AN ANALYSIS OF THE LATER ORCHESTRAL STYLE OF WALLINGFORD RIEGGER

Thesis for the Degree of Ph. D.
MICHIGAN STATE UNIVERSITY
LEONARD W. OTT
1970

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An Analysis of the Later Orchestral Style
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Leonard W. Ott

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of the requirements for

Ph. D. **degree in** Music

Paul O. Harder
Major professor

Date November 13, 1970

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ABSTRACT

AN ANALYSIS OF THE LATER ORCHESTRAL STYLE OF WALLINGFORD RIEGGER

by Leonard W. Ott

The later orchestral style of Wallingford Riegger (1885-1961) has received little attention from theorists and musicologists. This is curious in that the earlier music was admired by his fellow members of the Pan-American Association of Composers, and enjoyed such critical acclaim as the New York Critics Circle Award in 1948. The later Riegger works represent the final expression of his style development and comprise a body of music which has not been thoroughly examined.

The selection of music for this analysis was limited to these orchestral works:

Music for Orchestra, Op. 50 (1950)
Variations for Piano and Orchestra, Op. 54 (1952-53)
Dance Rhythms, Op. 58 (1955)
Symphony No. 4, Op. 63 (1957)
Variations for Violin and Orchestra, Op. 71 (1959)

These particular works were chosen because they were all conceived after 1949, after the appearance of the more acclaimed works.

The analysis of the formal organization of Riegger's music reveals that traditional two and three-part forms and fugal procedures are the basis of the musical structure. The twelve-tone row, when it is employed, is a significant

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The rhythmic element is extremely important to this music. Sudden tempo changes and syncopations are vital to the composer's rhythmic designs, and the device of changing meters is frequently employed. Borrowed divisions of the beat are often used, and occasionally simple and compound time signatures are used simultaneously.

Two-note structures are prominent in Riegger's harmony. Although consonant intervals are used with the highest frequency, dissonant intervals are most often metrically and melodically accented. The other harmonic structures include tertian chords from triads to thirteenth chords, and such non-tertian structures as quartal, quintal and cluster chords. Quartal strucutres and tone clusters are frequently used in parallel streams of chords.

The cadences in these works often contain traditional formulas, usually employing modified dominant and tonic chords. The non-traditional cadences are made convincing through rhythmic, dynamic and orchestrational means rather than by harmonic progression.

Contrapuntal textures employing imitative devices are used most frequently, but homophonic textures also occur with traditional accompaniment patterns adapted to non-traditional harmonic practices.

The instrumentation in these textures is traditional. The normal complement of strings, paired woodwinds, four

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horns, three trumpets and trombones, and a tuba comprise the standard orchestra for these works. The ranges of the individual instruments are not extreme, and often the highest and lowest possible pitches are not exploited. Strings are frequently included in the orchestral texture, and woodwinds are also important. The brasses are usually used in combination with strings and woodwinds, only rarely appearing alone. The use of percussion in the instrumental combinations is incidental. A high percentage of the orchestration involves doubling, and the strings are often employed in this technique. Doublings of flutes, oboes and clarinets; and clarinets and bassoons are common to all the works examined in this analysis.

These works serve to illustrate one man's attempt to unite twentieth century rhythmic and harmonic procedures with the established conventions of earlier style periods. In addition, and perhaps more important, these five works by Wallingford Riegger are effective pieces of music which deserve to be better known.

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AN ANALYSIS OF THE LATER ORCHESTRAL STYLE OF WALLINGFORD RIEGGER

by

Leonard W. Ott

A THESIS

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in partial fulfillment of the requirements
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1970

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LIST OF TABLES. .

LIST OF EXAMPLES.

INTRODUCTION. . .

CHAPTER

I MUSIC FOR

Form.
Rhyth
Harmo

II VARIATIONS

Form.
Rhyth
Harm

III DANCE RHY

Form
Rhyt
Harm

IV SYMPHONY

Form
Rhyt
Harm

V VARIATION

Form
Rhyt
Harm

VI CADENCES.

TABLE OF CONTENTS

PAGE

LIST OF TABLES v

LIST OF EXAMPLES vi

INTRODUCTION 1

CHAPTER

I MUSIC FOR ORCHESTRA, OP. 50 8

Form 8
Rhythm 13
Harmonic Structures 14

II VARIATIONS FOR PIANO AND ORCHESTRA, OP. 54 26

Form 26
Rhythm 31
Harmonic Structures 35

III DANCE RHYTHMS, OP. 58 46

Form 46
Rhythm 48
Harmonic Structures 49

IV SYMPHONY NO. 4, OP. 63 56

Form 56
Rhythm 61
Harmonic Structures 66

V VARIATIONS FOR VIOLIN AND ORCHESTRA, OP. 71 84

Form 84
Rhythm 95
Harmonic Structures 96

VI CADENCES 110

TABL

PTER

I TEXTURES. . .

Contrapun
Homophoni
Solo Pass
Melodic M

II ORCHESTRATION

Instrumen
Ranges .
Instrumen
Doubling

RAPHY. . . . . .

ISIONS. . . . .

. . . . . .

OGRAPHY . . . .

TABLE OF CONTENTS, CONTINUED

PAGE

CHAPTER

VII TEXTURES 126

Contrapuntal Textures 126
Homophonic Textures 153
Solo Passages 165
Melodic Motion 180

VIII ORCHESTRATION 181

Instrumentation of Each Work 181
Ranges 183
Instrument Groupings 183
Doubling 196

SUMMARY 233

CONCLUSIONS 243

TABLES 247

BIBLIOGRAPHY 263

1. A tabulation
those u
2. Harmonic str
3. The percenta
paralle
4. Textures . .
5. Melodic moti
6. Orchestratio
7. Orchestratio
8. Orchestratio
9. Orchestratio
contain
10. Orchestratio
for do

LIST OF TABLES

PAGE

1. A tabulation of harmonic structures, excluding those used in parallel streams. 247

2. Harmonic structures used in parallel streams 248

3. The percentage of each work containing parallelism 249

4. Textures 250

5. Melodic motion 251

6. Orchestration--use of instruments. 254

7. Orchestration--ranges. 255

8. Orchestration--instrumental combinations 260

9. Orchestration--the percentage of each work containing doubling 261

10. Orchestration--instrumental combinations used for doubling. 262

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LIST OF EXAMPLES

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Except where noted, examples are reproductions of the complete orchestral score. Autograph scores are the source of the manuscript excerpts.

PAGE

1. Music for Orchestra, Op. 50, 12-tone row. 9
2. _____, meas. 1-6 (woodwinds) 10
3. _____, meas. 20-22 10
4. _____, meas. 247-48. 11
5. _____, prominent row fragments 12
6. _____, meas. 172-73 (woodwinds). 12
7. _____, meas. 77-78 (woodwinds) 13
8. _____, meas. 213-15 (horn and strings) 14
9. _____, meas. 138-40. 15
10. _____, meas. 147-49. 16
11. _____, meas. 64-66 (brasses) 16
12. _____, meas. 20-22 17
13. _____, meas. 43-44 17
14. _____, meas. 95-97 (brasses) 18
15. _____, meas. 118-19. 19
16. _____, meas. 107-08 (woodwinds). 20
17. _____, meas. 58-59 (woodwinds) 21

13. Music for C
14. _____,
15. _____,
measur
16. _____,
17. Variations
12-ton
18. _____,
19. _____,
20. _____,
21. _____,
22. _____,
23. _____,
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31. _____,
32. _____,
33. _____,
34. _____,
35. _____,
36. _____,
37. _____,
38. _____,
39. _____,
40. _____,

PAGE

18. Music for Orchestra, Op. 50, meas. 226-27. 22
19. _____, meas. 253-55 (brasses) 22
20. _____, transposed brass chord from measure 253 23
21. _____, meas. 205-06 24
22. Variations for Piano and Orchestra, Op. 54, 12-tone row 27
23. _____, meas. 11-15. 28
24. _____, meas. 25-29. 29
25. _____, meas. 142-48 (strings) 30
26. _____, meas. 202-05 30
27. _____, meas. 51-54 (trumpet & woodwinds). . . . 32
28. _____, meas. 190-93 32
29. _____, meas. 128-29 (piano) 33
30. _____, meas. 374-77 33
31. _____, meas. 122-24 (horns & woodwinds) 34
32. _____, meas. 223-25 (clarinets & trumpets). . . 35
33. _____, meas. 380-82 36
34. _____, meas. 308-11 37
35. _____, meas. 101 (strings). 37
36. _____, meas. 392-93 38
37. _____, meas. 117-19 38
38. _____, meas. 264-66 (trumpets & woodwinds). . . 39
39. _____, meas. 273-75 39
40. _____, meas. 408-09 (piano) 40
41. _____, meas. 291 (brasses). 40
42. _____, meas. 405-06 (woodwinds) 41

Variations
meas.

Dance Rhyt
brass

Symphony No

PAGE

43. Variations for Piano and Orchestra, Op. 54, meas. 131-32. 42
44. _____, meas. 290-91 43
45. _____, meas. 412-14 44
46. Dance Rhythms, Op. 58, meas. 7-11 (woodwinds & brasses). 46
47. _____, meas. 42-46 (brasses). 47
48. _____, meas. 103-05 47
49. _____, meas. 1-5. 48
50. _____, meas. 134-38 (strings) 49
51. _____, frequent seventh and ninth chords. . . . 50
52. _____, meas. 21 (woodwinds) 51
53. _____, meas. 53-54. 52
54. _____, meas. 83-85 (strings). 52
55. _____, meas. 52 (woodwinds) 53
56. _____, meas. 81-82. 53
57. _____, meas. 34-35 (woodwinds). 54
58. _____, meas. 100-01 54
59. _____, meas. 105. 55
60. Symphony No. 4, Op. 63, Mvt. I, meas. 1-6. 56
61. _____, Mvt. I, meas. 15-19. 57
62. _____, Mvt. I, meas. 68-71. 57
63. _____, Mvt. II, meas. 7-8 58
64. _____, Mvt. II, meas. 99-100. 58
65. _____, Mvt. III, meas. 1-5 (woodwinds). 59
66. _____, Mvt. III, meas. 174-78 60
67. _____, Mvt. III, meas. 339-43 (brasses) 60

Symphony No. 4,

_____, Mvt.

_____, Mvt.

_____, Mvt.

PAGE

68. Symphony No. 4, Op. 63, Mvt. II, meas. 25-30. . . . 61
69. _____, Mvt. II, meas. 99-102. 62
70. _____, Mvt. III, meas. 131-48. 63
71. _____, Mvt. III, meas. 41-42 (woodwinds) . . . 64
72. _____, Mvt. I, meas. 169-70 (brasses). 64
73. _____, Mvt. III, meas. 213-19. 65
74. _____, Mvt. III, meas. 304-12. 66
75. _____, Mvt. II, meas. 99-102 67
76. _____, Mvt. I, meas. 371-72. 68
77. _____, Mvt. I, meas. 375-77. 69
78. _____, Mvt. III, meas. 225-28. 70
79. _____, Mvt. I, meas. 160-62 (strings). 70
80. _____, Mvt. I, meas. 108-09. 71
81. _____, Mvt. III, meas. 365-72. 72
82. _____, Mvt. III, meas. 145-48. 72
83. _____, Mvt. III, meas. 114-17 (woodwinds). . . 73
84. _____, Mvt. II, meas. 43-47. 74
85. _____, Mvt. III, meas. 155-57. 74
86. _____, Mvt. III, meas. 156 (transposed chord) 75
87. _____, Mvt. III, meas. 32-35 75
88. _____, Mvt. I, meas. 280-81 (woodwinds). . . . 76
89. _____, Mvt. II, meas. 13-14. 76
90. _____, Mvt. I, meas. 356-59. 77
91. _____, Mvt. I, meas. 117-20 (woodwinds & brasses) 78
92. _____, Mvt. III, meas. 55-58 79

3. Symphony No.
4. ———,
5. ———,
6. ———,
7. Variations
meas.
8. ———,
9. ———,
10. ———,
11. ———,
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996. ———,
997. ———,
998. ———,
999. ———,
1000. ———,

PAGE

93. Symphony No. 4, Op. 63, Mvt. I, meas. 193-97. . . . 80
94. _____, Mvt. I, meas. 296-300 81
95. _____, Mvt. III, meas. 325-28. 81
96. _____, Mvt. III, meas. 59-62 82
97. Variations for Violin and Orchestra, Op. 71, meas. 101-02 (woodwinds, Solo & strings) . . . 85
98. _____, meas. 110-11. 86
99. _____, meas. 66-70 86
100. _____, 12-tone row 87
101. _____, meas. 386-90. 88
102. _____, meas. 348-51. 89
103. _____, meas. 78-81 89
104. _____, meas. 319-22. 90
105. _____, meas. 59-64 90
106. _____, meas. 134-35. 91
107. _____, meas. 80-84 92
108. _____, meas. 130-31. 92
109. _____, meas. 266-71. 93
110. _____, meas. 283-86. 94
111. _____, meas. 143-45. 97
112. _____, harp chords 98
113. _____, meas. 141-42. 98
114. _____, meas. 223 99
115. _____, meas. 236-37. 100
116. _____, meas. 110 (woodwinds) 100
117. _____, meas. 57-61 101

118. Variatior
Solo

119. ———

120. ———

121. ———

122. ———
vicl

123. ———

124. ———

125. ———

126. ———

127. ———

128. Music for
bras

129. Symphony

130. Variatior
perc

131. Symphony

132. ———

133. Variatio
pia

134. Symphony

135. Variatio

136. Variati

137. Music f

138. Variati
st

139. ———

140. Sympho

PAGE

118. Variations for Violin, meas. 103-04 (woodwinds & Solo) 101

119. _____, meas. 239-40 102

120. _____, meas. 383-85 103

121. _____, meas. 387-90 103

122. _____, meas. 391-94 (woodwinds, brasses, violins & violas) 104

123. _____, meas. 192-95 105

124. _____, meas. 224-25 (woodwinds & brasses) . . 106

125. _____, meas. 105-07 (Solo & strings). 107

126. _____, meas. 134-36 108

127. _____, meas. 138-39 109

128. Music for Orchestra, meas. 263-66 (woodwinds, brasses & violins). 111

129. Symphony No. 4, Mvt. II, meas. 172-75. 112

130. Variations for Violin, meas. 395-400 (brasses, perc., strings & Solo). 113

131. Symphony No. 4, Mvt. II, meas. 57-59 114

132. _____, Mvt. III, meas. 73-75 (strings). . . . 115

133. Variations for Piano, meas. 75-76 (woodwinds, piano & strings 116

134. Symphony No. 4, Mvt. I, meas. 403-07 117

135. Variations for Violin, meas. 61-65 117

136. Variations for Piano, meas. 39-40. 118

137. Music for Orchestra, meas. 17-19 119

138. Variations for Violin, meas. 100-02 (Solo & strings). 120

139. _____, meas. 141-42 (contrabassoon & Solo). . 121

140. Symphony No. 4, Mvt. III, meas. 773-75 122

141. Dance Rhy
142.
143.
144. Music for
145.
146.
147.
148.
149.
150. Variations
151.
152.
153.
154.
155.
156.
157.
158. Symphony
159. Variation
160. Music for
161.
162.
163. Variation
164. Symphony
165. Variation
166. Variation
bras

PAGE

141. Dance Rhythms, meas. 92-93 124
142. _____, meas. 144-47 (strings) 125
143. _____, meas. 138-39 (strings) 125
144. Music for Orchestra, fugue subject 127
145. _____, meas. 43-45 (woodwinds). 128
146. _____, meas. 55-56 (woodwinds & horns). . . . 128
147. _____, meas. 107-09 130
148. _____, meas. 111-13 131
149. _____, meas. 231-33 132
150. Variations for Piano, fugue subject. 133
151. _____, meas. 373-74 133
152. _____, meas. 390-91 (bassoons & piano). . . . 134
153. _____, meas. 392-94 135
154. _____, meas. 397-99 135
155. _____, meas. 402-04 136
156. _____, meas. 407-09 (strings) 136
157. _____, meas. 412-14 (piano) 137
158. Symphony No. 4, Mvt. I, meas. 66-71. 137
159. Variations for Violin, meas. 66-70 138
160. Music for Orchestra, meas. 238-40. 139
161. _____, meas. 228-30 (woodwinds & brasses) . . 140
162. _____, meas. 170-74 (woodwinds) 141
163. Variations for Violin, meas. 275-79. 142
164. Symphony No. 4, Mvt. I, meas. 100-03 143
165. Variations for Violin, meas. 130-31. 144
166. Variations for Piano, meas. 140-41 (woodwinds, brasses & piano). 145

167. Variation
bras
168. Dance Rhy
169. Music for
170. Variation
171. Symphony
172. Variation
173. Symphony
174. Variation
175. _____
176. _____
177. Dance Rhy
bras
178. Variation
179. Symphony
180. Variation
181. Music for
182. Dance Rhy
183. Symphony
184. _____
185. Variation
186. Dance Rhy
187. Music for
con
188. Variation
bra
189. Music fo
190. Symphony

PAGE

167. Variations for Piano, meas. 99-100 (woodwinds, brasses & piano). 146

168. Dance Rhythms, meas. 38-41 (marimba & strings) . . 147

169. Music for Orchestra, meas. 181-82 (woodwinds). . . 147

170. Variations for Violin, meas. 78-81 148

171. Symphony No. 4, Mvt. I, meas. 32-36. 149

172. Variations for Piano, meas. 47-50. 150

173. Symphony No. 4, Mvt. II, meas. 25-29 151

174. Variations for Piano, meas. 1-7. 152

175. _____, meas. 250-53 153

176. _____, meas. 259-62 153

177. Dance Rhythms, meas. 85-88 (strings, woodwinds & brasses). 154

178. Variations for Violin, meas. 1-6 155

179. Symphony No. 4, Mvt. III, meas. 122-30 155

180. Variations for Piano, meas. 307-11 156

181. Music for Orchestra, meas. 206-08. 157

182. Dance Rhythms, meas. 12-15 158

183. Symphony No. 4, Mvt. III, meas. 174-81 158

184. _____, Mvt. III, meas. 213-19 159

185. Variations for Violin, meas. 246-48. 159

186. Dance Rhythms, meas. 36-40 (strings) 160

187. Music for Orchestra, meas. 187-90 (strings, contrabassoon, brasses & perc.) 161

188. Variations for Piano, meas. 287-88 (woodwinds, brasses, timpani & piano) 162

189. Music for Orchestra, meas. 90-93 (woodwinds) . . . 163

190. Symphony No. 4, Mvt. I, meas. 190-92 (brasses) . . 163

Symphony No. 4

_____, My

Variations for

_____, me

_____, me

_____, me

_____, me

Variations for

_____, me

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_____, me

_____, mea

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Symphony No. 4,
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Variations for
Bassoons).

_____, mea

Variations for

Music for Orche

Variations for

_____, mea

Brce Rhythms,

Music for Orche

PAGE

191. Symphony No. 4, Mvt. II, meas. 48-52 164

192. _____, Mvt. II, meas. 100-04 (strings). . . . 164

193. Variations for Piano, meas. 343-47 (piano) 165

194. _____, meas. 135-36 (piano) 166

195. _____, meas. 273-75 (piano) 166

196. _____, meas. 418-19 (piano) 167

197. _____, meas. 82-83. 167

198. Variations for Violin, meas. 74-78 168

199. _____, meas. 299-304 (Solo & violins) 168

200. _____, meas. 156-59 (harp & Solo) 169

201. _____, meas. 119-20 169

202. _____, meas. 348-51 169

203. Music for Orchestra, meas. 1-5 (flutes). 170

204. Variations for Violin, meas. 113-16 (woodwinds). . 170

205. Symphony No. 4, Mvt. I, meas. 211-16 (strings & woodwinds). 170

206. _____, Mvt. II, meas. 137-41. 171

207. _____, Mvt. I, meas. 273-77 171

208. Variations for Violin, meas. 66-70 (oboes & bassoons). 172

209. _____, meas. 134-35 (contrabassoon & Solo). . 172

210. Variations for Piano, meas. 307-11 (woodwinds) . . 173

211. Music for Orchestra, meas. 20-24 (woodwinds) . . . 173

212. Variations for Piano, meas. 35-36 (woodwinds). . . 173

213. _____, meas. 52-54 (woodwinds & trumpet). . . 174

214. Dance Rhythms, meas. 55-57 174

215. Music for Orchestra, meas. 133-36 (horn) 175

216. Variation
217. Symphony
218. Variatio
tru
219. Music fo
220. Variati
221. Variati
222. Music
ba
223. Sympho
224. Dance
225. ———
226. ———
227. Symp
228. ———
229. Musi
230. Dan
231. Var
232. Va
233. ———
234. Mu
235. Da
236. S
237. ———
238. V
239. S

PAGE

216. Variations for Violin, meas. 138-39 (tuba & Solo) 175

217. Symphony No. 4, Mvt. III, meas. 194-97 175

218. Variations for Piano, meas. 264-67 (woodwinds & trumpets) 176

219. Music for Orchestra, meas. 62-63 176

220. Variations for Piano, meas. 188-92 177

221. Variations for Violin, meas. 251-55. 177

222. Music for Orchestra, meas. 238-40 (double basses) 177

223. Symphony No. 4, Mvt. III, meas. 758-61 (violins) . 177

224. Dance Rhythms, meas. 100-03. 178

225. _____, meas. 94-98 (harp) 178

226. _____, meas. 12-16. 179

227. Symphony No. 4, Mvt. I, meas. 267-72 (strings & timpani). 179

228. _____, Mvt. I, meas. 110-13 184

229. Music for Orchestra, meas. 7-10. 185

230. Dance Rhythms, meas. 47-50 186

231. Variations for Violin, meas. 143-45. 187

232. Variations for Piano, meas. 120-21 188

233. _____, meas. 370-72 188

234. Music for Orchestra, meas. 249-51. 190

235. Dance Rhythms, meas. 18-22 191

236. Symphony No. 4, Mvt. II, meas. 54-58 192

237. _____, Mvt. III, meas. 393-400. 192

238. Variations for Piano, meas. 397-99 193

239. Symphony No. 4, Mvt. III, meas. 742-46 194

240. Variation

241. Variation

242. Music fo

243. Symphony

244. Variatio
Sol

245. Symphony
st

246. ———

247. Dance R
st

248. Symphon
br

249. ———

250. Music

251. ———

252. Variat

253. Sympho

254. Varia

255. Music

256. Varia

257. Music

258. ———

259. ———

260. Symp

261. Danc

262. Mus

PAGE

240. Variations for Violin, meas. 228-29. 195

241. Variations for Piano, meas. 450-53 198

242. Music for Orchestra, meas. 35-36 199

243. Symphony No. 4, Mvt. I, meas. 262-63 200

244. Variations for Violin, meas. 391-94 (woodwinds, Solo & strings) 201

245. Symphony No. 4, Mvt. I, meas. 104-07 (woodwinds & strings). 202

246. _____, Mvt. I, meas. 286-88 203

247. Dance Rhythms, meas. 120-22 (woodwinds, brasses & strings). 204

248. Symphony No. 4, Mvt. II, meas. 106-10 (bassoons, brasses & strings). 205

249. _____, Mvt. III, meas. 225-28 206

250. Music for Orchestra, meas. 46-48 206

251. _____, meas. 118-21 (woodwinds) 207

252. Variations for Piano, meas. 79 (woodwinds) 207

253. Symphony No. 4, Mvt. III, meas. 295-301. 208

254. Variations for Piano, meas. 385-87 (woodwinds) . . 208

255. Music for Orchestra, meas. 52-54 (horns) 209

256. Variations for Piano, meas. 410 (horns). 209

257. Music for Orchestra, meas. 195-96 (brasses). . . . 210

258. _____, meas. 172-76 211

259. _____, meas. 128-30 211

260. Symphony No. 4, Mvt. III, meas. 50 (brasses) . . . 212

261. Dance Rhythms, meas. 120-22 (woodwinds & brasses). 213

262. Music for Orchestra, meas. 204-06. 214

263. Music for
264. Symphony
265. _____
bras
266. Music for
267. Variation
bras
268. Symphony
269. _____
270. Variatio
271. Symphony
272. _____
273. _____
274. Variati
275. Music f
276. Symphon
277. Dance
278. Variat
h
279. Symphc
x
280. Dance

PAGE

263. Music for Orchestra, meas. 17-19 215

264. Symphony No. 4, Mvt. III, meas. 764-66 216

265. _____, Mvt. II, meas. 31-35 (woodwinds & brasses). 217

266. Music for Orchestra, meas. 219-20. 217

267. Variations for Piano, meas. 424-26 (woodwinds & brasses). 218

268. Symphony No. 4, Mvt. III, meas. 650-51 219

269. _____, Mvt. I, meas. 115-20 220

270. Variations for Violin, meas. 17-18 221

271. Symphony No. 4, Mvt. III, meas. 247-55 222

272. _____, Mvt. II, meas. 58-59 223

273. _____, Mvt. II, meas. 115-18. 224

274. Variations for Piano, meas. 269-70 225

275. Music for Orchestra, meas. 64-66 (brasses & viola) 226

276. Symphony No. 4, Mvt. I, meas. 75-79. 227

277. Dance Rhythms, meas. 91-93 229

278. Variations for Piano, meas. 410-12 (piccolo, horns & xylophone). 230

279. Symphony No. 4, Mvt. III, meas. 764-66 (woodwinds, xylophone & strings). 231

280. Dance Rhythms, meas. 112-13. 232

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Vol. VII, p. 1

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INTRODUCTION

Wallingford Riegger was born in Albany, Georgia in 1885 and died in 1961. The nineteenth century atmosphere of his early family life and of his musical training, had the expected influence on his first compositions.

