-note swing, rock in 16th. Use an adjective to specify the mood: *Relaxed swing*, *Moderate shuffle*, *Nocturnal ballad*.

Dynamic markings. Indicate the dynamics between soft and loud. Provide absolute levels *pp* – ... – *mf* – ... – *ff* (use typically between 5–9 levels) and the gradual changes (*crescendo*, *decrescendo*, etc). Take into account total orchestral balance: you may need non-identical markings in different instrument groups.

Articulations. Accents must be added for coordinated section playing. Indicate short (e.g., \cdot , \wedge) and long (e.g., $>$, \geq) (un)accented notes, or special effects such as rips, doits, shakes, fall-offs, etc. Put accents in the drum part, so the player can prepare them and support other players.

Phrasing. Use *slurs* to indicate phrasing. For woodwinds and saxophones these will be read as tonguing patterns (legato playing). The string section will read the slurs in the score more as phrasing marks; the actual bowing patterns (such *détaché* vs. *legato*, up- vs. downbows) are best left to the string section leaders. When you are absolutely certain about a sequence of upbows (\vee) or downbows (\sqcap), mark them in the score. A series of accented forte downbows in the strings never misses target. Breathing as a phrasing tool can be indicated as $'$, also for strings.

Expressive text. Describe the general or local mood: with passion, aggressive, *espressivo*, *rubato*, free, with humour, etc. Nowadays, the Italian words can be replaced with the English equivalent. Use the language that best expresses your ideas.

Part markings. Indicate essential part markings such as: the start and end of an ad lib solo; easy fills for piano or solo break for drums. Indicate doubling, so the musician will have the instruments ready (woodwinds, saxophones, brass). Give a solo player a couple of measures rest at the end of a solo, or in order to enable him to pick up the doubling instrument (imagine rapidly swapping a bass clarinet for a baritone saxophone).

Do your homework for the percussionists: with a given number of players, carefully plan the percussion part assignment. These players need time to switch instruments, pick up mallets and may have to move around the stage quite a lot (with serious, non-negligible tripping over equipment danger).

Instrument playing techniques. Mark for the strings: mutes (on/off), string harmonics (◦), pizzicato, plucked (*pizz.*) vs. bowed (*arco*). For woodwinds and brass notate: flutter tonguing, brass mutes. In general, give the player enough time to put mutes on and remove them.

Your music notation software will have full lists of these markings in different categories. Use them! Don't skip this phase, not even when you're faced with a killing deadline. Every hour spent on details will certainly pay-off. The musicians will be grateful for being considered as dedicated performers and human beings. And you, the arranger, will prevent misinterpretation of your latest creative achievement.

Chapter 12

On a final note



We have come to the end of this book. A structured approach and a balanced mix between theoretical elaborations and practical examples should have helped us to raise our awareness and develop the arranging skills for jazz or pop music ensembles and orchestras.

Part II is a kind of workshop where, through careful study and homework exercises, we will have trained basic skills in various techniques and acquired a toolset. This guarantees a minimum acceptable quality in writing phrases and sections of a band or orchestra arrangement. Part I opens with general considerations: what to keep in mind, before starting to write an orchestral score. Part III was meant to keep a helicopter view on the complete arrangement; things to remember and apply while assembling an interesting piece of music.

The book was written from a teacher's point of view, in an effort to help dedicated students with their professional and personal development.¹ But also to give the interested music lover more insight into the mechanics of writing and performing modern orchestral jazz and popular music.

More than 90% of current music consumption is popular music in the broadest sense, i.e., including world, jazz and folk repertoire. Borderlines between musical genres have almost disappeared; a fortunate development in my opinion. The combination of acoustic and electronic instruments, and the use of computers and digital equipment have yielded interesting and beautiful music productions. Young musicians from both popular and classical music background get together to create and perform. The demand for arranging skills is increasing; every singer these days is waiting for an opportunity to work with a full orchestra or an instrumental ensemble. Hopefully this book provides a good starting point and a useful toolbox for the curious to-be arranger.