Riegger's formal musical training began at the Institute of Musical Art in New York, where he studied the cello and composition. His first experiences in composition were under the instruction of Percy Goetschius. Upon graduation in 1907, he went to Berlin to continue his studies with Max Bruch and Edgar Stillman-Kelley at the High School for Music.[1]

The effect of this training on Riegger's musical outlook is perhaps best described in his own words. "I blushingly admit to having upheld at that time the good old academic tradition, so much so that at the first Berlin performance of Scriabin's Poème de l'Extase I hissed exactly in the same manner as did the Piladelphia boxholders 20 years later when Stokowski gave my own Study in Sonority."[2]

Riegger began a career as a conductor during the 1915-16 season, when he conducted operas at Würzburg and Königsberg. The following season, 1916-17, he conducted the Blüthner Orchestra in Berlin. With the outbreak of World War I, he

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1. Eric Blom, ed., Grove's Dictionary of Music and Musicians, 5th ed. (New York: St. Martin's Press, Inc., 1962), Vol. VII, p. 162.

2. Richard F. Goldman, "The Music of Wallingford Riegger," Musical Quarterly 36 (Jan., 1950): 42.

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was forced to return to the United States.[3]

Riegger began composing upon his return to this country. He once wrote of these years, "My advent as a composer could hardly be described as meteoric."[4] His Trio in B Minor for piano, violin and cello, in the late romantic idiom, won the conservative Paderewski Prize in 1921. This encouraged him to continue his work, resulting in another prize, the Elizabeth Sprague Coolidge Prize for Chamber Music, in 1924. He earned his livelihood during these years by teaching cello and theory at Drake University. This part of his career was followed by a position at the Institute of Musical Arts where he taught composition.[5]

Modern dance attracted Riegger, especially during the years 1933-41. He wrote a great deal of music for such dancers as Tamaris, Martha Graham and Charles Wiedman. This interest led to his acceptance of the directorship of the Federal Theatre Project for a short time in 1933.[6]

Throughout his career, Riegger supplemented his income with the sale of hundreds of choral arrangements of music by a wide variety of composers. Since he was not especially proud of this activity, it was carried out under pseudonyms. Nine

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3. Blom, op. cit., p. 162.
4. Goldman, op. cit., p. 40.
5. Blom, op. cit., p. 162.
6. Goldman, op. cit., p. 51.

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different publishers at one time or another issued these arrangements, for each of which Riegger used a different name.[7]

Riegger's side interests, pursued for his own entertainment and enjoyment, included a study of electric musical instruments. He became especially interested in the Theremin, and learned to play a cello-like version of this instrument.[8] Also, he apparently was something of an amateur naturalist. He made a hobby of collecting bird songs, and his notated collection is reported to have included several hundred different calls.[9]

Richard F. Goldman describes Riegger as ". . . a quiet man in a noisy world." His musical style reflects this in its inventiveness and discipline, and in the absence of techniques used for their shock value.[10]

The development of Riegger's later style hinged largely upon two important elements in his career. First, he became involved with the Pan-American Association of Composers, and met such men of the "modern movement" in America as Ives, Ruggles, Varèse and Cowell. The second

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7. Robert Sabin, ed., Thompson's International Cyclopedia of Music and Musicians (New York: Dodd, Mead and Co., 1964), p. 1798.

8. Percy Scholes, ed., The Oxford Companion to Music (New York: Oxford University Press, 1955), p. 882.

9. Ibid., p. 110.

10. Goldman, op. cit., p. 39.

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element was the modern dance movement, of which Riegger wrote, "I had not been impressed with the prettiness of the ballet, so alien to the American scene, but so generously patronized. The modern dance, being vital and expressive--and an American product--fascinated me."[11] These two elements served to turn Riegger's music from its retrospective German romanticism.

Riegger combined this changed outlook with an extensive study of Schoenberg's works, and finally arrived at a personal and independent manner of using the 12-tone technique. His approach included the expected fondness for contrapuntal devices, but also a rhythmic conception which was foreign to Schoenberg and all of the European serialists.[12] Riegger managed to integrate the atonal and dissonant elements with the traditional features of his music. As a result, atonality and dissonance do not emerge aurally as ends in themselves. The themes, rhythms and formal schemes are so important to the music and so directly presented that the listener is attracted to them rather than the dissonance of the atonal construction.[13]

These techniques were foreshadowed in Dichotomy, a work composed in 1931-32, where he used two different rows. The

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11. Wilfred Mellers, Music in a New Found Land (New York: Alfred A. Knopf, 1965), p. 123.

12. Blom, op. cit., p. 162.

13. William R. Ward, Examples for the Study of Musical Style (New York: Wm. C. Brown Co., 1970), p. 437.

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first was an 11-tone row, and the second had 13 tones; that is, ten different and three recurring tones. Riegger pointed out a technique in this work which he called "cumulative sequence," that was also to become part of his later style. ". . . This is the old Three Blind Mice idea, keeping the original motive and adding a sequence, above or below, instead of moving the motive itself."[14]

The most successful of Riegger's orchestral works was his Symphony No. 3. Concerning this, Henry Cowell wrote, "The enormous success of his third symphony was not due to its good construction, but to the fact that this well constructed work had wide emotional appeal."[15] The work received the New York Critics Circle Award in 1948, but the success Cowell spoke of seems to have been short-lived. Performances of the work have been few in recent years.[16]

The selection of Riegger's music for this analysis has been limited to these orchestral works:

Music for Orchestra, Op. 50 (1950)
Variations for Piano and Orchestra, Op. 54 (1952-53)
Dance Rhythms, Op. 58 (1955)
Symphony No. 4, Op. 63 (1957)
Variations for Violin and Orchestra, Op. 71 (1959)

These particular works were chosen because they are

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14. Gilbert Chase, America's Music, from the Pilgrims to the Present (New York: McGraw-Hill, 1955), pp. 608-09.

15. Henry Cowell, "Wallingford Riegger," Musical America 68 (Dec. 1, 1948), p. 29.

16. Goldman, op. cit., p. 40.

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representative of the last decade of Riegger's career, and were therefore conceived after the appearance of his more acclaimed works, such as Study in Sonority (1927), Dichotomy (1931-32), and Symphony No. 3 (1948).

The music of Riegger has not been extensively examined by theorists and musicologists. The article in the January, 1950 Musical Quarterly by Richard F. Goldman, and Henry Cowell's article in the December 1, 1948 issue of Musical America are important contributions. A doctoral dissertation entitled, An Analytical Study of the Principle Instrumental Compositions of Wallingford Riegger, by J. B. Schmoll, was submitted at Northwestern University in 1954. This study encompasses a large number of works through 1949, and is especially informative concerning the melodic characteristics and serial practices in Riegger's music. None of these writings deals with the works after 1949, the works chosen for this study.

This study has been divided into four major sections. The first of these, Chapters I through IV, deals with specific elements of each individual work, and the remaining three are comparative examinations of cadences, textures and techniques of orchestration. The isolation of the musical elements is necessary for the purposes of analysis. This is done with the full realization that the significance of any characteristic, technique or procedure is revealed only when it appears in its entire musical context. Schoenberg's comments on composition include these remarks:

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> "Though the elements of these (musical) ideas appear separate and independent to the eye and ear, they reveal their true meaning only through their co-operation, even as no single word alone can express a thought without relationships to other words. All that happens at any point of this musical space has more than local effect. It functions not only in its own plane, but also in all other directions and planes, and is not without influence even at remote points."[17]

Because of the importance of the musical context to the meaning of any of its elements, the examples in this study are numerous, to illustrate the same element in different contexts. Whenever possible, the examples are complete, showing the entire orchestration at that moment in the music.

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17. Josef Rufer, Composition with Twelve Notes Related Only to One Another, trans. Humphrey Searle (New York: Macmillian Co., 1954), p. 49.

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CHAPTER I

MUSIC FOR ORCHESTRA, OP. 50

Music for Orchestra is an atonal work. The term "atonality" has been used several times and will be used throughout this paper. The literal definition, "without tonality," needs to be further clarified with recognition of the fact that the perception of tonality is a subjective matter. Almost any combination of tones suggests a tonal center to some, while others need to hear traditional tonal relationships before they perceive a tonal center. To this first group, atonality is an expansion of traditional tonal relationships, but to the second group, it is an absence of traditional relationships.[18] The term is used in this paper in reference to "music which is not clearly organized by traditional systems, such as the modal system, or the major or minor key systems. . ."[19]

Form. This is a revision of an earlier work, Consummation, Op. 31, but retains the original fugue. This fugue will be analyzed and discussed in a later section dealing with contrapuntal textures.

The tone row on which Riegger based this work is, of course, the important structural element. The composer used

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18. Leon Dallin, Techniques of 20th Century Composition (Dubuque, Iowa: Wm. C. Brown Co., 1964), p. 44.

19. Reginald S. Brindle, Serial Composition (London: Oxford University Press, 1966), p. 11.

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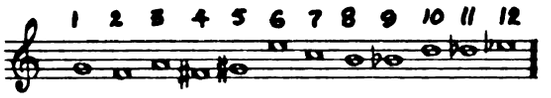
Ex. 1. Music for Orchestra, 12-tone row.



the row in Example 1 with only a rare octave displacement of any of its members. This makes for a predominantly conjunct melodic motion throughout the work in the parts of the individual instruments.

The melodic intervals of this row, six major and minor seconds, three major thirds, one minor third and a minor sixth, are arranged so as to avoid tonal regions. The only triad outlined is an augmented chord consisting of numbers 5 through 7. A major seventh chord is implied by numbers 6 through 8, but it is in third inversion and incomplete. A row such as this may be described as an "atonal series" since it maintains the same degree of atonality throughout, with no harmonic implications which establish tonal regions.[20]

All four versions of the row are used in this work, as well as many transpositions of each version. Except for a few notable instances, the statements of the row are incomplete. This is due to the fact that each melodic pharse usually begins with a new statement of the row without regard for where the preceding phrase ended in the series.

The deployment of the row occurs in a variety of ways. The opening measures of the work present the original version shared by a flute and English horn in a two-part contrapuntal

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20. Ibid., p. 11.

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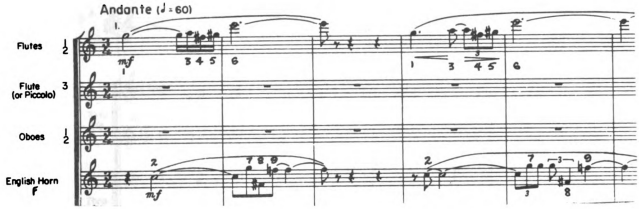
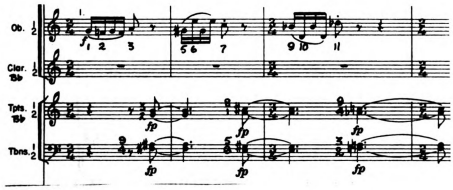
texture. This has been described as the "horizontal-vertical method" of tone row deployment.[21]

Ex. 2. Music for Orchestra, meas. 1-6.

In a similar manner, the row members missing from the oboe line in Example 3 are supplied by the brass chords.

Ex. 3. Music for Orchestra, meas. 20-22.

Another way in which the row is presented involves melodic

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21. Ibid., p. 50.

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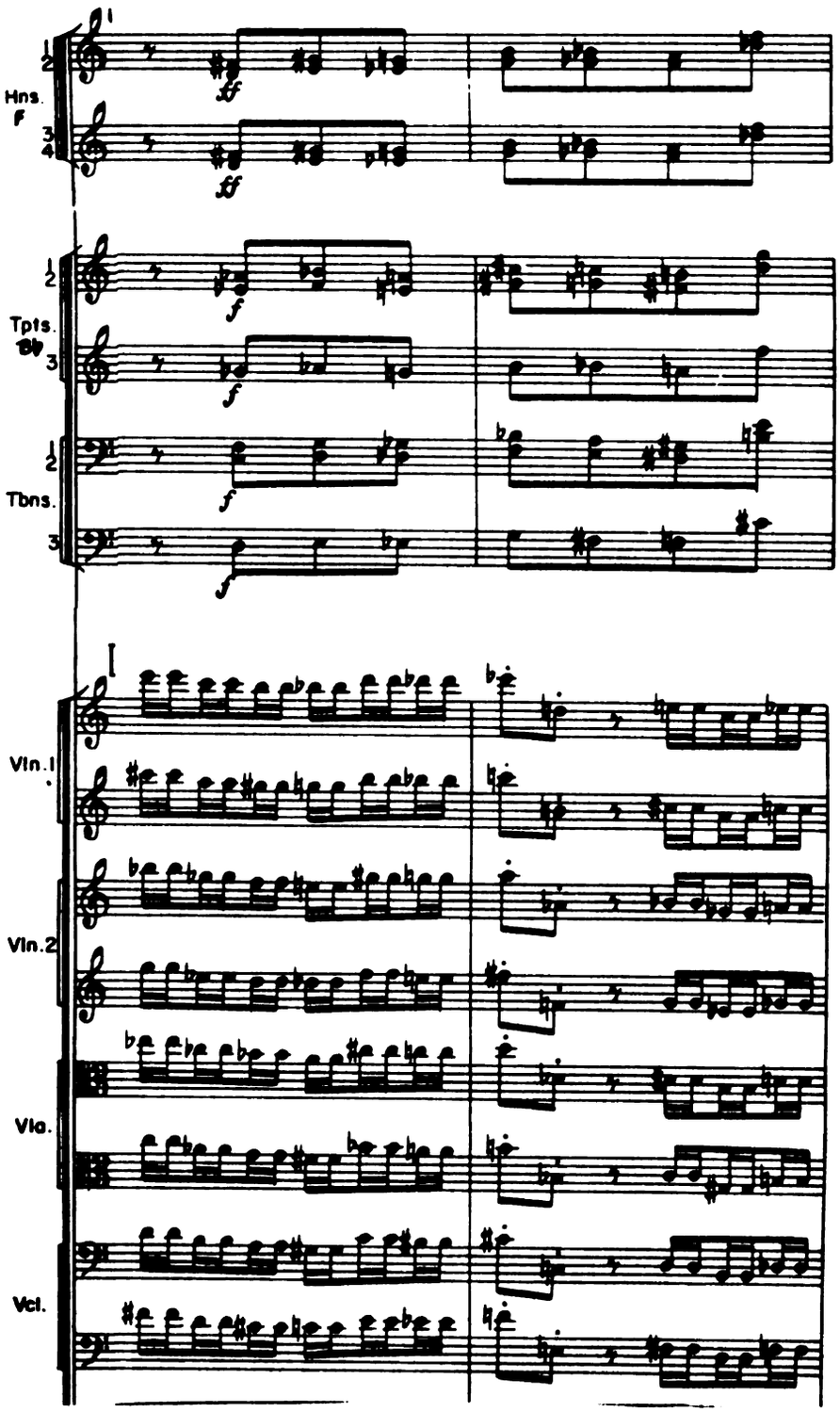
Ex. 4. Music for Orchestra, meas. 247-48.

In this case, the retrograde-inversion form of the row and seven transpositions are used simultaneously in the brasses.

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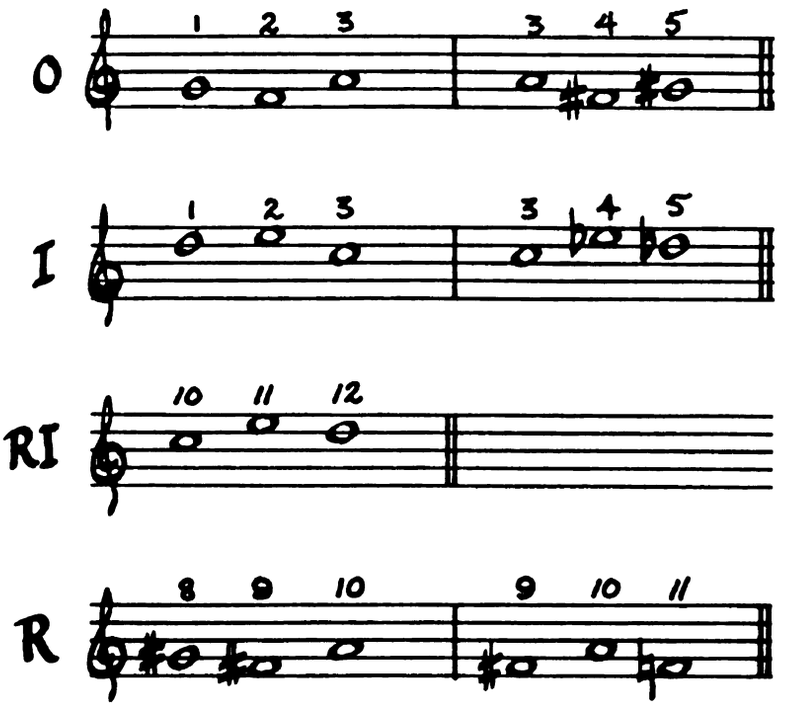
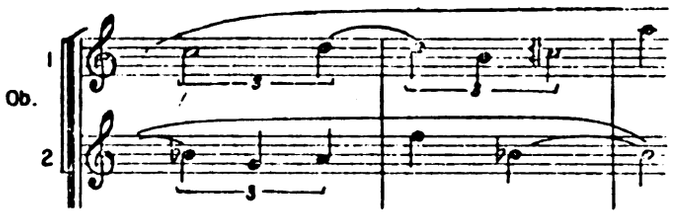
This is in counterpoint with the original form in the strings, also doubled by seven transpositions.

An important factor in this work is the way in which the composer made use of certain three-note fragments or "cells" of the row. These fragments often appear with the rhythmic motive of the fugue subject.

Ex. 5. Music for Orchestra, prominent row fragments.

Each, except for the last example, contains a combination of the intervals of a second and a third. The consistent use of these intervals becomes a characteristic of the entire work. The fragments are found in succession as in Example 6.

Ex. 6. Music for Orchestra, meas. 172-73.

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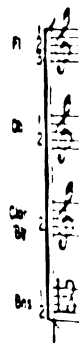

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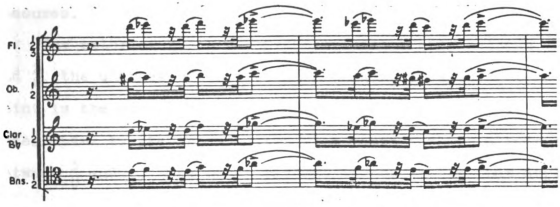
The fragments are also found as conjunct units, and as unifying motives within phrases as in Example 7.

Ex. 7. Music for Orchestra, meas. 77-78.

In contrast to the extended passages in which these row fragments are used, are passages in which the complete row is stated. In measures 245 to 266, the following versions of the row appear in the strings in this order: original, inversion, retrograde-inversion, retrograde, and inversion. Beginning a measure later in this contrapuntal passage, the brasses present these complete versions: retrograde-inversion, retrograde, and original. These are all disjunct statements, with one exception occurring in measure 250 in the strings. At this point, the last note of the inverted row serves also as the first note of the retrograde-inverted row.

Rhythm. One motive and a derivative submotive dominate the rhythm of this whole work: . This pattern is introduced in the first two measures of the piece and permeates the rest of the work. The submotive in its various appearances, , , is employed in the fugue theme.

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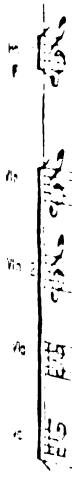

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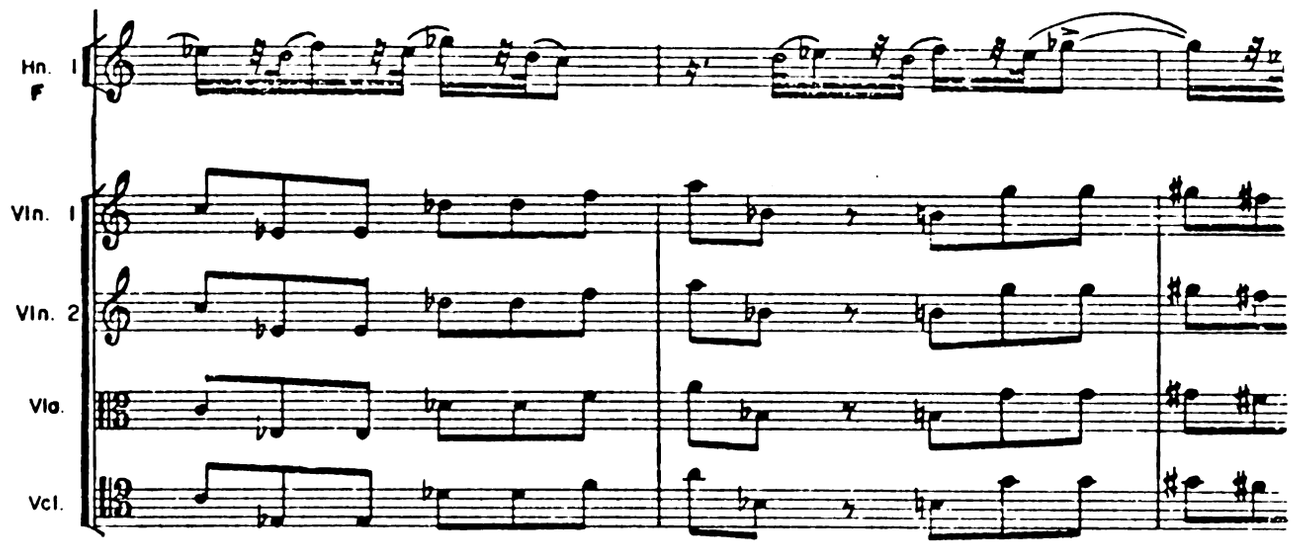
The tempo ranges from 60 to 100 beats per minute, and changes within this rather limited range occur suddenly in most cases. Only a few accelerandos and ritards are indicated, and these occur in the space of one or two measures.

The meter of Music for Orchestra alternates between $\frac{3}{4}$ and $\frac{2}{4}$, the changes often occurring between phrases. At one point in the work, this duple and triple alternation is interrupted by the introduction of a passage which alternates between $\frac{5}{8}$ and $\frac{2}{4}$. One other passage is notable in that duple-simple and compound times are used simultaneously.

Ex. 8. Music for Orchestra, meas. 213-15.

Harmonic Structures. Melodic doubling which results in parallel streams of intervals and chords is of prime importance to the harmony of Music for Orchestra. In addition to parallel streams of intervals and tone clusters, various tertian and quartal structures are used with this technique.

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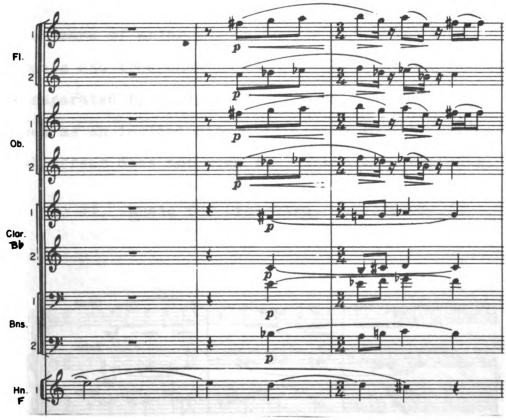
The interval of melodic doubling between two instruments is very frequently that of the tritone. In Example 9, the first flute and oboe are paired with the second flute and oboe at the interval of a tritone. The clarinets and bassoons are simultaneously paired in the same manner on a different melodic line.

Ex. 9. Music for Orchestra, meas. 138-40.

A major second is the interval of the doubling between solo cellos II and III in Example 10 where the doubled line is one part of a three-part contrapuntal texture.

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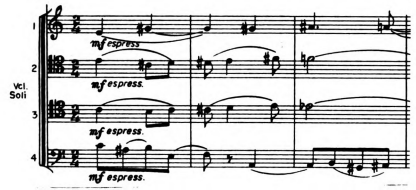
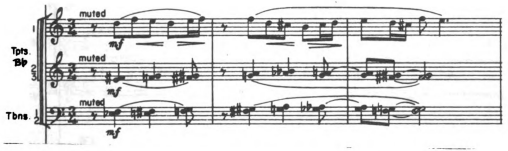
Ex. 10. Music for Orchestra, meas. 147-49.

Two streams of major seconds occur simultaneously in the trumpets and trombones in Example 11. The two doubled lines are separated by a major sixth. The resulting chord might be viewed as an implied ninth chord with an added note, but the aural effect does not seem to justify this analysis.

Ex. 11. Music for Orchestra, meas. 64-66.

However, in the similar situation in Example 12, parallel augmented ninth chords are strongly implied by the two

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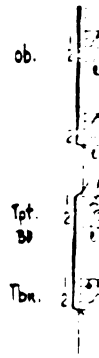

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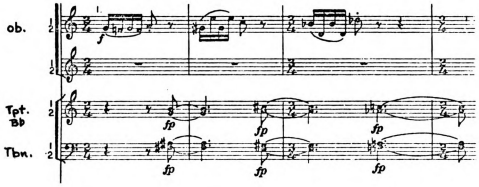
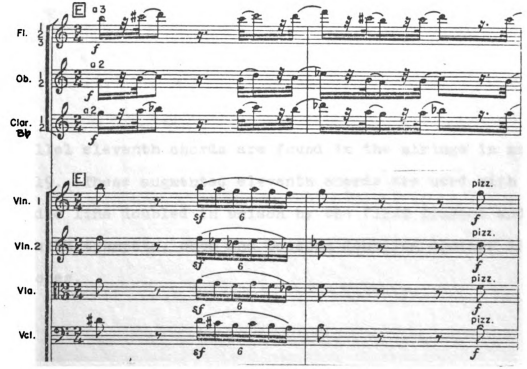

The tertian structures used in parallel streams include all of the possibilities from triads to thirteenth chords. Very frequently, these chords are incomplete or contain added notes. An example of such an implied chord may be seen in measure 43 in the woodwinds. The chord in this case is a

Ex. 13. Music for Orchestra, meas. 43-44.

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diminished-minor seventh chord in third inversion with the third omitted. The structure used in parallelism in the strings is a complete diminished-minor seventh chord in third inversion. The ninth chord in first inversion in Example 14 is complete and contains an added sixth.

Ex. 14. Music for Orchestra, meas. 95-97.

Parallel eleventh chords are found in the strings in measures 118-19. These augmented eleventh chords are used with a melodic line doubled in unison by the first trumpet and oboe, and with trumpets, oboe and bassoon doubling another line in tritones.

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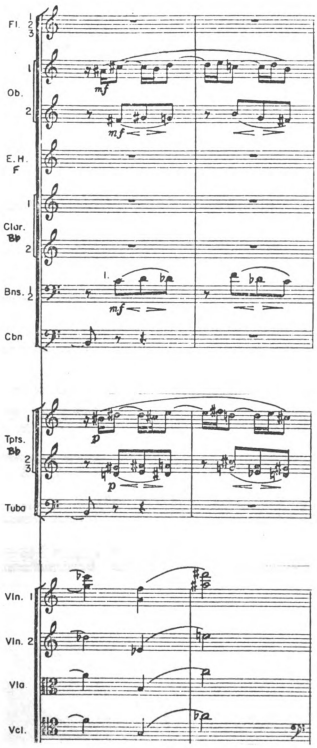
Ex. 15. **Music for Orchestra**, meas. 118-19.

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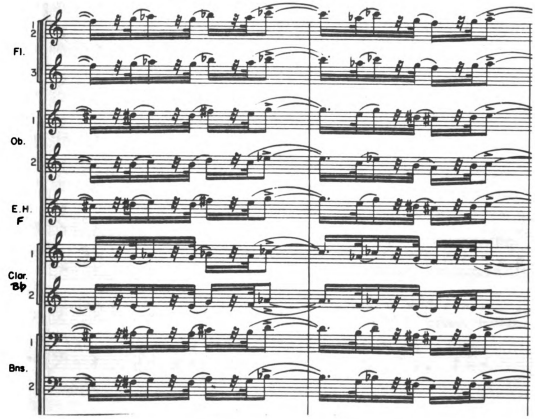
The melodic doubling in the woodwind passage in measure 107 results in a diatonic thirteenth chord with the fifth omitted and an added minor ninth (or augmented octave).

Ex. 16. Music for Orchestra, meas. 107-08.

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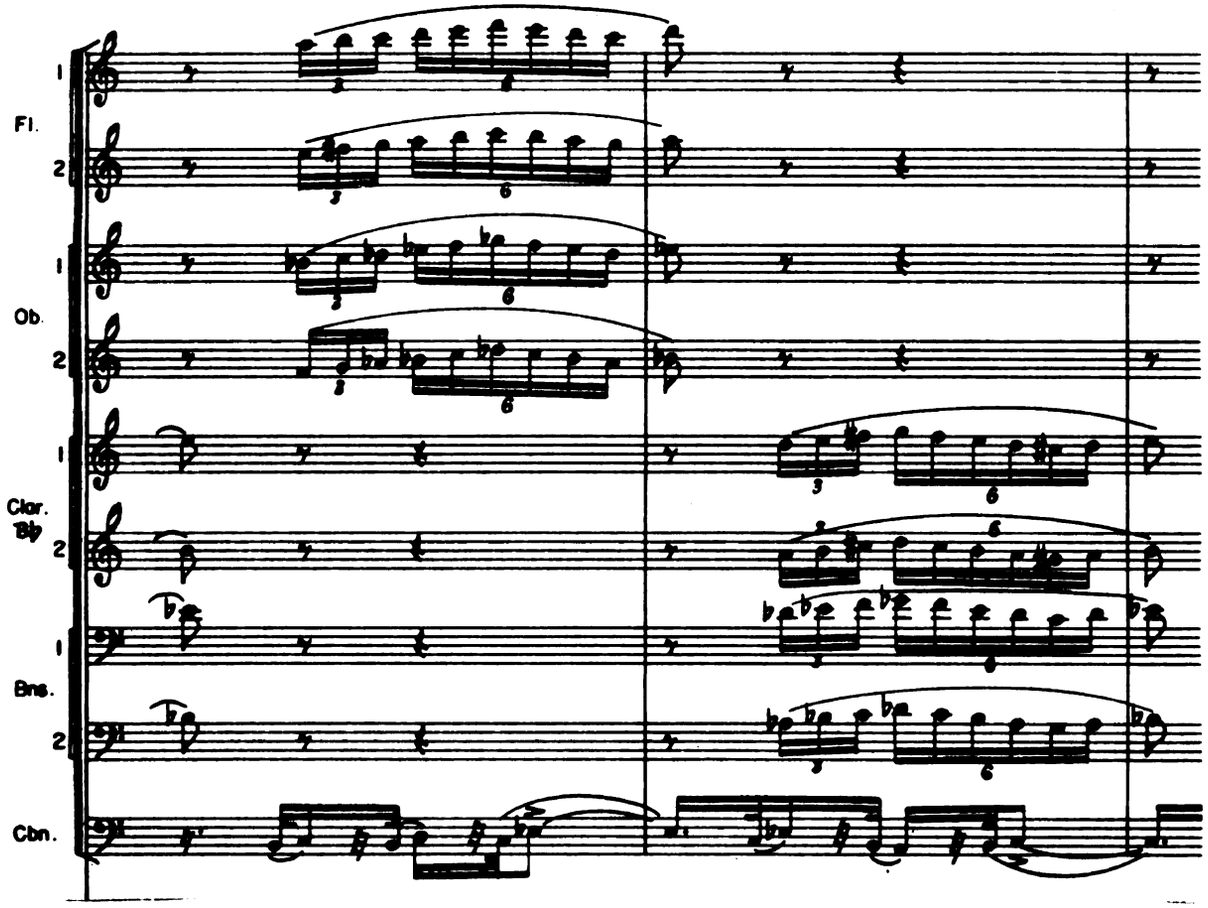
The non-tertian structures used in parallel streams include quartal chords such as seen in Example 17 in the woodwinds.

Ex. 17. Music for Orchestra, meas. 58-59.

In measures 225-26, the quartal stream in the woodwinds is used against a stream of augmented eleventh chords in the strings. The eleventh chord used here is implied by only the root, third, ninth and augmented eleventh.

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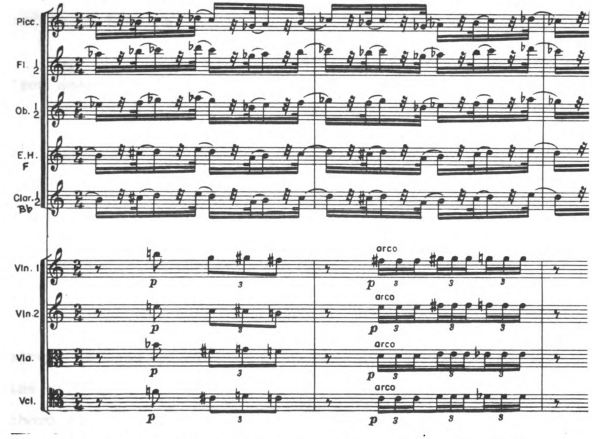
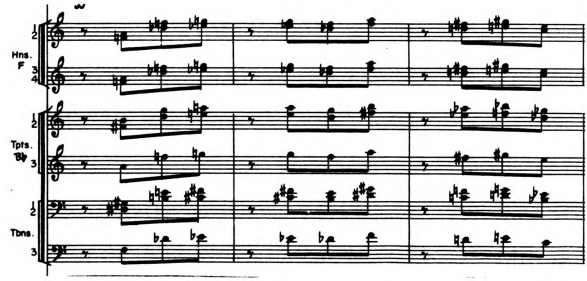
Ex. 18. Music for Orchestra, meas. 226-27.

The parallel quartal structures used in this work often contain added notes. When enough notes are added, structures similar to that seen in Example 19 result.

Ex. 19. Music for Orchestra, meas. 253-55.

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One of the brass chords, transposed, from the parallel series in Example 19 is shown in Example 20. This quartal

Ex. 20. Music for Orchestra, transposed brass chord from measure 253.

stream is used in counterpoint with an eleventh chord in the strings and a woodwind melody. The parallel string chord is a diminished seventh chord plus a minor ninth and a diminished eleventh. A major seventh and augmented fifth are added to the sonority.

All of the quartal structures shown in the preceding examples have been composed of perfect and augmented fourths. From the bottom to the top of the structures, the intervals appear in this order; perfect fourth, augmented fourth, perfect fourth. This particular order of intervals is consistent throughout the quartal structures in Music for Orchestra.

The remaining structure which is used in parallel streams is the tone cluster. Parallel clusters of major seconds appear in the trombones and bassoons in a two-part

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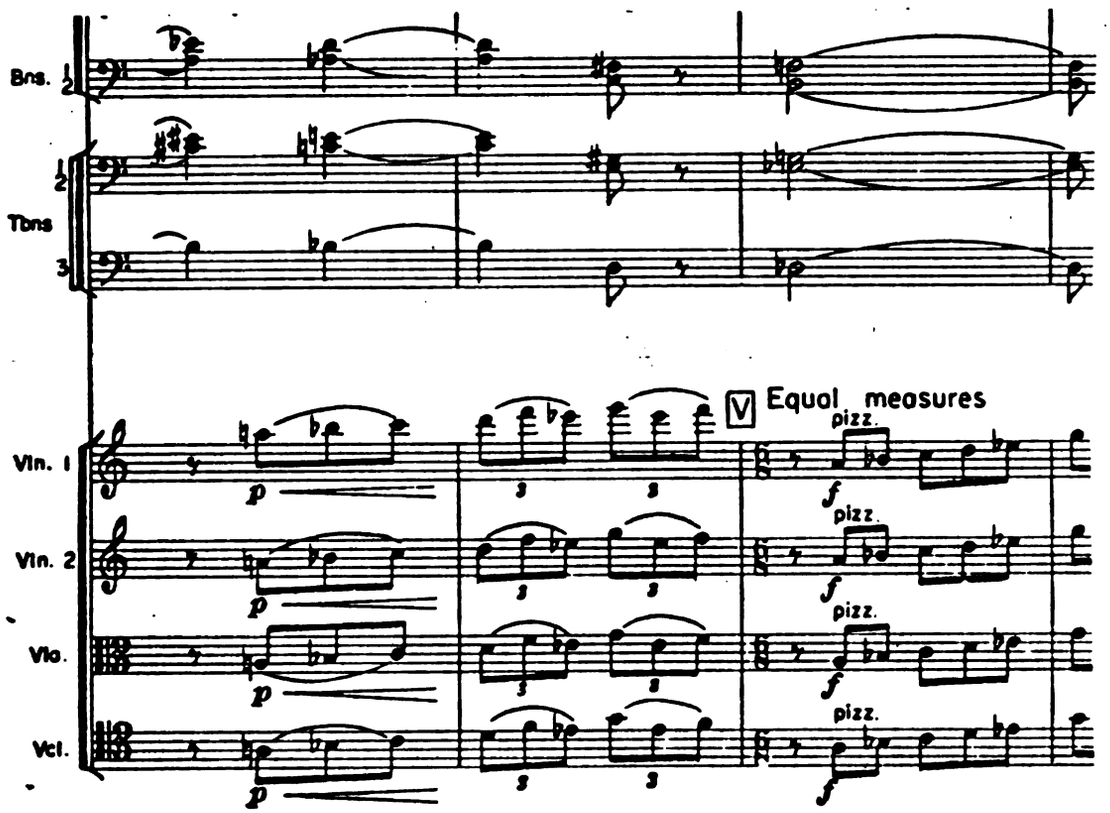
Ex. 21. Music for Orchestra, meas. 205-06.

In the small percentage of this work which does not involve parallelism, the harmony is composed of two-note structures with octave doublings. In reference to the classification of intervals, major and minor thirds and sixths, plus perfect fifths and octaves will be considered as consonant intervals for the purposes of this study. All other intervals, including perfect and augmented fourths, will be considered dissonant.

The most frequently used consonant intervals are major and minor thirds, with major and minor seconds and ninths the dissonant intervals with the highest frequency. An

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examination of these intervals at points of metric stress reveals that the consonant intervals, especially thirds and sixths, appear most often on strong beats. The important dissonant intervals on strong beats are sevenths and seconds. Tables 1, 2 and 3 show the proportionate use of the various harmonic structures.

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CHAPTER II

VARIATIONS FOR PIANO AND ORCHESTRA, OP. 54

Form. Variations for Piano contains 12 variations, and is also based on a tone row. An interlude occurs between Variations XI and XII and the coda ends with material closely related to the introduction. Each variation presents a different treatment of the row, a different tempo, and a different meter.

Variation XII consists of a prelude and fugue, and will be discussed later in Chapter VII. All of the other variations as well as the introduction are in traditional binary form. Variations II, VI, VII, VIII and IX are symmetrical two-part forms, each section being equal in length. The A section of Variation II is comprised of three five-measure phrases. Variation VI is constructed in the same manner, each section containing two five-measure phrases. The material of the phrases and sections in these cases is very closely related in each variation.

The parts of Variation VIII are each three eight-measure phrases with the last two phrases being parallel, i.e., a b b‖ c d d. Parallel double periods appear in the symmetrical Variation VII. Each part contains two parallel eight-measure periods, but part A divides into four similar phrases while part B is composed of two periods. This may be expressed as, a a a a'‖ b b'. Variation IX is symmetric due to the fact that the B part is literally repeated.

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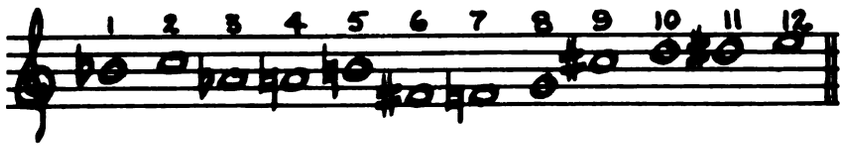
With the exception of Variations I and XII, the asymmetric variations all involve a literally repeated B part. Variation X is notable for the fact that it is the only instance in which the A part, two nine-measure periods, is longer than the B part, a repeated eight-measure period. The B part of Variation V is exactly twice as long as the preceding part due to the repeat, A ‖: B :‖.

The row is shown below. This is an atonal row in that groups of tones which might tend to establish tonal areas have been avoided.

Ex. 22. Variations for Piano, 12-tone row.



Unlike the employment of the row in Music for Orchestra, Riegger freely used octave displacements in this work, so the intervals of the model are melodic characteristics of only the opening and closing sections. It is interesting to note that the introduction and six of the variations employ only the original and inverted versions of the row. Only in Variations I and VIII are all four versions found. Transpositions of any of the four versions are very rare, occurring mainly in Variation IX.

The row is employed with a variety of techniques. Perhaps the most obvious is the linear appearance of the complete row. In Example 23, the inverted row appears in the

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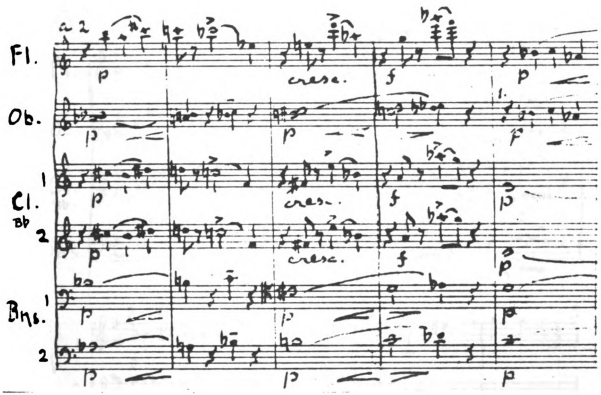
flutes and clarinets and is accompanied by an ascending chromatic line doubled in seconds. The next phrase is accompanied by the same chromatic line with a complete statement of the original row in the flutes and oboes.

Ex. 23. Variations for Piano, meas. 11-15.

A procedure frequently used by Riegger is the repetition of previously used tones along with some tones further along in the row until the entire row has been used. For example, in measures 57-76 the piano states the row in the following manner: 1 and 2, 1-7, 5-7, 6-10, 6-12, 10-12, and 11 and 12.