In older books there always is the advice: find real musicians and get the score performed. That's how we learn and improve our writing skills. In those days the alternative was the piano rendering of a score. Although the recommendation for involving real musicians is still most valid, nowadays computer and sample libraries provide an affordable

¹When you, the reader, find errors or missing elements in the book, please feel free to contact the author. I will welcome the feedback and try to update, improve and expand this document.

laboratory for learning and experimenting. Myself, I saw the introduction of digital computers and sequencer software in music. The emerging and growing capabilities of music notation software are a true blessing for composers and arrangers. Also, I still enjoy and welcome the rapid development in DAW's, sample libraries and software plugins for the home studio. Reading the criticism, the user problems and complaints on internet forums. I recognize the frustration, when things are not working according to expectations. But on the other side; picture yourself just one decade ago, and realize where we stand now. There is so much fun to be had with contemporary music creation tools. So compose, arrange, write, perform, record and publish. Use real musicians and the home studio. Exercise small phrases, experiment with voicing and instrumentation. Train the auditory memory, make notes of what works particularly well. The book is there to help the student with the first steps, and maybe as a reference or occasional refresher.

And as always, keep perspective. When you are stuck, watch a few Hubble telescope pictures, then check the Apollo 8 photographs of planet Earth, and you will be back with both gravitational feet on human ground.² Never doubt the value and beauty of music; its emotional effect on people is stronger than any other stimulus, beyond current understanding of neurophysics, but fortunately . . . real and lasting.

Arranging music lies somewhere between art and craftsmanship. Learn the craft first, than develop the art. It's a great means for expressing your personality; it can even be rewarding. Good luck with all your creative endeavours!

²This famous photo, taken by an Apollo 8 astronaut on the first manned flight to the moon (not the landing), is called *Earthrise* and has the number AS8-14-2383. Check it out on the internet.

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Index

- 32-measure song, **181**
- AABA song form, **181, 186**
- ABA song form, **181**
- ad lib solo, **198, 201, 209**
- ADSR envelope, **29**
- Alpert, Herb, **190**
- altered dominant chord, **68**
- appoggiatura, **60, 164**
- Autumn Leaves*, **111, 128, 131, 132, 141, 201**

- Bach, Johann Sebastian, **172**
- ballad, **13, 189, 212**
- ballroom dance music, **39, 189**
- Baroque music, **23, 132, 172**
- Bartók, Béla, **23, 26, 156, 164**
- Basie, Count, **101**
- bebop, **39, 182**
- Beethoven, Ludwig van, **164, 169**
- bell chord, **113**
- Berg, Alban, **26, 114**
- big band, **xiii, 3, 31, 39, 75, 79, 87, 90, 113, 198, 210**
- bitonal chord, **18, 99, 102, 210**
- bitonal voicing, **102**
- blues, **101, 189**
- Blues for Alice*, **101**
- Bone in the Barrio*, **111, 118, 141, 205**
- Bossa Groove*, **166**
- bounce, **189**
- Brahms, Johannes, **169**
- brass, **9, 20, 39, 113**
- bridge, **124, 182, 186, 203, 218**
- build-up intro, **209**
- build-up section, **212**

- call-and-response, **174, 184**
- cello quartet, **164, 166**
- chorale harmonization, **131**
- chord structure, **5, 6**

- chordal function, **5, 6, 14, 23, 68, 98, 99, 106, 151, 194**
- chords in 4ths, **75, 79, 118, 124, 212**
- chords in 5ths, **156**
- chorus, **181**
- chromatic stepwise motion, **122, 164, 218**
- classical harmony, *see* harmony, **131**
- classical music, **22, 23, 29, 40, 131, 141, 145, 151, 164, 174, 181, 186, 218**
- clave, **189**
- climax, **18, 26, 106, 186, 194, 201, 203, 215, 218**
- cluster voicing, **99**
- coda, **117, 186, 215**
- comping, **13**
- computer, **5, 225**
- concert band, **xiii, 3, 17, 31, 113, 115, 122, 124, 128, 131, 135, 141, 201, 203, 205, 210, 212, 218**
- contrary motion, **26, 123, 128, 132, 153, 156, 164, 172, 201, 215**
- counterpoint, **23, 26, 131, 131, 141, 156, 174**
- cross-relation, **47**

- Davis, Miles, **113**
- DAW, **29, 226**
- development, **186**
- diatonic parallel structures, **69, 82**
- diminished chord, **44, 218**
- dominant chord
 - altered, **68**
 - extended, **68**
- double time, **131, 218**
- drop 2 voicing, *see* voicing, *see* voicing