The employment of the row in a horizontal-vertical manner appears only occasionally. The first two measures of Example 24 contain 1 and 2 of the original row repeated by the

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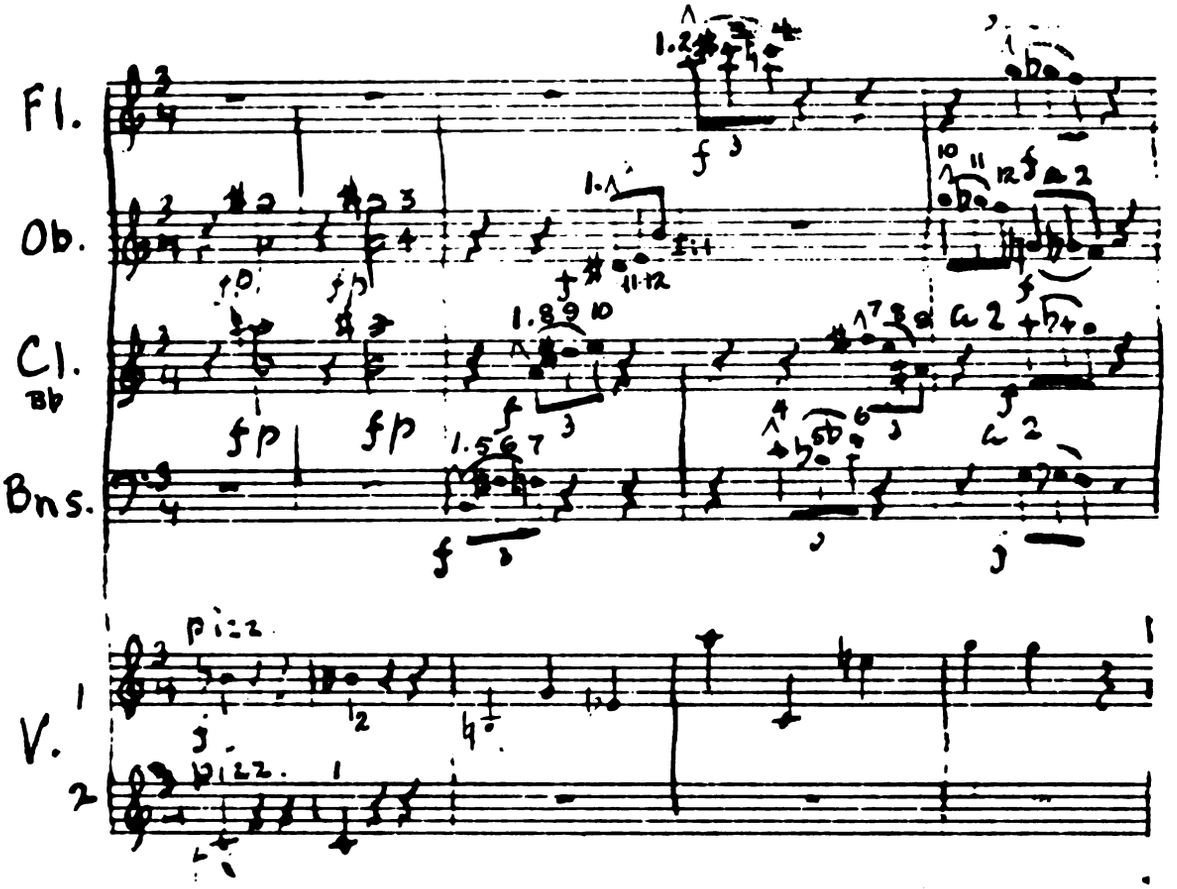
violins, and 3 and 4 repeated by the woodwinds. The remaining part of the original and the complete inverted row are used in the triplet figures.

Ex. 24. Variations for Piano, meas. 25-29.

Melodic doubling of the row occurs, but the technique is not used as extensively as in Music for Orchestra. Beginning in measure 142, the original row in the first violins is doubled a second lower by the second violins and violas.

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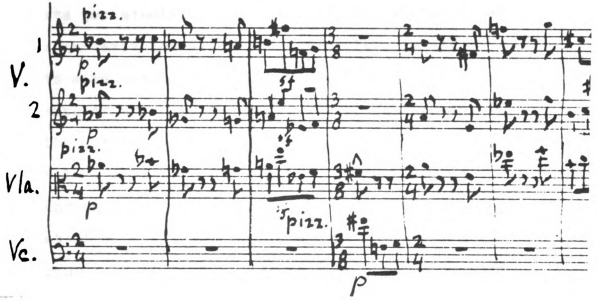
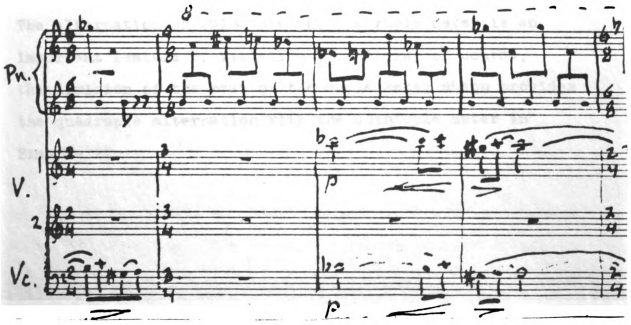
Ex. 25. Variations for Piano, meas. 142-48.

The row appears in three different contexts. The same version may be used for two lines; it is sometimes used against free material, as was seen in Example 23; or different versions may be used simultaneously. In Example 26, the piano part is composed of the inverted row while the strings double the original version in octaves.

Ex. 26. Variations for Piano, meas. 202-05.

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Rhythm. Tempos in Variations for Piano range from 60 beats per minute in Variation IX, to 240 beats per minute in Variation XII. Variations III, IV and XI contain some tempo changes, but all of the others maintain the tempo at which they began. The tempos are set so that the extremely fast or slow variations are separated by one in a more moderate tempo.

Another contrasting element in this set of variations is that of meter. Each variation is set with a meter different from the one preceding. An unchanging meter is used in several of the variations, but in Variation XI the meter changes several times during the course of the section.

Alternating meters also appear, producing an asymmetric rhythm where they are used. Alternating triple and duple meter is an important feature of Variations I and V. In Variations VII and X, triple and quadruple meter is employed in the same manner, and triple-quadruple and duple-quadruple alternations appear in Variation IV. The alternation of quintuple and quadruple meter is an important feature of Variation II. It is, of course, the division of the beat of the duple meter which provides the quadruple alternation with the quintuple meter in Example 27.

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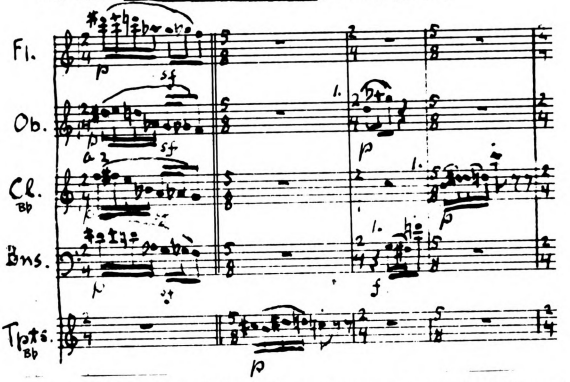
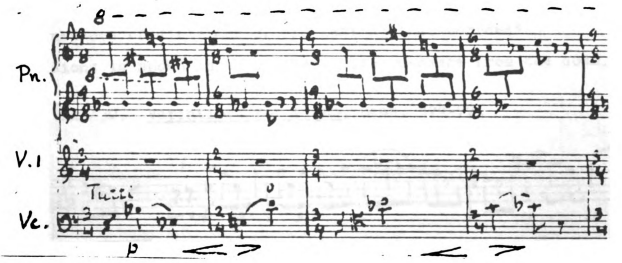
Ex. 27. Variations for Piano, meas. 51-54.

An interesting metric scheme occurs as an integral part of Variation VIII.

Ex. 28. Variations for Piano, meas. 190-93.

In this case, simple and compound time occur simultaneously. In addition to this, the meter alternates between triple and

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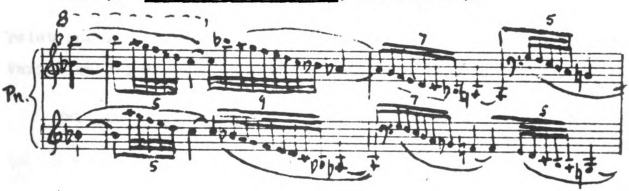
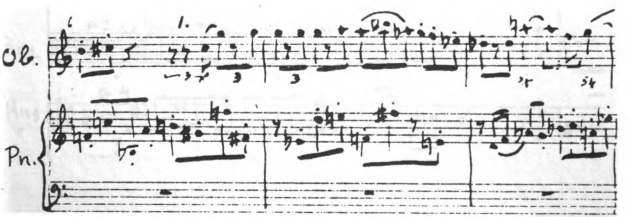
duple, all at a tempo of 192 beats per minute. Since the division of the beat in simple time never appears against the division in compound time, the effect of this passage in performance is that it is in only compound time.

Borrowed divisions and sub-divisions occur occasionally throughout the work, but in certain passages are especially striking elements of the rhythm. The piano passage in Example 29 contains groupings of five and nine thirty-second notes and of seven sixteenth-notes.

Ex. 29. Variations for Piano, meas. 128-29.

An instance of divisions of the beat against borrowed divisions is shown in an oboe and piano passage from the coda.

Ex. 30. Variations for Piano, meas. 374-77.

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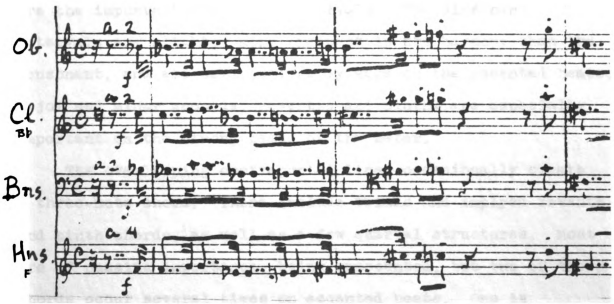
This is a characteristic rhythmic feature of the entire coda. The rhythm of Variation I is composed almost entirely of borrowed divisions and sub-divisions, but these are never used against the normal division of the beat. The variation therefore has the aural effect of being in compound time.

In several of the variations, a repeated rhythmic pattern is an important element. For example, four sixteenth-notes followed by an eighth-note in Variation II, and groupings of four sixteenth-notes in Variation X are frequent patterns. Another recurring pattern found in Variation XI involves repeated notes in this manner: . A relationship can be found between the rhythmic pattern of Variation VI, and the pattern in Variation IX.

Ex. 31. Variations for Piano, meas. 122-24.

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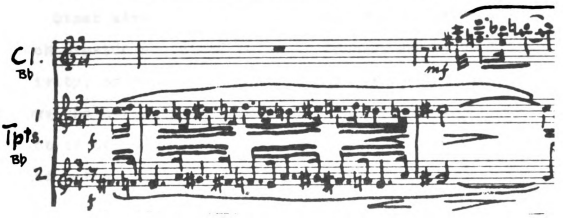
Ex. 32. Variations for Piano, meas. 223-25.



Harmonic Structures. Variations for Piano is set in a preponderantly dissonant contrapuntal texture with a very light orchestration. Parallelism is used in only about half of the work. The passages where parallelism of some sort is not present usually contain intervallic harmonic structures (see Tables 1, 2 and 3).

Of the consonant intervals, the thirds and sixths appear most frequently. Major and minor seconds, sevenths and ninths are the important dissonant intervals. The dissonant intervals are slightly more frequent in the harmony than the consonant, and are used noticeably more on the accented beats. Major and minor seconds, sevenths and ninths are especially important on the strong beats of the meter.

The overlapping contrapuntal lines occasionally create a three-note chord. These include triads and implyed seventh and ninth chords, as well as a few quartal structures. Most are of passing importance, being unaccented, but two of these chords occur several times on accented beats. One is constructed with a fifth and a fourth above the lowest note,

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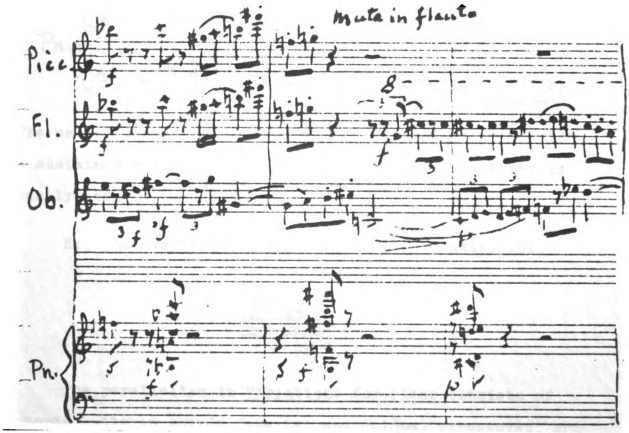
Other structures include occasional isolated chords which provide sustained harmonic background to contrapuntal activity, or appear as rhythmic punctuations. Example 33 shows the beginning of a contrapuntal woodwind passage which is punctuated by implied seventh and ninth chords with added notes.

Ex. 33. Variations for Piano, meas. 380-82.

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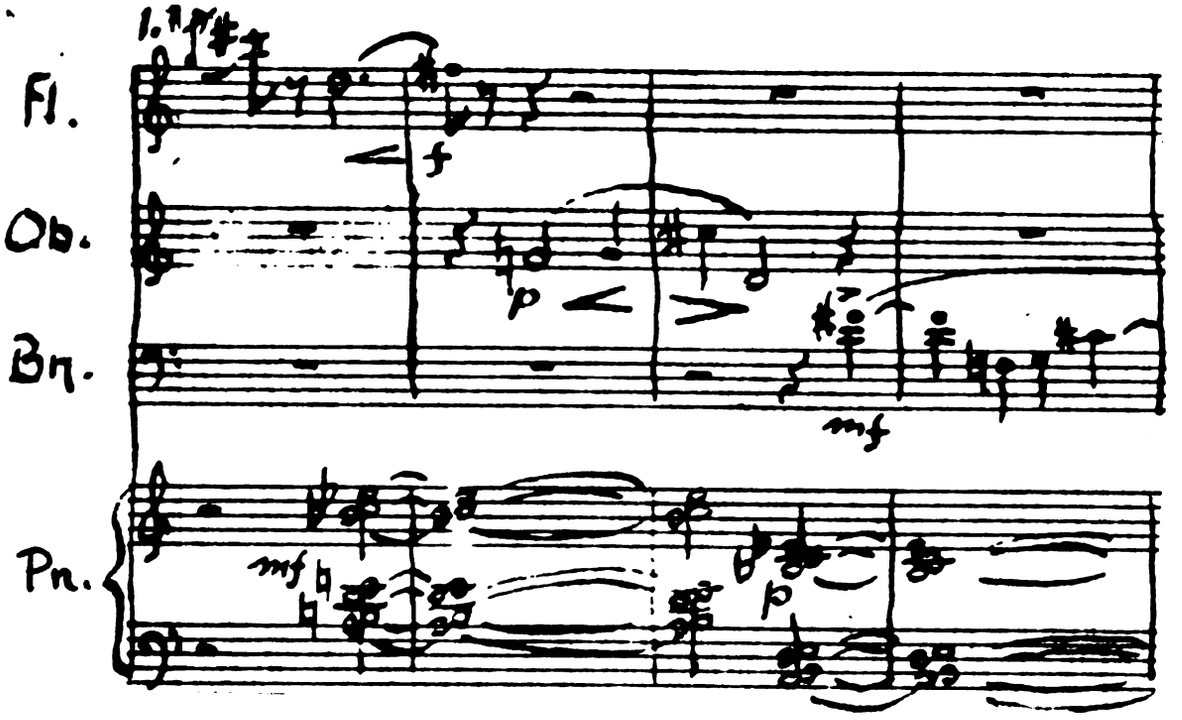
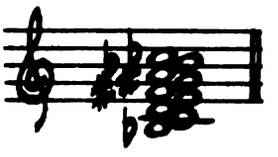
The sustained piano chord in measure 308 has the aural effect of two simultaneous quartal structures a second apart.

Ex. 34. Variations for Piano, meas. 308-11.

The second section of Variation IV is begun and ended with a sustained string chord. On a single staff the chord is easily seen to be a cluster.

Ex. 35. Variations for Piano, strings, meas. 101.

The parallelism in Variations for Piano consists of chords built in thirds, quartal and quintal structures, and extended passages of parallel intervals. The melodic doubling resulting in parallel streams of intervals occurs at a major second, minor seventh and perfect fourth. Two separate

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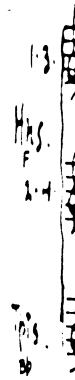

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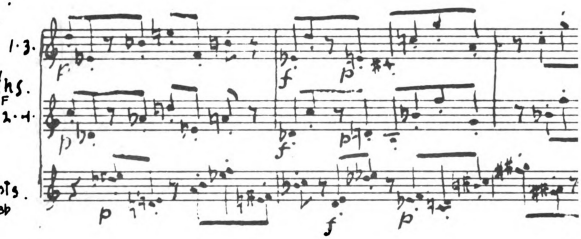
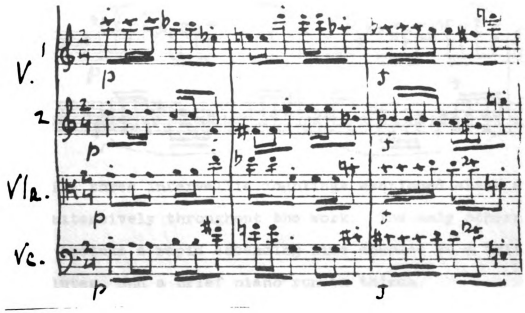
disjunct melodic lines are each doubled at a major second in measure 392.

This technique is used in a similar manner in measure 117. In this case, the violins are in minor sevenths as are the violas and cellos. The lower string line is an inversion of the violin line.

Ex. 37. Variations for Piano, meas. 117-19.

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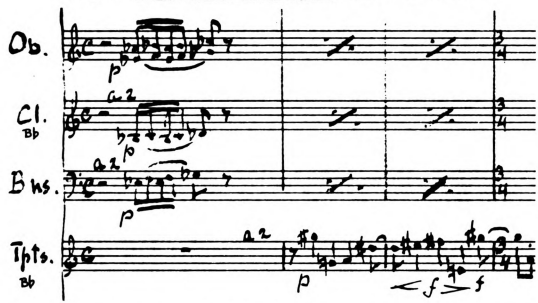
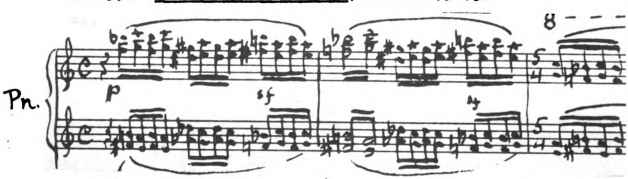
A perfect fourth is the interval at which the woodwind melodic fragments are doubled in measure 264.

Ex. 38. Variations for Piano, meas. 264-66.

Another example of doubling at a perfect fourth is seen in measure 273 where two opposing streams of fourths are employed in the piano part.

Ex. 39. Variations for Piano, meas. 273-75.

The three intervallic doublings mentioned above are used extensively throughout the work. The only others to occur include a rapid ascending line doubled at a tritone in the flutes, and a brief piano run in thirds.

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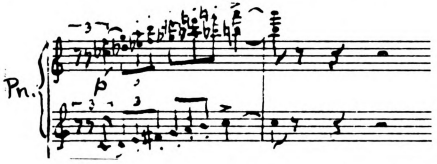
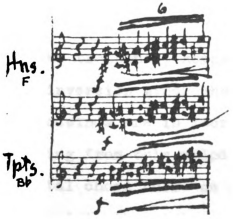
The tertian chords used in parallel streams in this work are often implied sonorities and usually contain added notes. For example, the parallel piano chords in Example 40 have the aural effect of eleventh chords. The parallel chords in the horns following this piano run are major chords in first inversion with added fourths, the chord fifth being omitted.

Ex. 40. Variations for Piano, meas. 408-09.

A complete minor seventh chord in root position is used for the parallel brass passage in Example 41.

Ex. 41. Variations for Piano, meas. 291.

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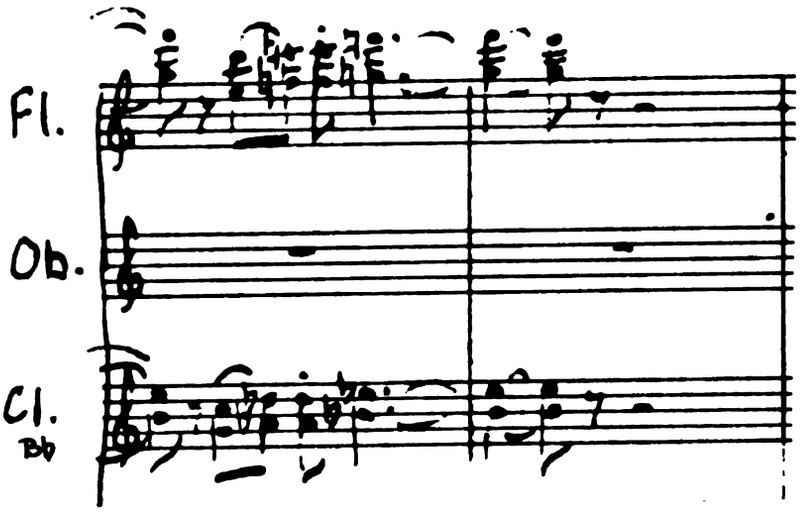
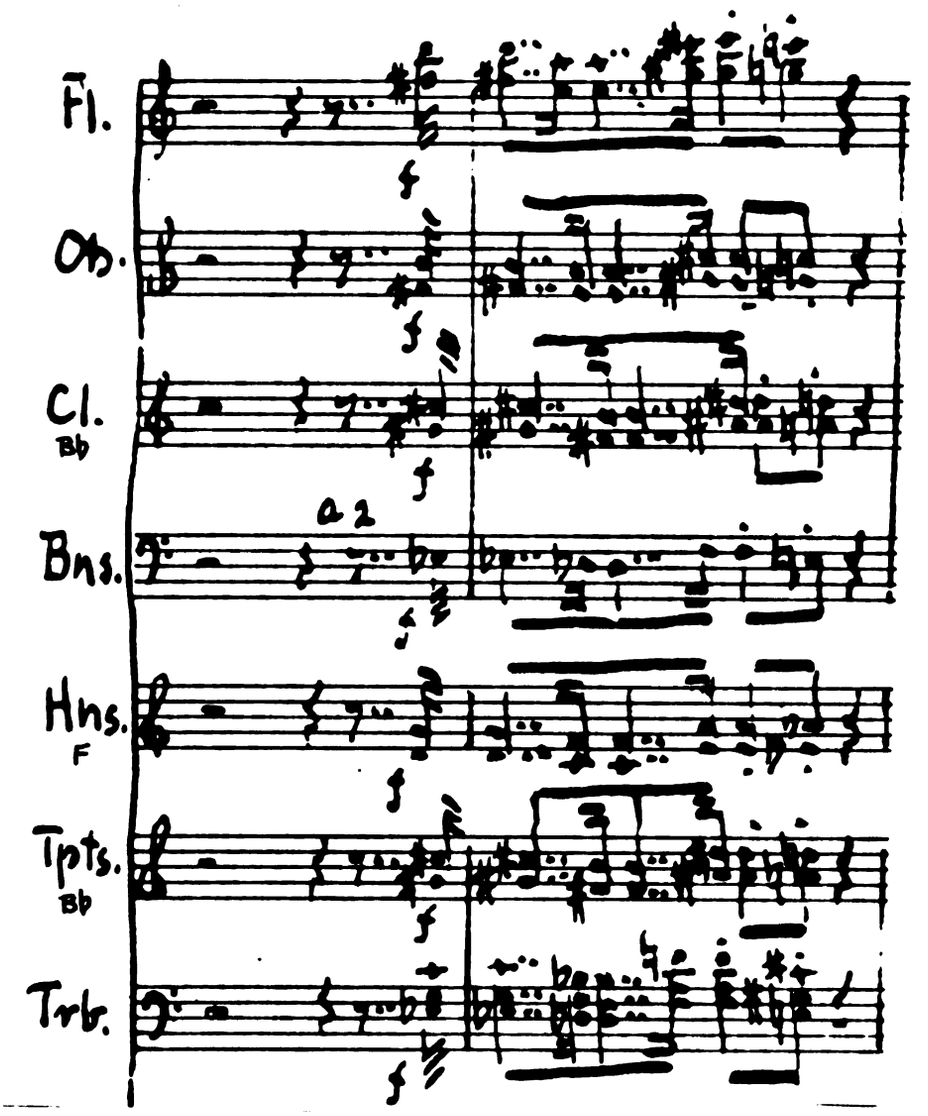
Parallelism involving quartal structures is more frequent than that of tertian chords. The parallel quartal structure in Example 42 in the woodwinds is comprised of perfect and augmented fourths, and is one part of a two-part contrapuntal texture.