- easy listening music, **26, 39, 190**
- electronic instrument, **29**
- electronic instrument
 - amplitude envelope, **29**
 - filtering, **29**

- keyboard tracking, 30
- modulation, 30
- ensemble technique, 39, 87, 201, 203, 210, 212
- ensemble technique
 - fundamental aspects, 87
 - intervals between outer voices, 88
- envelope, *see* electronic instrument
- Evans, Gil, 113
- exact parallel chords, 47, 51, 102, 156, 200, 210, 212, 218
- extended chord, 26, 31, 44, 68, 98, 99, 102, 104, 131, 151, 194, 201, 203
- extended four-part sectional harmony, 75
- filtering, *see* electronic instrument
- Fitzgerald, Ella, 209
- folk music, 184, 190
- form, 169, 181
- Four Brothers*, 40
- frequency spectrum, 29, 162
- fugue, 131, 141
- functional harmony, *see* harmony
- Funky Duck*, 164
- genre, 189
- Gershwin, George, 182
- Ginastera, Alberto, 26
- Golden Ratio, 174, 194
- groove, 13, 203, 209, 218
- half-diminished chord, 51
- harmony
 - classical, 64
 - functional, 39
 - modal, 39, 210
- Haydn, Joseph, 164
- Herman, Woody, 40
- Holman, Bill, 197
- homogeneous instrumentation, 195
- hook, 186, 209
- How High the Moon*, 47, 198, 200
- I Don't Wanna Be Kissed*, 114
- I'll Remember April*, 111, 156, 160, 162, 209
- I've Got Rhythm*, 182
- I've Got You Under My Skin*, 209
- imitation, 131, 186
- Impressionistic music, 39
- improvisation, 186
- instrument groups, 9
- instrument range, 9
- instrumentation, 5, 62, 64, 87, 195
- intro, *see* introduction
- introduction, 117, 141, 156, 186, 209, 210, 212
- inversion, 131, 195
- jazz music, 3, 9, 39, 87, 113, 182, 189
- jazz standard, 131, 182
- Jones, Thad, 75, 101, 102
- Just Friends*, 197
- Just the Way You Are*, 203
- keyboard, 9, 131
- Last, James, 190
- Latin, 13, 118, 156, 166, 189, 209
- lead voice, 4, 87, 99
- leading tone chord, 47, 210
- Let it Snow*, 17, 111, 141
- Like a Lover*, 198, 210
- list of symbols, 5
- Mantovani, Annunzio Paolo, 190
- Marvin, Hank, 177
- Mediocrity Mambo*, 26, 111
- melody, 169
- melody
 - period, 174, 181
 - secondary axis, 172
 - sentence, 174, 175, 181
- Mendoza, Vince, 26, 147
- Metropole Orchestra, 26, 147
- MIDI, 5, 29, 29
- Miles Ahead*, 113
- mixed instrumentation, 60, 87, 195
- mixed voicing, *see* voicing
- modulation, 30, 186, 218
- montuno pattern, 26, 119, 189, 205, 210
- mute
 - string, 23
- My One and Only Love*, 114, 119, 124, 131, 212, 218
- Nestico, Sammy, 101
- octatonic scale, 99

- One Note Samba*, 115
 open voicing, *see* voicing
Ornithology, 47

 parallel motion, 40
 passing 7th, 122, 164
 pedal point, 13, 203, 210
 pentatonic scale, 215, 218
 percussion, 9, 26, 189
 percussive voicing, 3, 101
 pop music, 3, 9, 14, 22, 184, 186, 189
 pop song, 184
 pop song
 chorus, 184
 verse, 184

 Ravel, Maurice, 23, 164
 repeated notes, 40, 82, 90, 101
 rhythm section, 4, 13, 52, 87, 101, 131
 Riddle, Nelson, 209
 riff, 13, 119, 209, 210, 212
 Rimsky-Korsakow, Nikolay, 138
 rock music, 13, 124, 164, 189, 210
 Romantic music, 23, 218
Roof Garden, 111, 124, 210, 218
 root cycle, 5, 7, 47, 69, 115