Ex. 42. Variations for Piano, meas. 405-06.

In Example 43, the trombones, horns and bassoons produce parallel, first inversion minor chords. The trumpets and remaining woodwinds are in fourths. The complete structure resulting from this melodic doubling has the effect of a quartal chord built on a major third. This passage is imitated in the strings in the measures following.

Ex. 43. Variations for Piano, meas. 131-32.

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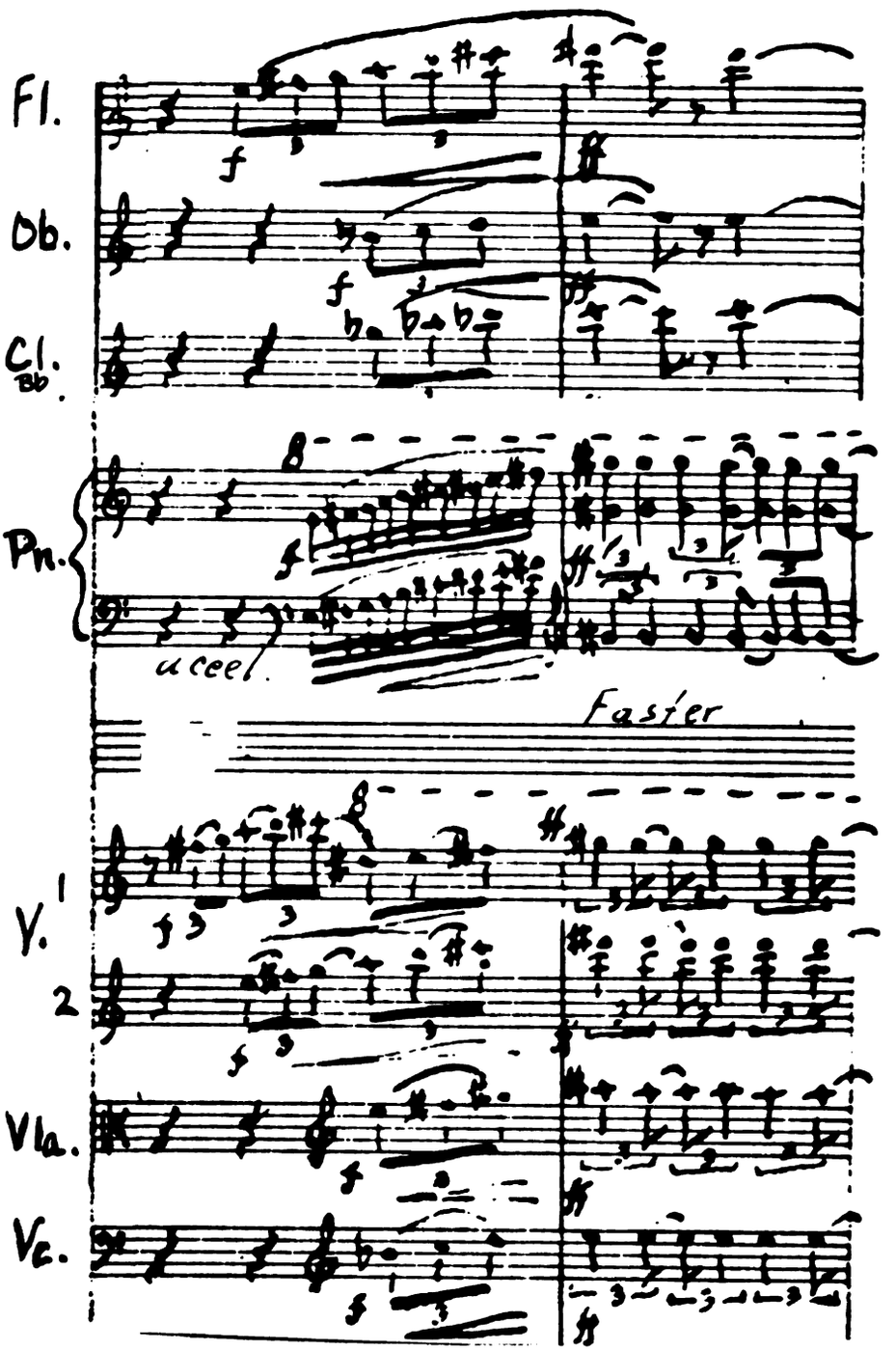
Occasionally, two different structures are used in parallel chord streams. The parallel string and woodwind chords in Example 44 are again built with perfect and augmented fourths. This appears with a piano line in octaves and the brass passage, not shown, discussed in Example 41.

Ex. 44. Variations for Piano, meas. 290-91.

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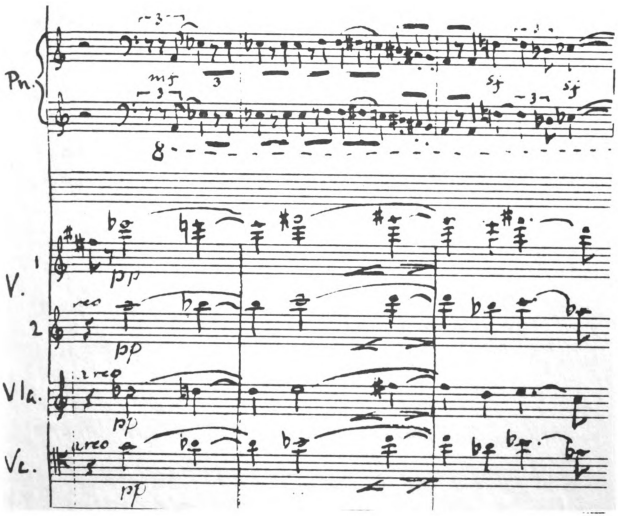
One quintal chord is used with this technique, as is seen in Example 45 in the strings. The parallel structure, in counterpoint with a piano line in octaves, is built with a diminished fifth above and below an augmented fifth.

Ex. 45. Variations for Piano, meas. 412-14.

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Variations for Piano represents something of a change in character from Riegger's previous works. Although his techniques are similar, the sustained tension which was found in such works as his third symphony is missing here. The total effect is more relaxed and occasionally even humorous.[22]

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22. Mellers, op. cit., p. 129.

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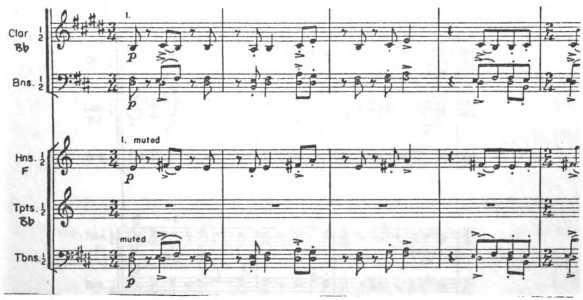
CHAPTER III

DANCE RHYTHMS, OP. 58

Form. Dance Rhythms is notable among these Riegger works in that it is tonally organized. The form of this piece is that of the Classic minuet and trio. The second part is marked "Trio" and contrasts with the first in both key areas and character. The traditional direction, "D. C. al Fine" appears at the end of the Trio, indicating a return of the entire first part.

The first part is in binary form with the second section repeated. This may be represented by the diagram A ‖: B :‖ . Example 46 shows the first appearance of the theme of the A section in the key area of D.

Ex. 46. Dance Rhythms, meas. 7-11.

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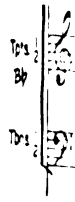

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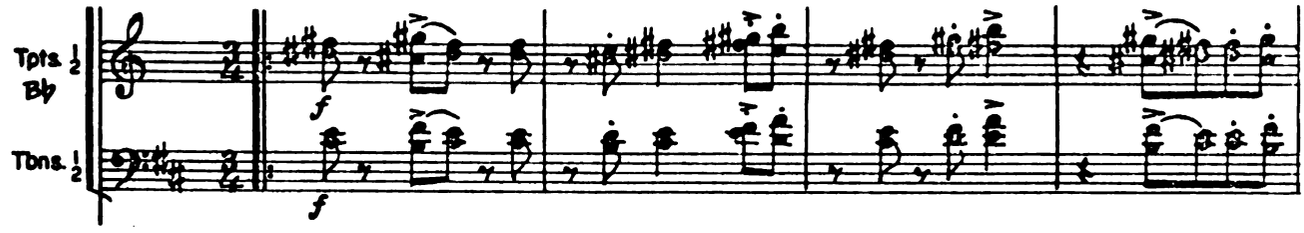
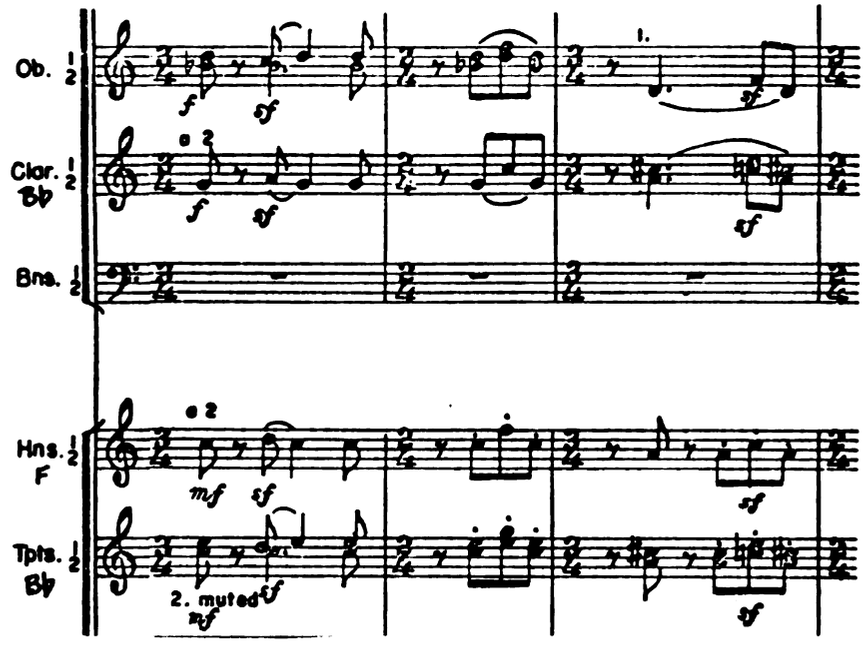
The element of syncopation seems to be strong in the rhythmic conception in all of Riegger's work. This is well illustrated by the themes used in this work. The B section is based on the same theme, but in the dominant key area of A.

Ex. 47. Dance Rhythms, meas. 42-46.

In the final measures of the B section, there is a return to the key area of D.

The trio is also in binary form, but in this case both parts are repeated together. This is represented by the diagram, ‖:A | B:‖. The theme of the trio is shown in Example 48 in the key area of B-flat, the key center for the A section.

Ex. 48. Dance Rhythms, meas. 103-05.

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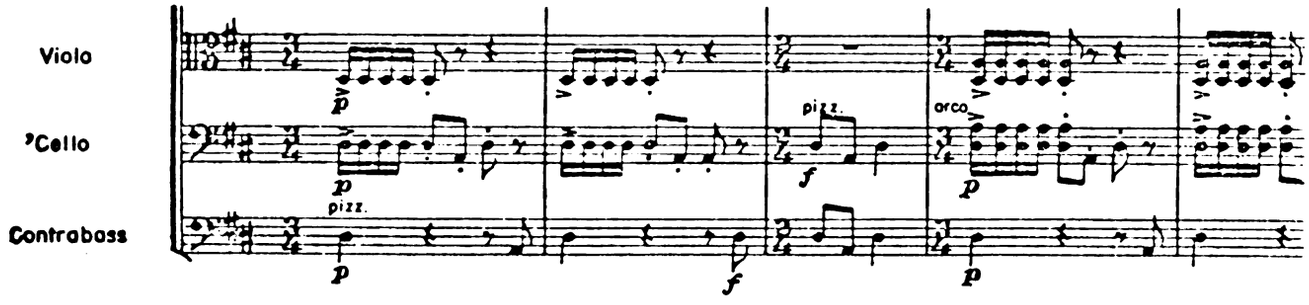
The last five measures of the A section establish D as the key center just before the beginning of the B section in F. The B-flat key center is re-established in the closing measures of the B section.

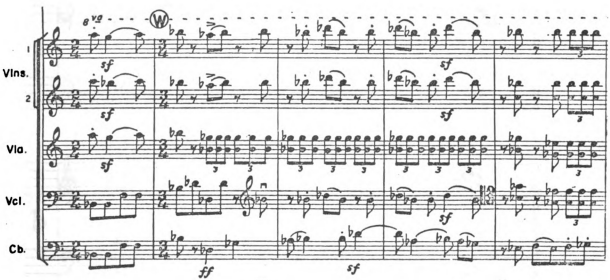
There remains one more element of the form of this work to discuss, and that is the matter of the material in the six-measure introduction.

Ex. 49. Dance Rhythms, meas. 1-5.

This characteristic rhythmic pattern appears also in a short transition section after the trio, before the da capo, and is used throughout the work between appearances of the themes.

Rhythm. Dance Rhythms is set at a tempo of 120 beats per minute and there are few deviations from this pace. The one notable change in tempo is the allargando indicated at the end of the first section which becomes molto allargando to end the piece.

The rhythm of this whole work is strongly influenced by the constantly alternating meter. This alteration is between triple-and duple-simple meter and, with the exception of the last 32 measures of the first section, it pervades the entire piece.

Borrowed divisions of the beat occur, but are not an important element to the over-all rhythm of the work. In the last five measures of the trio, triplets are used against the normal eighth-note division of the beat.

Ex. 50. Dance Rhythms, meas. 134-38.

Except for a brief passage in measure 74, this is the only such instance. The other occurrences of borrowed division are against the beat, creating a momentary sensation of compound time.

Harmonic Structures. Since this is a tonal work, the harmonic structures are predictably tertian chords, and dissonance may be disucssed in terms of the traditional nonharmonic tones. Consonant intervals and triads are by far the most frequently used structures. Perfect octaves and fifths are numerous along with major triads in root position. Major triads in second inversion are also prominent

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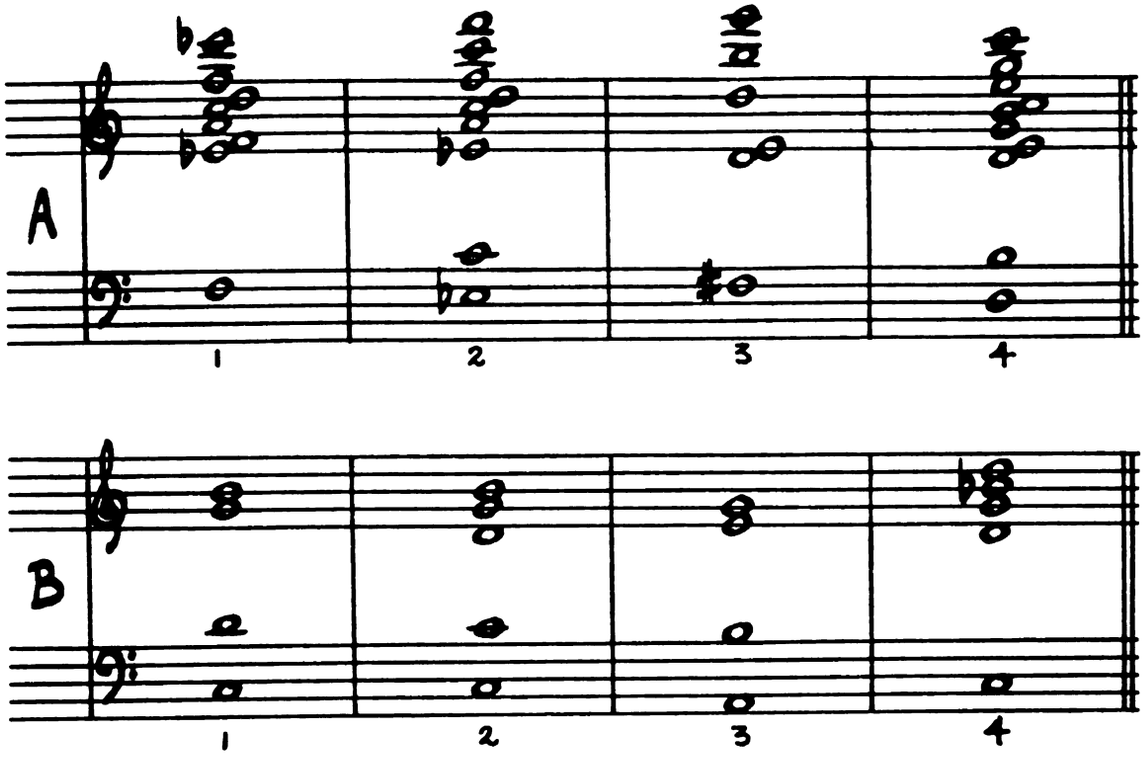
The most frequently used chords beyond triads are minor seventh chords, and various types of ninth chords.

Ex. 51. Dance Rhythms, frequent seventh and ninth chords.

The chords in part A of the above chart are complete ninth chords of the various qualities common in Dance Rhythms. Chords 1 and 2 contain minor sevenths plus minor ninths, chord 3 has a minor seventh with a major ninth, and 4 is constructed with a major seventh and a major ninth. Chord 1 is in first inversion and the rest are in fourth inversion, the position commonly used throughout the work. Of the incomplete ninth chords, those shown in part B are frequent. All appear in root position with the third omitted. The first three chords are spaced so that the ninth is between the lowest chord members, with the seventh in the highest

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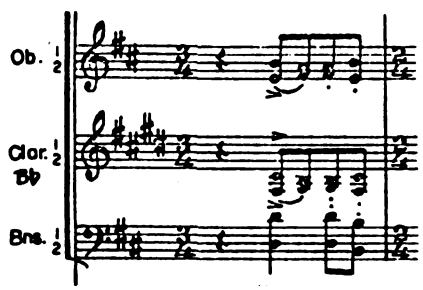
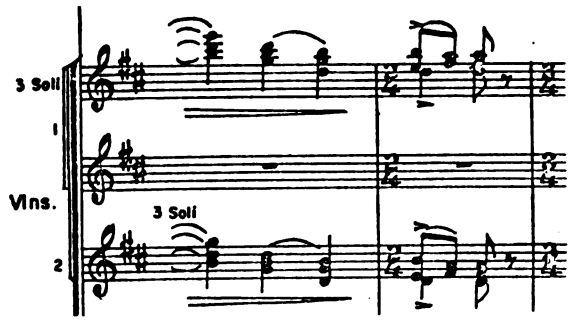
voice. The root is doubled at the octave in chord 2, creating a second with the chord ninth. In chord 4, the ninth is doubled so that interval occurs between the lowest voices, and between the outer voices. The ninth in all of these chords is major, as is the seventh in chords 1 and 2. In chords 3 and 4, the seventh is minor.

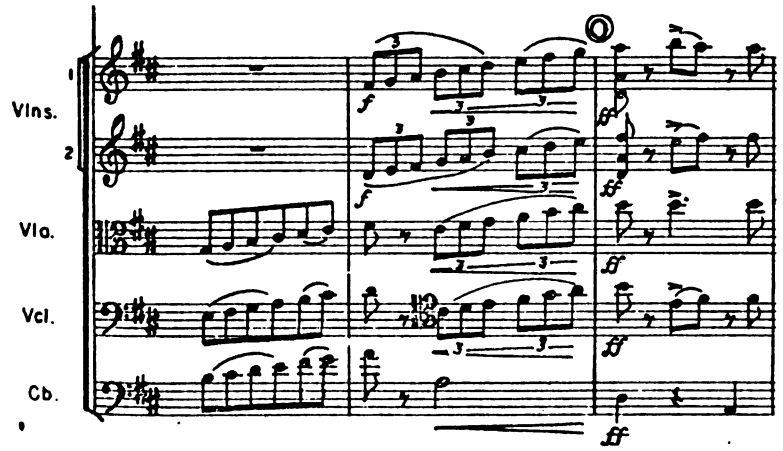
The nonharmonic tones frequently used to introduce dissonance into this music include appoggiaturas, suspensions, passing tones and neighboring tones. These terms are used to describe the appreach to and departure from the dissonant element. For example, in measure 21 the unprepared dissonance in the second oboe and clarinet, resolved upward by step, is an appoggitura.

Ex. 52. Dance Rhythms, meas. 21.

Two or more different types of nonharmonic tones often occur simultaneously. A suspension occurs in the highest solo violin part in Example 53, while the middle solo part has an appoggitura.

Ex. 53. Dance Rhythms, meas. 53-54.



The nonharmonic tones on the second beat of measure 85 include an accented neighboring tone in the second violins, and an appoggitura in the cellos. All of these examples

Ex. 54. Dance Rhythms, meas. 83-85.

have been of accented nonharmonic tones, which appear more frequently than the unaccented throughout the work.

The parallelism in Dance Rhythms differs from that in the other works. All of the parallel streams of chords shown have been composed of a structure with one quality, such as a major triad, major seventh chords, etc. This technique exploits the color characteristics of harmonic structures and tends to obscure tonal centers. For these

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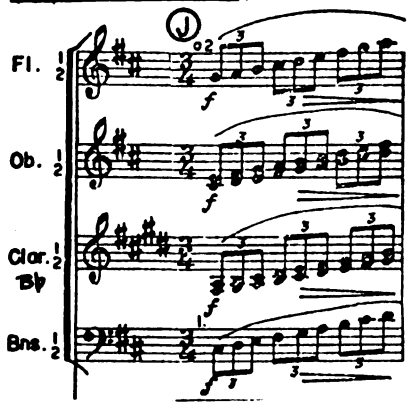
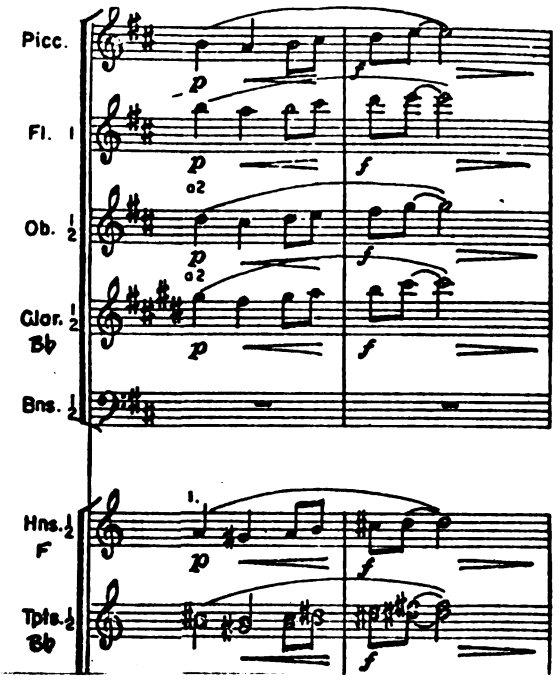
reasons, the parallel chords in Dance Rhythms are diatonic to retain the effect of the tonal centers.

The parallel triads in the woodwinds in measure 52 are in root position, and are all diatonic to the key of D major.

Ex. 55. Dance Rhythms, meas. 52.



Seventh chords in second inversion appear in a parallel stream in Example 56 in the woodwinds and brasses. These are also all diatonic in D major.

Ex. 56. Dance Rhythms, meas. 81-82.

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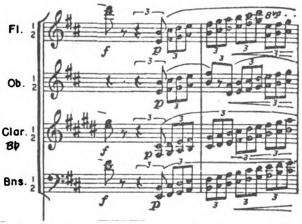
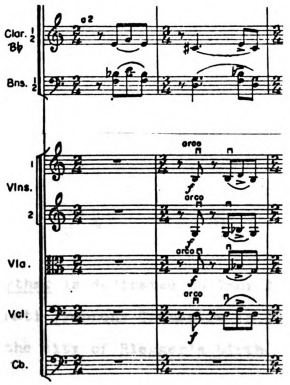
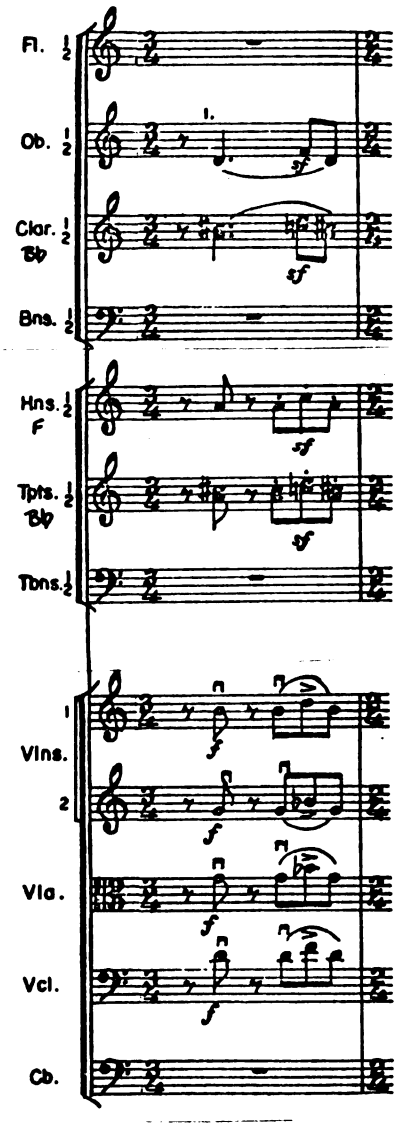
Intervals are also used in this manner, as is seen in the doubling at a fifth in Example 57 in the woodwinds.

Ex. 57. Dance Rhythms, meas. 34-35.

Two very brief passages may be found in which the quality of parallel chords remains the same. These are in measures 101 and 105. The parallel second inversion triads are both major.

Ex. 58. Dance Rhythms, meas. 100-01.

In the key area of B-flat major, the G major chord relates to the tonic as a chromatic mediant.

Ex. 59. Dance Rhythms, meas. 105.



Dance Rhythms is dedicated to Thor Johnson, the conductor of the Cincinnati Symphony Orchestra in 1955, and was first performed in the city of Riegger's birth, Albany, Georgia.

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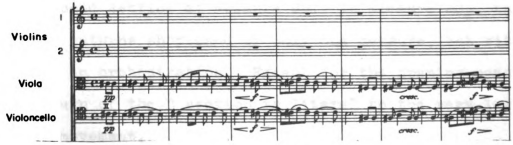
CHAPTER IV

SYMPHONY NO. 4, OP. 63

Symphony No. 4 is in three movements and is conceived on a larger scale than the rest of the works in this study. The first movement begins with a strong feeling of B as a tonal center, but this is soon lost and returns only in the closing measures of the movement. Although this and other tonal centers can occasionally be determined, the work must be described as atonal. This is not to imply that serial methods were used in the manner of the Variations for Piano or Variations for Violin, but rather in a very free manner so as to prevent any tonal area from becoming firmly established. Melodic doubling, to be discussed later, is an important factor to the atonal character of this work.

Form. Movement I is a large two-part form with both parts restated in this manner; A | B ‖ A | B ‖. The material of the first movement is presented in a manner very similar to the Classic sonata allegro exposition and development, but of course, without the traditional key relationships. Theme I is stated first by the violas and cellos.

Ex. 60. Symphony No. 4, Mvt. I, meas. 1-6.

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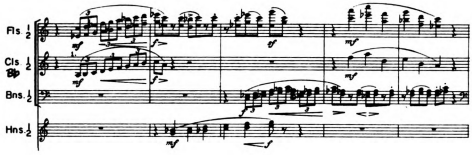
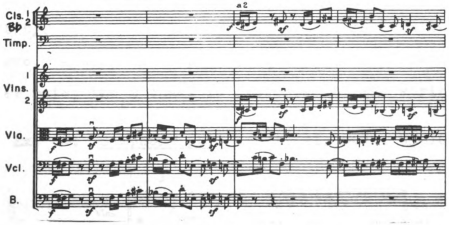
Theme II appears in the flutes in measure 15 and is imitated by the bassoons in measure 17.

Ex. 61. Symphony No. 4, Mvt. I, meas. 15-19.

Syncopation is an important characteristic of these themes as it is in the rest of these Riegger works. The first theme returns in measure 37 before the appearance of the closing section. The closing theme is stated in imitation beginning in measure 68. Theme I is the basis for the development-

Ex. 62. Symphony No. 4, Mvt. I, meas. 68-71.

like second section at measure 86. In measure 205, the A section returns shortened by only one measure, but with some changes in orchestration. Except for the opening measures, the return of the B section is literal to the very last note in the movement.

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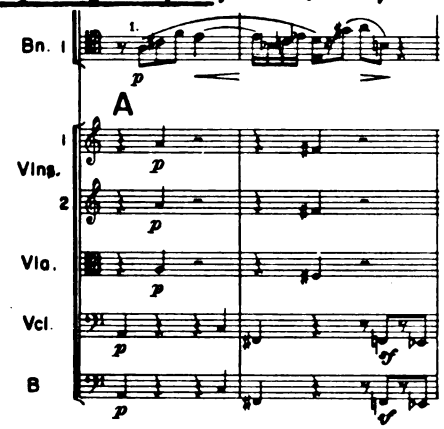
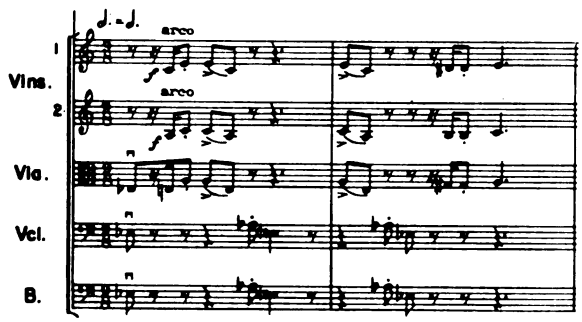
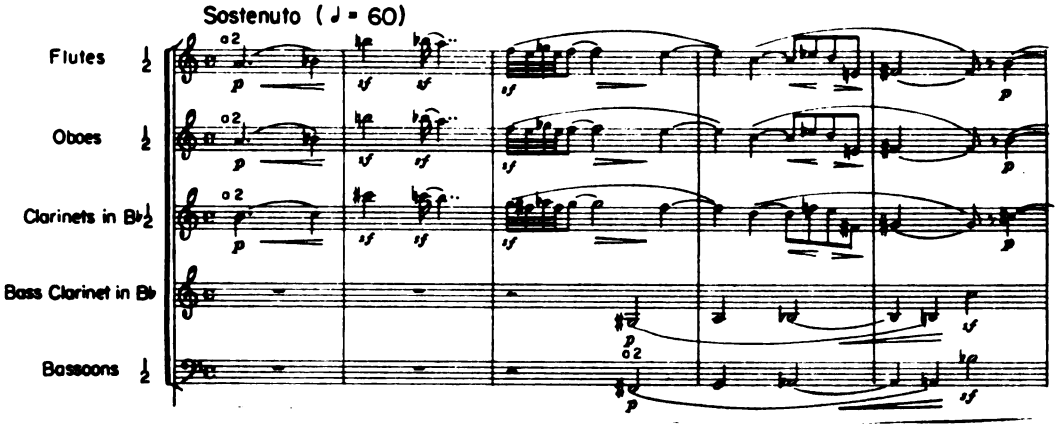
Movement II has a three-part form, the third part being a return of the first, that is, A B A. The A section is also in ternary form. Material for this movement was taken from an earlier work, Chronicle, composed in 1936. The theme of the A section is stated first by the bassoon.

Ex. 63. Symphony No. 4, Mvt. II, meas. 7-8.

Although the melodic contour of the theme changes, the rhythmically distinctive headmotive, ♪♫♫ 𝅗𝅥, retains its identity. The B section begins in measure 60 with a driving allegro. After the tempo is reduced to one-third of its former rate, the B theme is presented by the strings.

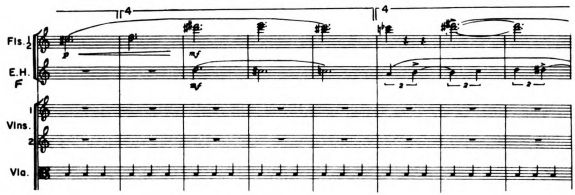
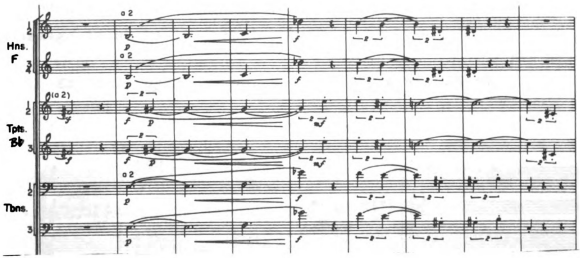
Ex. 64. Symphony No. 4, Mvt. II, meas. 99-100.

The return of the A section in measure 125 is at a somewhat slower tempo, 88 beats per minute instead of 96, and the material is re-orchestrated.

The final movement may be described as a modified binary form expressed by this diagram; INTRO A | B ‖ A' | B' CODA. The introduction, seen in part in Example 65, is a substantial section of 75 measures which presents material used throughout the movement. The theme is first stated by the woodwinds.

Ex. 65. Symphony No. 4, Mvt. III, meas. 1-5.

The opening pattern of an ascending minor second, followed by a leap of an augmented octave and a descending minor second is an important unifying motive which undergoes melodic expansion and contraction during the course of the movement. The introduction is followed by a tempo change to presto for the beginning of the A section.

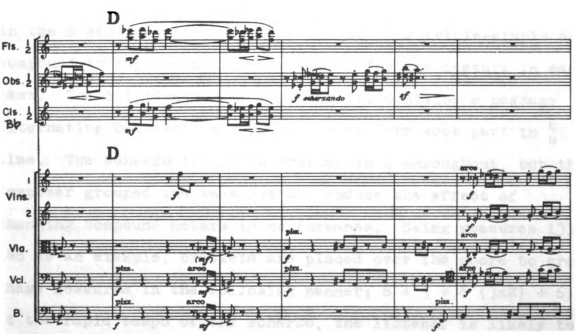
Movement III is a scherzo by nature and, thematically, it presents transformations of the opening motive. Some of these transformations are seen in the following two examples. The wide melodic leap is especially important

in recalling the opening motive.

Ex. 66. Symphony No. 4, Mvt. III, meas. 174-78.

Ex. 67. Symphony No. 4, Mvt. III, meas. 339-43.

The A section of this binary form begins at the presto in measure 76 and extends to measure 292. At this point, two measures of silence are followed by the B section. At measure 437, material from the A section returns with only minor changes in orchestration. The return of the B section in measure 622 is literal. The coda in measure 759 closes the movement with a return to the tempo and the character of the introduction.

Rhythm. Changing meters, along with syncopation and borrowed divisions, are vital to the rhythmic organization of Symphony No. 4. As revealed by the discussion of previous works, a certain rhythmic unpredictability and vitality is a very definite part of Riegger's general style.

Throughout Symphony No. 4, cadences are often marked with a meter change. This is especially true of the first movement where sections in quadruple-simple time are ended with a measure in duple-simple. An important feature of the A section of Movement II is the extended passage using $\frac{4}{4}$ and $\frac{2}{4}$ signatures in alternate measures. Part of this passage is shown in Example 68.

Ex. 68. Symphony No. 4, Mvt. II, meas. 25-30.

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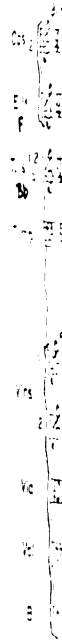

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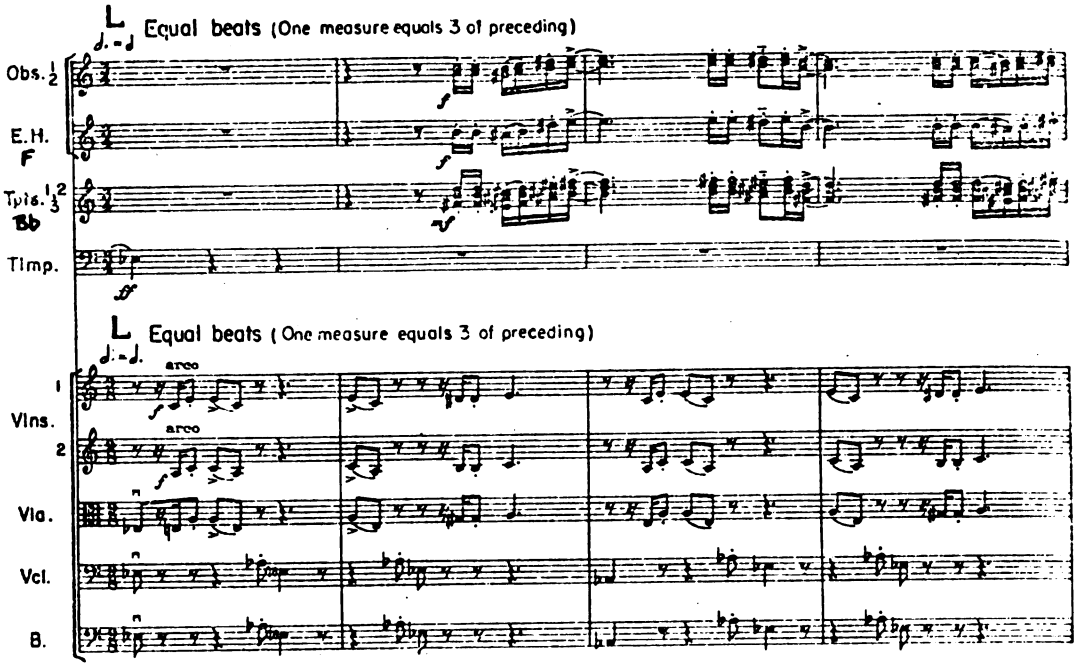
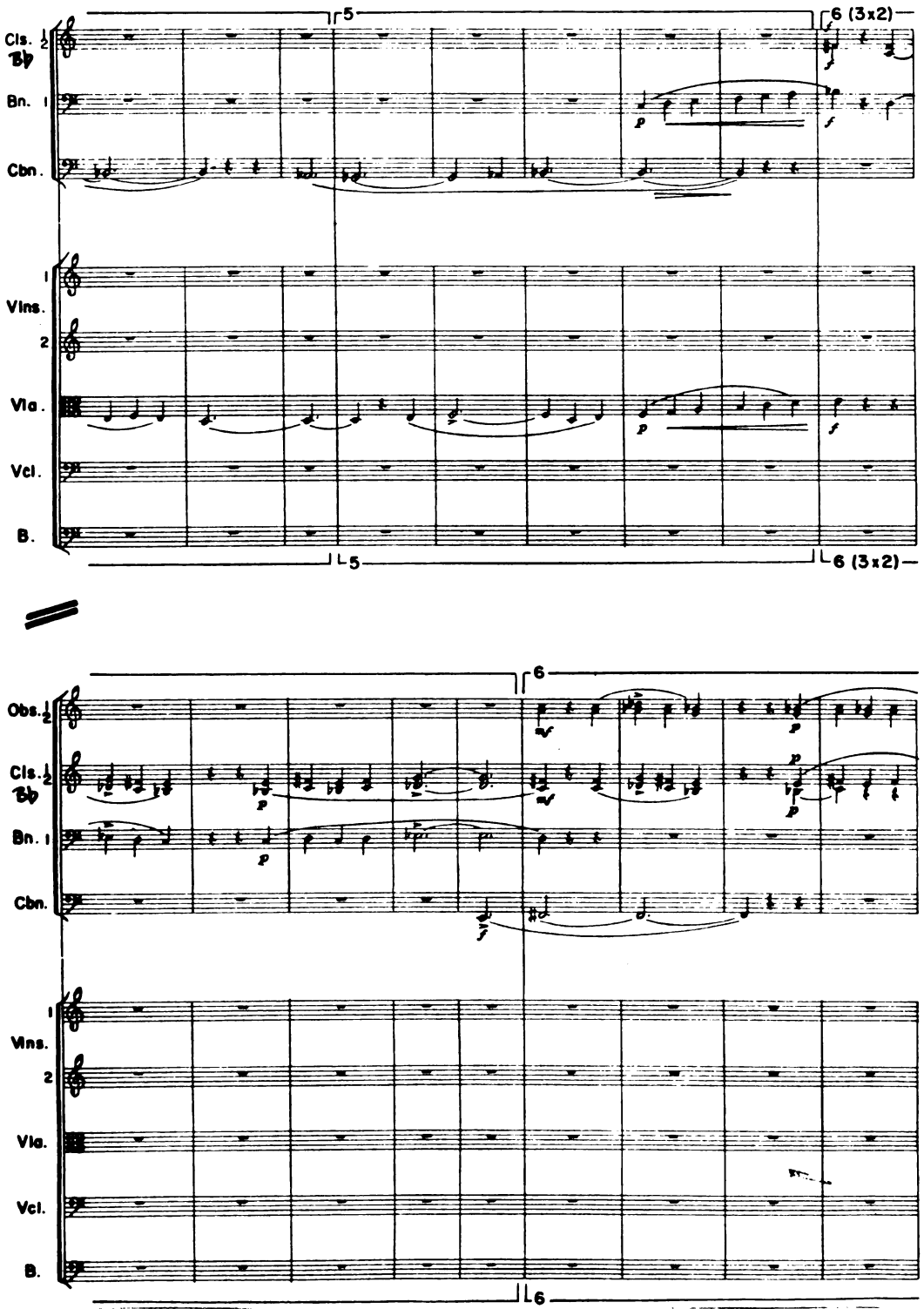
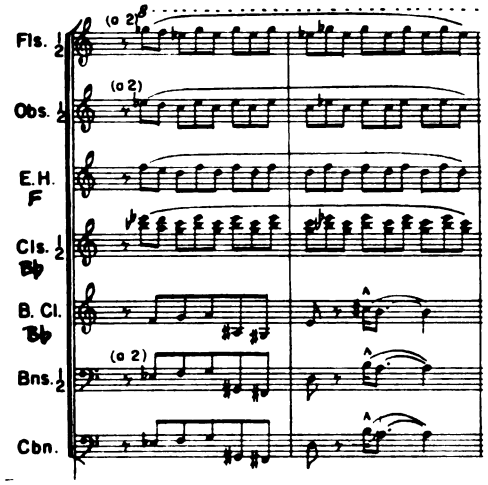
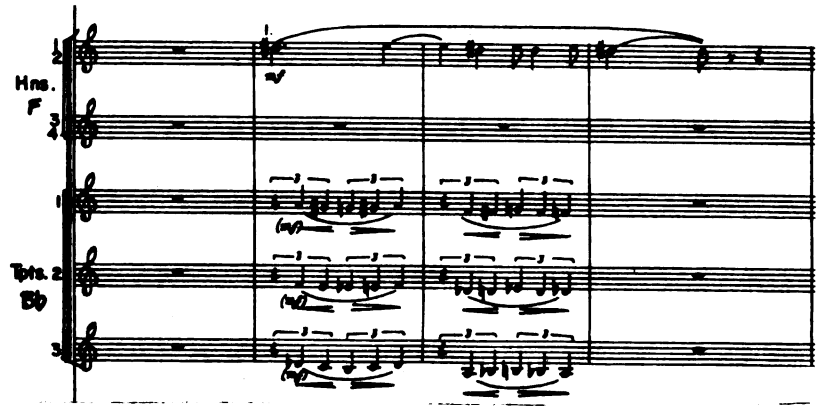
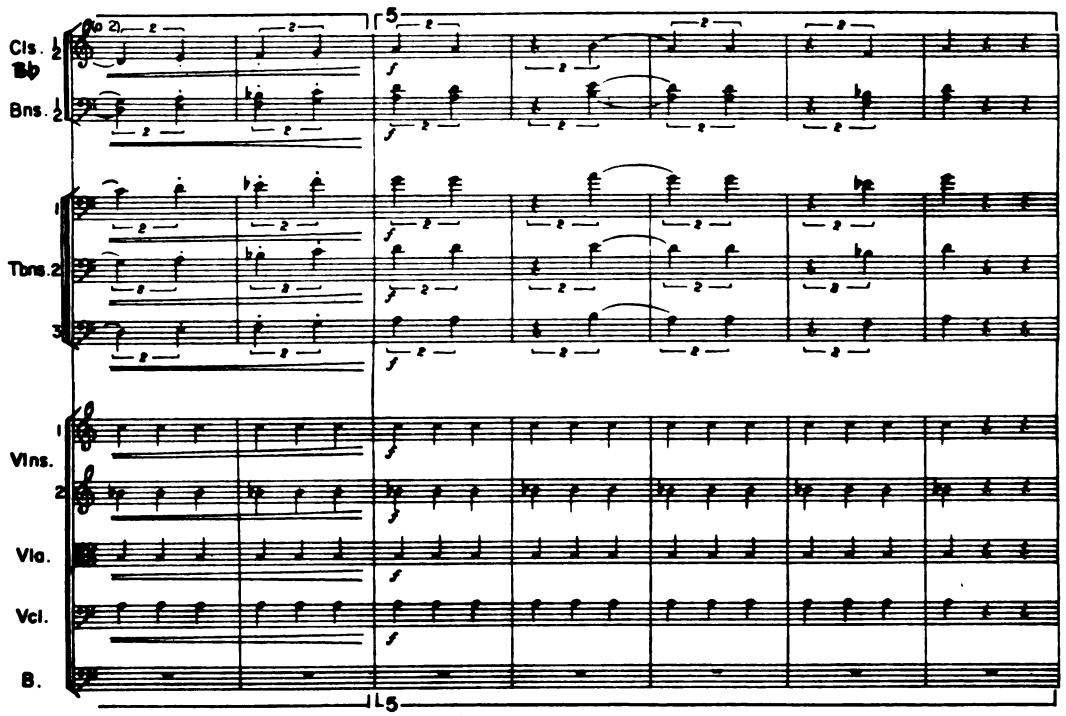
A passage of triple-simple and compound time used simultaneously is seen in Example 69. During this passage

Ex. 69. Symphony No. 4, Mvt. II, meas. 99-102.

in the B section, the meter is changed from triple-simple and compound to duple-simple and compound for one measure in each case. The introduction to Movement III contains a passage alternating between $\frac{3}{4}$ and $\frac{4}{4}$, but is for the most part in $\frac{4}{4}$ time. The scherzo itself is written in $\frac{3}{4}$ throughout, but the composer grouped the measures to produce the effect of changing compound meters in performance. Using measures 131-148 as an example, brackets are placed over the score to group these measures in the following manner: 6 + 5 + 6 (3x2) + 6. At the rapid tempo of the scherzo, the listener is likely to receive the impression of the following meter changes in compound time: $\frac{9}{8}$, $\frac{15}{8}$, $\frac{6}{8}$, and $\frac{9}{8}$.