 salsa, 189
 sampler, 29
 saxophone, 9, 14, 39, 75
 Schillinger, Joseph, 115, 153
 scientific pitch notation, 5
 score, 30, 222
 score
 concert pitch full, 34
 condensed, 34
 full, 31
 transposed full, 34
 score layout, 31
 Sebesky, Don, 145
 secondary dominant chord, 90
 section, 181
 sectional harmony, 3, 39, 75, 88
 sectional harmony
 aiming chord, 47
 basic rules, 39
 chordal tones, 41
 extended four-part, 75
 five-part, 75, 201, 210
 four-part, 39, 88, 200, 203, 212
 instrumental aspects, 62
 instrumentation, 64
 lead voice, 39
 non-chordal tones, 44, 47
 non-diatonic tones, 47
 other aspects, 58
 repeated notes, 40, 41
 sequencer, 7, 29
Shotgun Soliloquy, 23, 111, 132, 141
 shuffle, 189
 Sinatra, Frank, 209
 sonata form, 186
 special chorus, 75, 87, 200, 203
 special playing techniques
 strings, 23, 158
 woodwinds, 18
 strata technique, 88, 153, 156
 Strawinsky, Igor, 29
 string orchestra, 26
 string quartet, 22, 145, 164
 strings, 9, 22, 87
 strings
 divisi, 22, 26, 145, 151, 156, 160
 double stops, 22, 23, 26
 harmonics, 23
 multiple stops, 22, 23, 162
 pizzicato, 158, 166
 small groups, 164
 special playing techniques, 158
 sul ponticello, 156, 162
 sul tasto, 162
 sustained harmonic background, 151
 tremolo bowing, 156, 160
 vibrato, 22
 studio orchestra, xiii, 3, 17, 26, 27, 31, 141, 156, 174, 177, 209
 style, 189
 substitute chord, 14, 51, 52, 195
Supersax plays Bird, 40, 75
 sustained harmonic background, *see* strings
 swing, 39, 182, 189, 198, 201, 209
 symmetrically distributed roots, 115, 215
 symphony orchestra, 13, 17, 22, 27, 31, 145
 syncopations, 51
 synthesizer, 29

INDEX

- tension, [124](#), [128](#), [129](#), [160](#), [164](#), [193](#), [218](#)
- ternary song form, [181](#)
- The Farmer's Song*, [117](#), [118](#), [124](#)
- The Meaning of the Blues*, [113](#)
- The Real Book*, [182](#)
- The Songbooks*, [209](#)
- The Summer Knows*, [111](#), [114](#), [122](#)
- Tiptoe*, [75](#)
- transition, [141](#), [186](#), [197](#), [203](#), [218](#)
- tritone, [69](#), [117](#), [118](#), [212](#)
- unisono, [22](#), [128](#), [197](#), [200](#), [203](#)
- vamp, [209](#), [210](#)
- variable density, [128](#), [197](#)
- Venetian Violins*, [132](#), [174](#), [177](#)
- verse-chorus form, [184](#)
- voicing, [195](#)
- voicing
- bitonal, [99](#), [102](#)
 - brass, [98](#)
 - change of, [62](#)
 - close, [26](#), [40](#), [60](#), [76](#), [78](#), [82](#), [88](#), [92](#), [203](#)
 - cluster, [31](#), [75](#), [82](#), [88](#), [99](#), [106](#), [195](#)
 - crossing, [137](#)
 - dovetailing, [137](#)
 - drop 2, [40](#), [60](#), [76](#), [210](#)
 - enclosed, [137](#)
 - exact parallel, *see* exact parallel chords
 - in 4ths, [75](#)
 - interlocked, [137](#)
 - juxtaposition, [135](#)
 - mixed, [76](#), [95](#)
 - open, [60](#), [63](#), [77](#), [82](#), [88](#), [195](#)
 - overlapping, [135](#)
 - overlying, [135](#)
 - percussive, [101](#)
 - unisono, *see* unisono
- voicing diagram, [4](#), [17](#), [88](#), [92](#), [95](#), [135](#), [141](#), [156](#), [210](#)
- voicing techniques, [3](#)
- walking bass, [101](#), [131](#), [200](#), [201](#)
- wind quintet, [141](#)
- woodwind voicing, [135](#)
- woodwind voicing
- heterogeneous, [17](#)
- woodwinds, [3](#), [9](#), [17](#), [79](#), [87](#), [113](#)
- world music, [184](#), [190](#)
- Zimmerman, Bob, [17](#)