Ex. 70. Symphony No. 4, Mvt. III, meas. 131-148.

Borrowed divisions are also important to the metric scheme of Symphony No. 4. In addition to alternation between simple and compound divisions, borrowed divisions are used simultaneously with the normal division or sub-division of the beat. This effect is notated in several different ways. Part of an extended passage involving compound and simple time is shown in Example 71.

Ex. 71. Symphony No. 4, Mvt. III, meas. 41-42.

In another instance, the quarter note triplets against the syncopated line give the momentary impression of duple-compound meter at half the tempo.

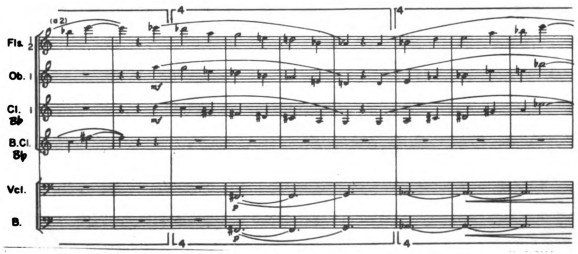
Ex. 72. Symphony No. 4, Mvt. I, meas. 169-70.

The presto of Movement III contains passages such as seen in Example 73. At one beat per measure, the duple and triple-simple measures produce the effect of simultaneous compound and simple time.

Ex. 73. Symphony No. 4, Mvt. III, meas. 213-19.

Strict tempo is a feature of Movement I. Allegro moderato (♩= 112) is the tempo set, and the only variation from this rate is a two-measure accelerando. In direct contrast to the first movement, Movement II bears these instructions; "begin at ♩= 96; after that, tempo variable." There are also some contrasting tempos indicated. For example, in measure 60 the tempo suddenly changes to Allegro (♩.= 69), and this section is followed by an abrupt change

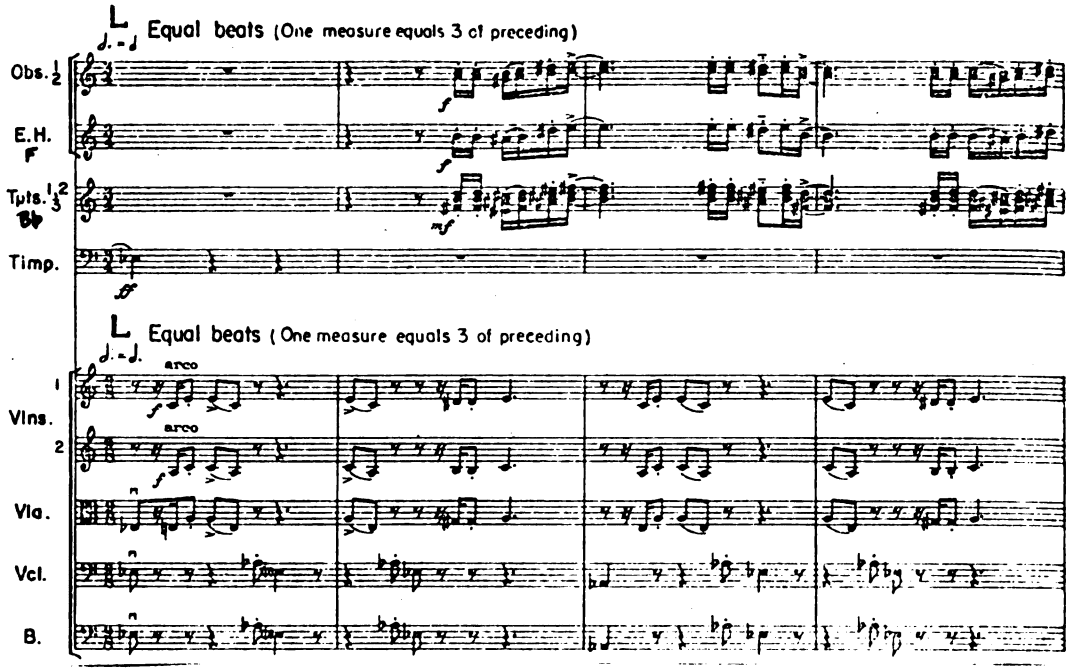
to 1/3 of that rate for the final section of the symphony.

Harmonic Structures. The harmonic structures of Symphony No. 4 range in complexity from simple intervals in the two-part textures, to highly complex structures involving parallel streams of chords. Parallelism dominates the harmony again in this work, in a wide variety of structures (see Tables 1, 2 and 3).

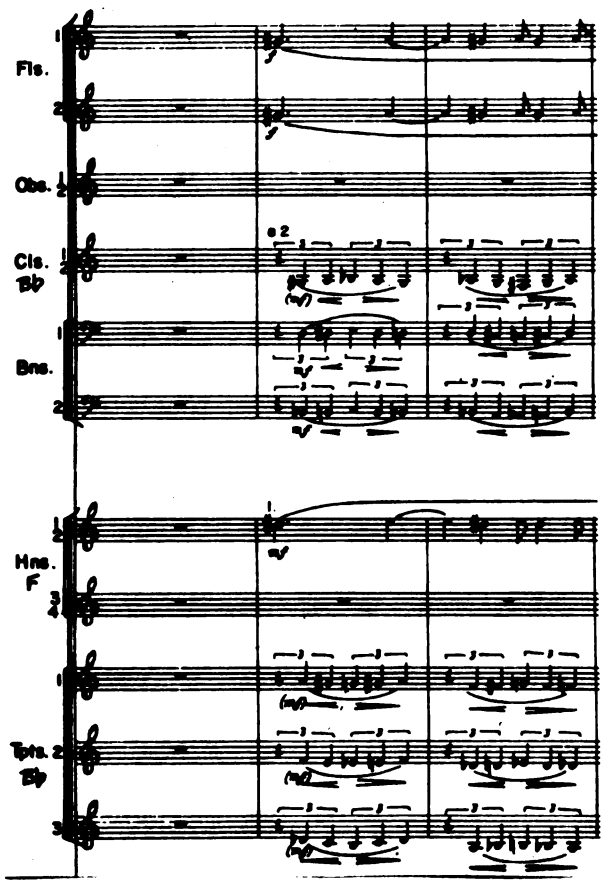
Parallel streams of triads are frequently used. In Example 74, a diminished triad in the woodwinds appears over a sustained string line.

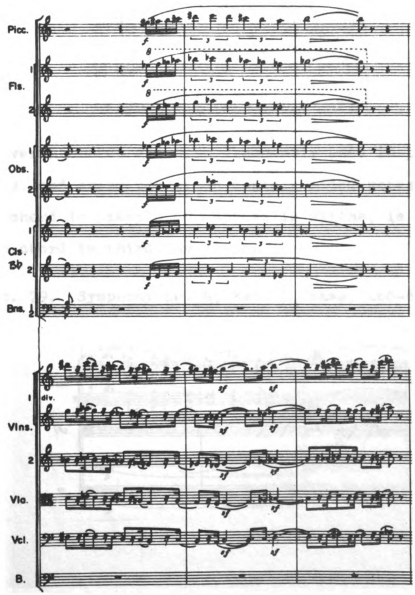
Ex. 74. Symphony No. 4, Mvt. III, meas. 304-12.

Two separate streams of parallel triads are used in measure 100 of the second movement. Parallel minor triads in root position in the violins and violas are used against another stream of minor chords in the trumpets and woodwinds, these being in second inversion.

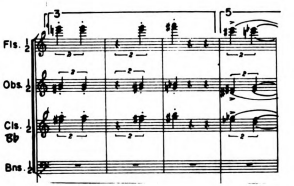
Ex. 75. Symphony No. 4, Mvt. II, meas. 99-102.

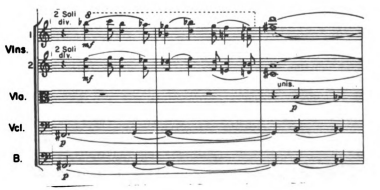


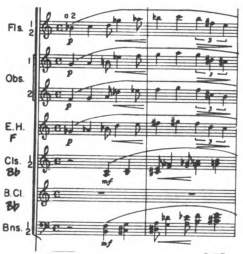
The passage in Example 76 is especially notable because the two opposing parallel structures occur simultaneously in the same rhythm. Both the trumpet triads and the woodwind triads are augmented.

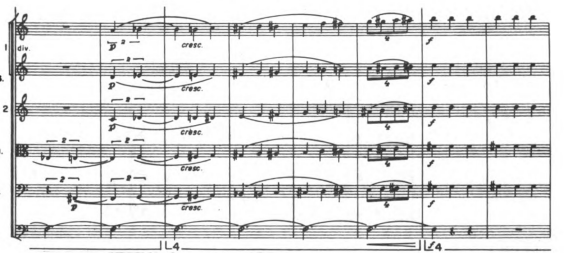
Ex. 76. Symphony No. 4, Mvt. I, meas. 371-72.

Parallel minor triads comprise the doubled woodwind line in the first movement, measure 375. In counterpoint with this, the strings have parallel chords spaced in sixths. When spelled in thirds, the string chord is a diminished-minor seventh chord with a major ninth. This ninth chord is in fourth inversion.

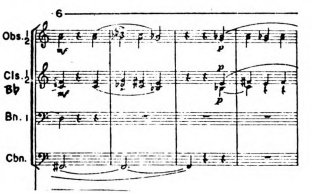
Ex. 77. Symphony No. 4, Mvt. I, meas. 375-77.

The triadic structures used in parallel passages include some added note chords. For instance, in the passage in Example 78 the parallel woodwind chord is a major triad in first inversion with an added minor third in the first flute and clarinet.

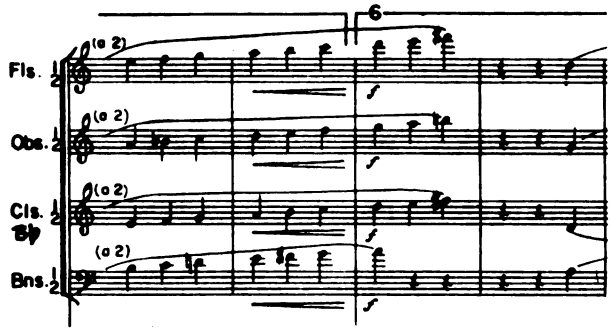
Ex. 78. Symphony No. 4, Mvt. III, meas. 225-28.

Seventh chords are also frequently used in parallel passages, and these too often contain added notes. The violin chord in Example 79, spaced in sixths, is a major seventh chord in third inversion.

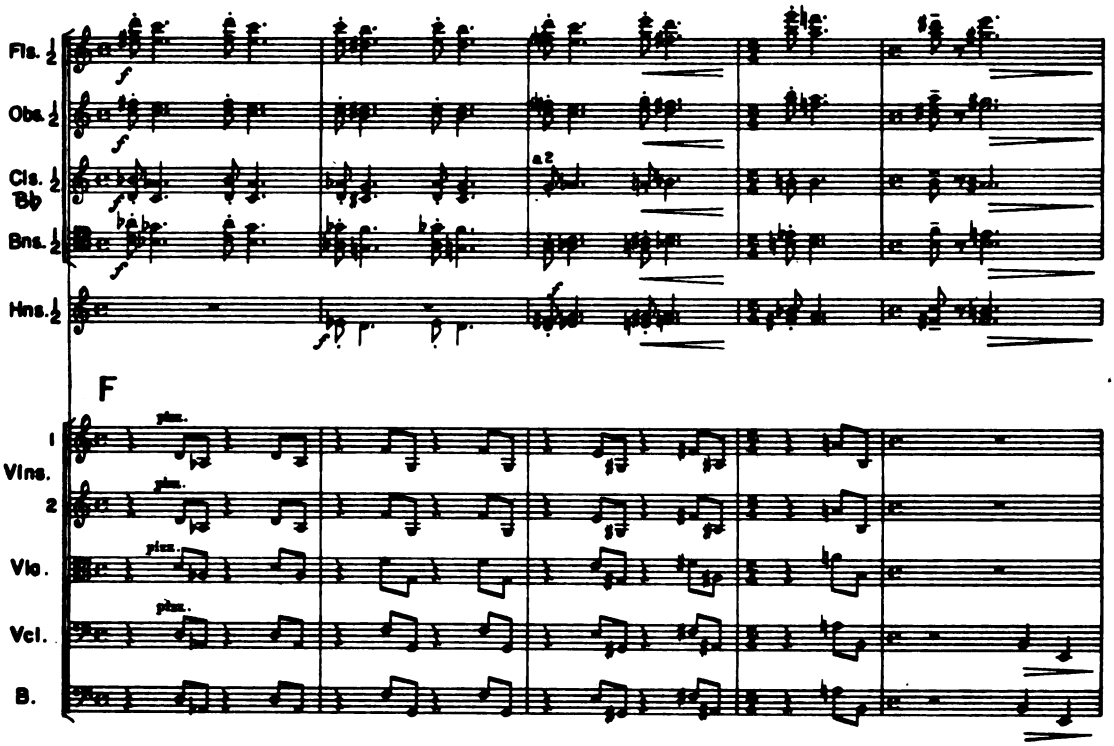
Ex. 79. Symphony No. 4, Mvt. I, meas. 160-62.

Example 80 is a passage featuring two separate streams of parallel chords in counterpoint. Each line employs the same structure, a major-minor seventh chord in first inversion with an added minor third. In each case, the fifth of the chord is not present.

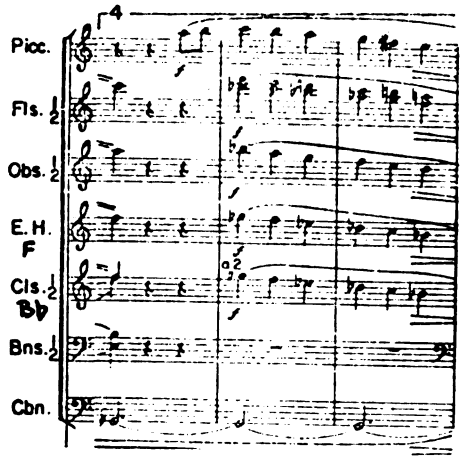
Ex. 80. Symphony No. 4, Mvt. I, meas. 108-09.

In addition to the ninth chord already discussed in Example 77, parallelism involving ninth chords is also seen in the passage shown in Example 81. The chord used in the strings is a complete dominant ninth chord in first inversion. That is, it is a major-minor seventh chord plus a major ninth.

Ex. 81. Symphony No. 4, Mvt. III, meas. 365-72.

An instance of incomplete parallel ninth chords with added fourths may be found in Example 82, in the oboes and clarinets. The interval of a major ninth between the outer voices, plus the presence of the seventh, gives the strong aural impression of a major ninth chord with an added tritone.

Ex. 82. Symphony No. 4, Mvt. III, meas. 145-48.

The parallel chords of the preceding example could have been analyzed as eleventh chords had they been spaced in a different manner. The woodwind chord in Example 83 is an implyed minor seventh chord with an eleventh, the fifth and ninth being omitted.

Ex. 83. Symphony No. 4, Mvt. III, meas. 114-17.

One further example of this structure is seen in measure 43 of the second movement. The melodic doubling in the woodwinds and horns results in parallel eleventh chords built with implied augmented triads, major ninths and augmented elevenths. The third and seventh are omitted from these structures.

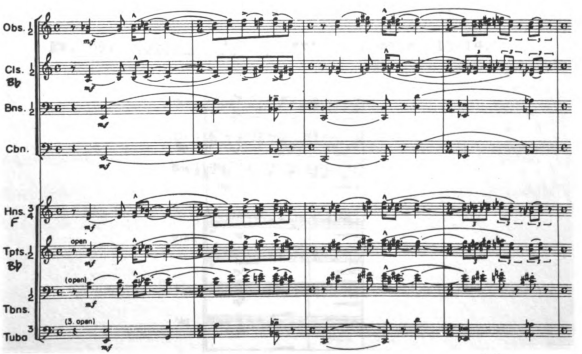
Ex. 84. Symphony No. 4, Mvt. II, meas. 43-47.

The most complicated tertian structure used in a parallel chord stream is found in Example 85 in the woodwinds over a contrabassoon pedal tone. These are thirteenth chords with both the perfect and diminished fifth present.

Ex. 85. Symphony No. 4, Mvt. III, meas. 155-57.

The following is the first chord in measure 156 isolated and transposed down an octave. The English horn and clarinet notes are spelled enharmonically. This reveals an implyed

Ex. 86. Symphony No. 4, Mvt. III, meas. 156.

diminished seventh chord with the third omitted, plus a minor ninth and a minor thirteenth. Added below this structure is a B-natural, the perfect fifth of the chord.

In addition to the various tertian structures, quartal and quintal structures are also used in parallel streams. The melodic doubling of woodwinds and brasses results in quartal parallelism in Example 87.

Ex. 87. Symphony No. 4, Mvt. III, meas. 32-35.

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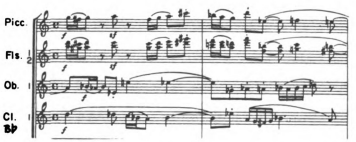
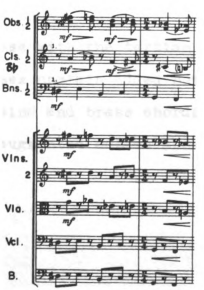
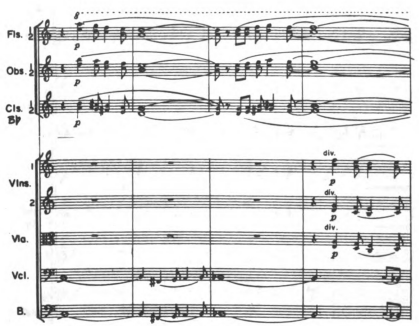
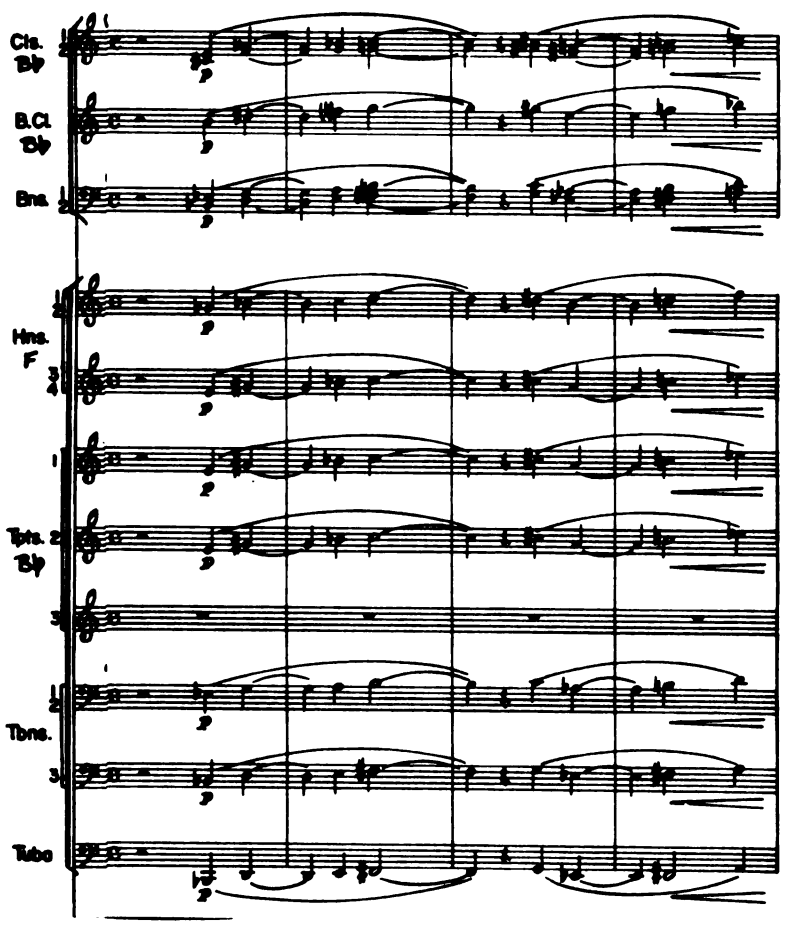
In measure 280 of Movement I, the stream of quartal chords in the piccolo and flutes provides one part of a three-part contrapuntal passage.

Ex. 88. Symphony No. 4, Mvt. I, meas. 280-81.

The parallel quartal structures in the preceding two examples contained only perfect fourths, but frequently these structures include augmented fourths as well. Such is the case in Example 89. The chord formed by the oboes, clarinet and violins is comprised of a perfect fourth over an augmented fourth.

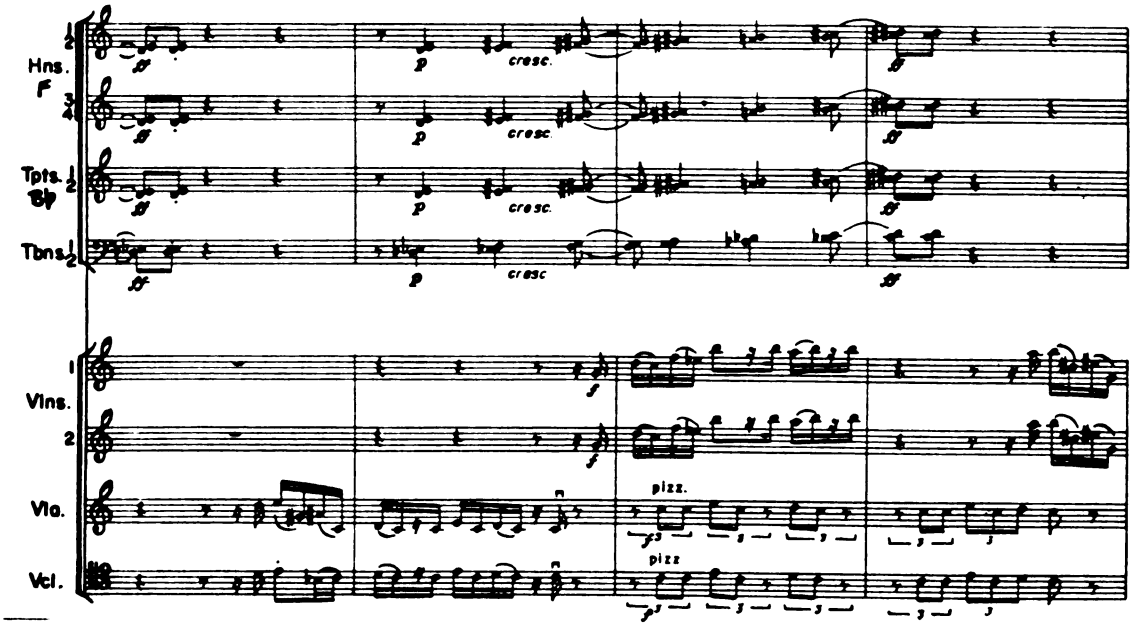
Ex. 89. Symphony No. 4, Mvt. II, meas. 13-14.

The parallel streams of chords are sometimes used in imitative passages, as in Example 90 where the woodwinds are answered by the violins and violas four measures later.

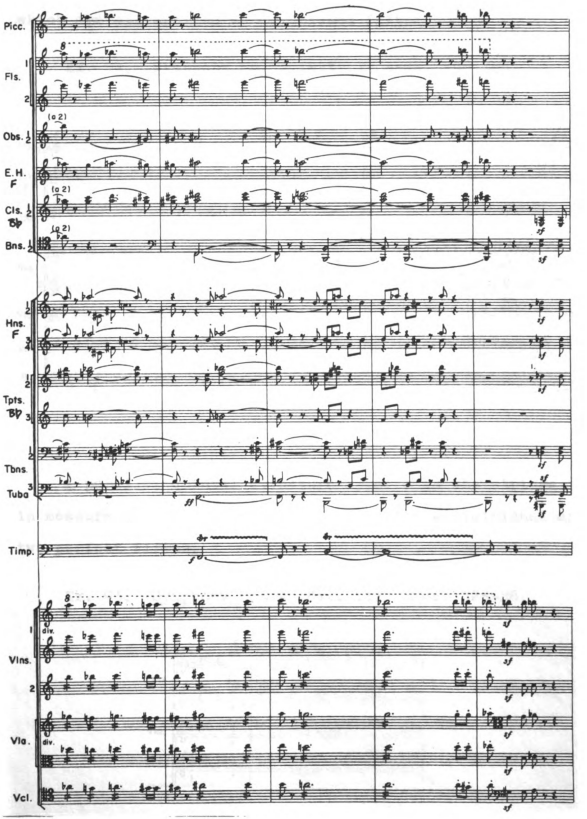
Ex. 90. Symphony No. 4, Mvt. I, meas. 356-59.

As was the case with the tertian chords, the quartal structures sometimes contain added notes. For instance, the parallel woodwind and brass chords in Example 91 each contain an added augmented octave above the lowest note.

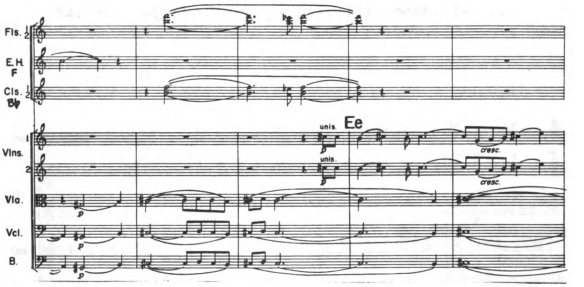
Ex. 91. Symphony No. 4, Mvt. I, meas. 117-20.

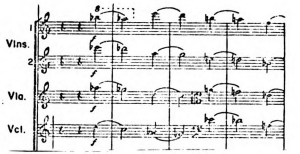


In Example 92, each note of a quartal structure in the brasses is attended by an added second so as to produce two parallel quartal streams a second apart.

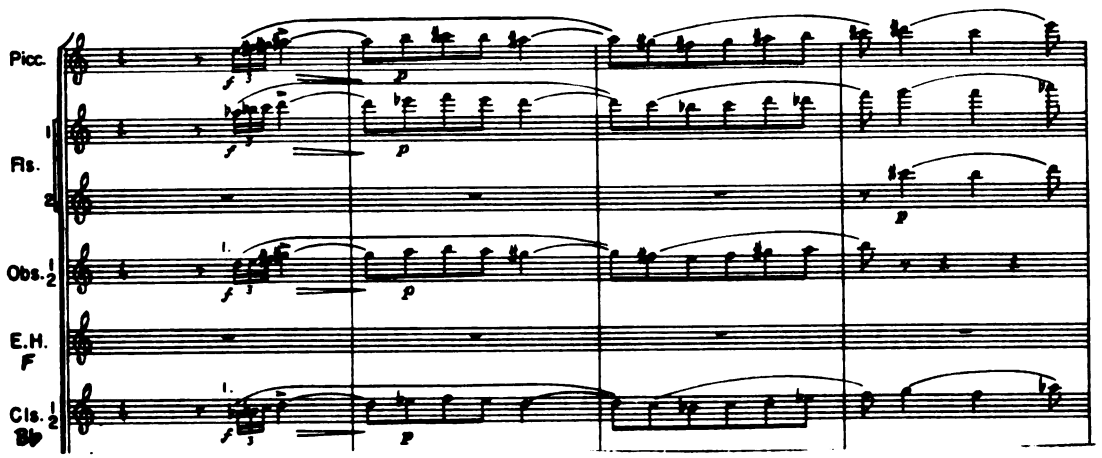
Ex. 92. Symphony No. 4, Mvt. III, meas. 55-58.

Two streams of chords are occasionally used simultaneously, each stream employing a different structure. Such is the case in Example 93. The string and woodwind chord is quartal, while the two imitative brass chords are parallel major seventh chords with added tritones.

Ex. 93. Symphony No. 4, Mvt. I, meas. 193-97.

Other structures used in parallel streams include the woodwind chord in Example 94 composed entirely of tritones, which are all spelled as diminished fifths.

Ex. 94. Symphony No. 4, Mvt. I, meas. 296-300.

A parallel quintal structure appears in the strings in measure 325 of Movement III, built with a diminished and two perfect fifths.

Ex. 95. Symphony No. 4, Mvt. III, meas. 325-28.

Example 96 is an illustration of another quintal structure used in a parallel stream, this time in counterpoint with another melodic line. The woodwind doublings result in chords which are parallel quintal structures built with diminished and augmented fifths.

Ex. 96. Symphony No. 4, Mvt. III, meas. 59-62.



The parallelism resulting from melodic doubling is the dominant factor in the harmony of this work. In the passages where the technique is not employed, dissonant intervals and tertian chords beyond triads are very important. These include the intervals of sevenths, tritones, fourths and seconds with seventh, ninth, eleventh and thirteenth chords.

The ninth, eleventh and thirteenth chords are often only implyed in three or four-note structures.

These structures are important not only because of their frequency, but also by their appearance on strong beats or portions of beats within the meter. In Movements I and III, accented dissonance is the important harmonic element, but this situation is reversed in the second movement. The consonant intervals, perfect octaves, sixths, perfect fifths, and thirds along with triads, occupy the strong metric positions in Movement II. Dissonance in this case is unaccented and of passing consequence.

A recording of Symphony No. 4 is available on the Louisville Orchestra's, First Edition Records (Lou-646), conducted by Robert Whitney. This work was commissioned by the Fromm Music Foundation of Chicago, and its first performance in 1957 was by the Illinois University Orchestra.

CHAPTER V

VARIATIONS FOR VIOLIN AND ORCHESTRA, OP. 71

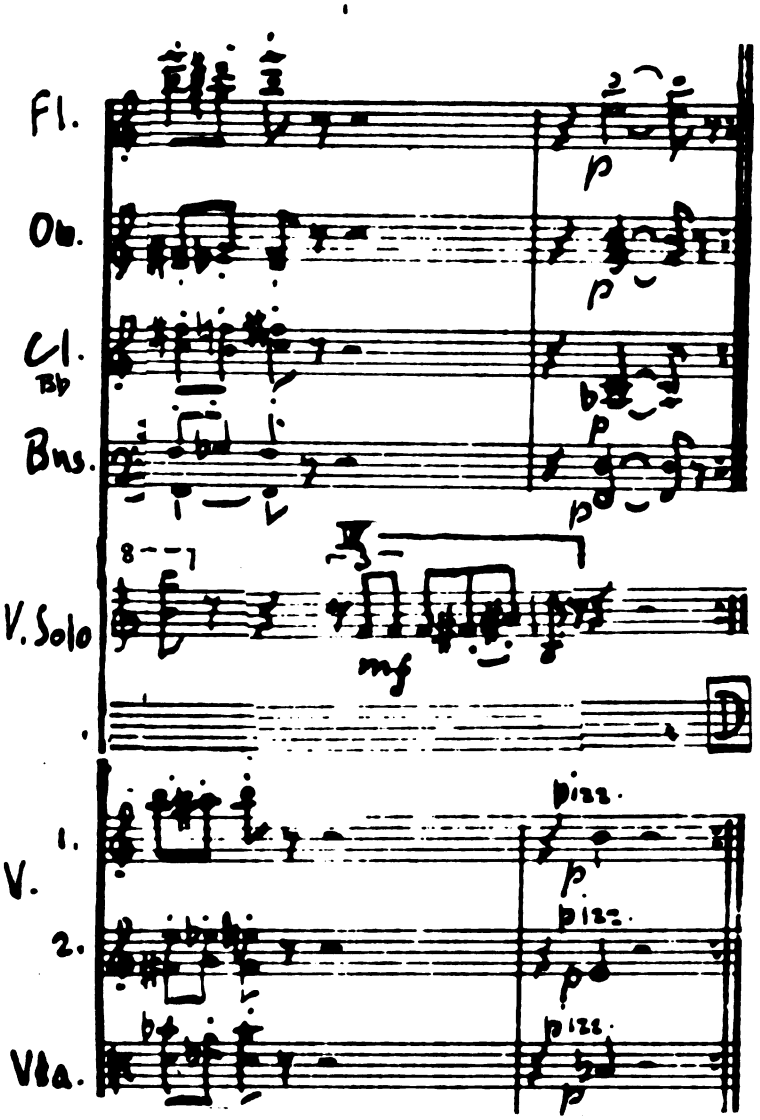
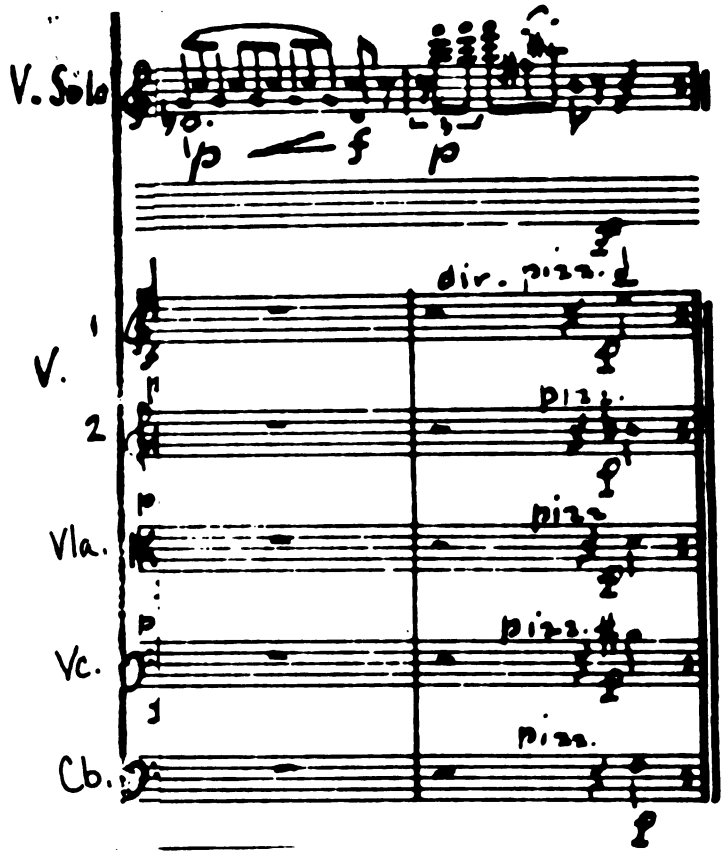
Form. Variations for Violin is formally composed of 12 variations preceded by an introduction and followed by an extended cadenza and short coda. As was the case with Variations for Piano, this work is a series of small two-part forms, each highly unified, and linked together by various relationships. A tone row is again the basic unifying factor, an important element to the form.

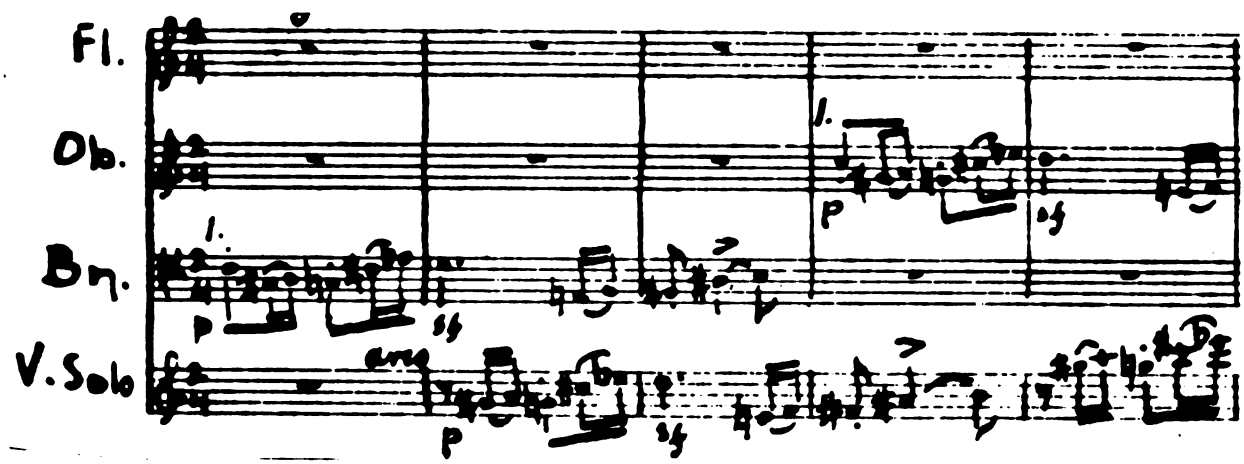
The first two sections, the Introduction and Variation I, are in symmetric two-part form. Part A of the Introduction is in two definite eight-measure periods, the second of which reverses the roles of the Solo and accompaniment as they appeared in the first period. The same procedure is used for part B. Variation I is symmetric by virtue of the fact that the B section is literally repeated, its eleven measures balancing the two eleven-measure periods of the A part. The solo violin is accompanied by the sustained tone of a solo cello in the A section. The second period of this section is simply a restatement of the first, transposed an octave higher.

The only other variation which is symmetric is number VII. Each part has 22 measures which can be divided into smaller related units. The two periods of part A are parallel, their relationship expressed in the diagram, a b a' b'. The B part is formally unified in the same manner,

giving the diagram for the complete variation this appearance: a b a' b' || c d c' d'.

The remaining variations are in binary form, but with unbalanced sections. Variations III, VIII, and IX are all constructed with repeated sections in this manner: ||:A:||:B:||. Variation VIII is the only one of the binary forms in which the A part is shorter than the B part. A notable feature of the third variation is the rhyming ending of the two parts.

Ex. 97. Variations for Violin, meas. 101-102.

Ex. 98. Variations for Violin, meas. 110-11.

Three of these variations, numbers II, X and XI, employ no repetitions within the binary form. Variation II is composed of two imitative parts, the first of which employs a three-measure subject in canonic imitation.

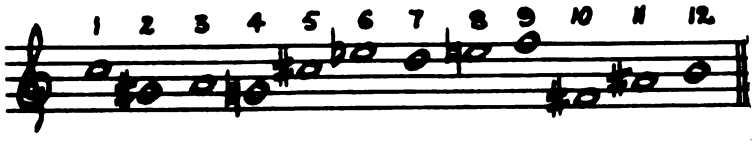
Ex. 99. Variations for Violin, meas. 66-70.

Variation VI is unique in this catagory of two-part forms in that only its second part is repeated, A ‖:B:‖ .

Three of the variations in this work are in asymmetric binary or three-part form. The first part of Variation IV contains eight measures, beginning with a distinctive imitative passage. A nine-measure second part is followed by a return of the first four imitative measures of part A. The diagram of the variation appears as, ‖:A :‖: B A:‖ . Variation V is also constructed in this manner, but the A part is not repeated. The last variation, number XII, has a repeated A part, a shorter B part, with the return of the A part leading directly into an extended cadenza for the solo violin.

Riegger deliberately separated each of these variations with tempo and meter changes, but in a few cases indicated that there was to be no hesitation between them. Variations II and III are related melodically, and the direction "attacca" is given at the end of numbers IX and XI.

These violin variations are based upon this row:

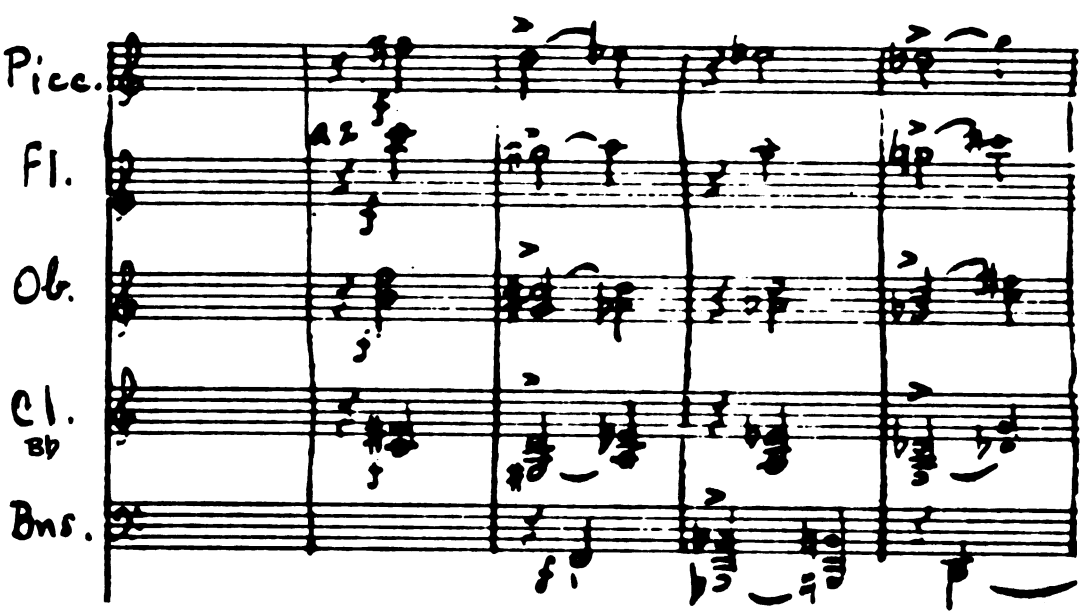
Ex. 100. Variations for Violin, 12-tone row.

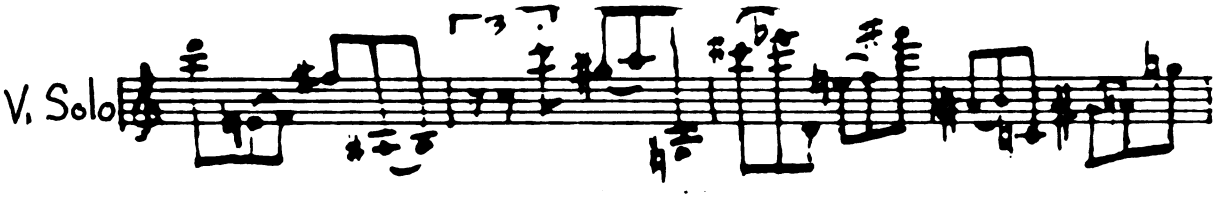


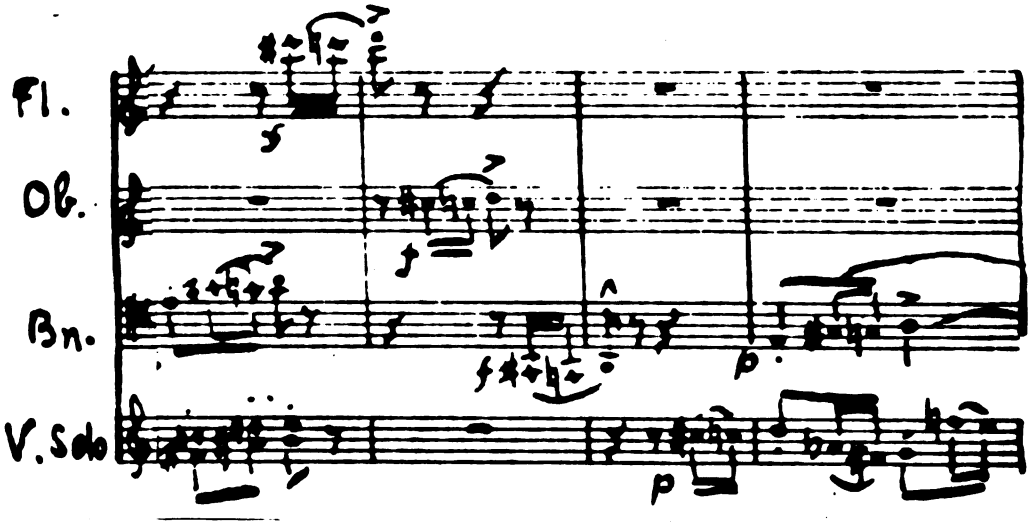
Since octave displacements are not a consistent factor, the sequence of intervals appearing in Example 100 is significant to the melodic construction. Major and minor seconds are

predominant in this atonal row. Two major thirds, one major seventh and a tritone are the distinctive melodic leaps.

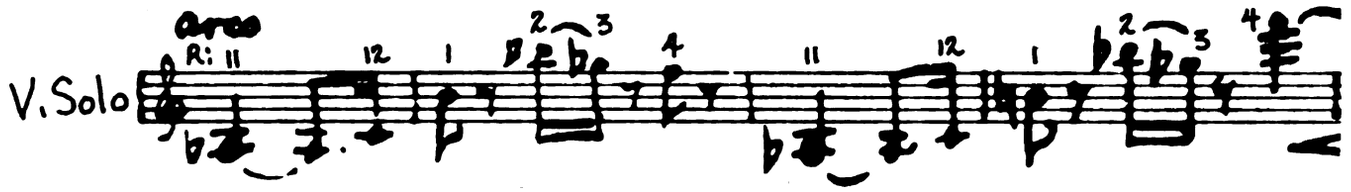
All four versions of the row are used, but it is important to note that the original and inverted versions are by far the most frequently used. The other two versions appear only rarely, and not until the work is well under way. The retrograde version is first used at the end of Variation IV, and the retrograde-inversion is not stated completely until the end of the fifth variation. With the exception of a few short passages, transpositions of the row are not used in this work. A rare example of this appears in measures 387-390 where a fragment of the original row appears in melodic doubling.

Ex. 101. Variations for Violin, meas. 386-90.

The four versions of the row are employed in a variety of ways. Four successive statements of the original row open the work, and are followed by a section comprised of alternate statements of the inverted and original row. The four successive statements of the original row in the cadenza are notable for the octave displacements which create an unusually disjunct melodic line.

Ex. 102. Variations for Violin, meas. 348-51.

Incomplete statements of the row frequently appear. Often, the row fragments immediately precede or follow a complete statement. Example 103 shows a fragment of the inverted row, numbers 2, 3 and 4, used in an imitative passage in the woodwinds.

Ex. 103. Variations for Violin, meas. 78-81.

Fragments of the retrograde row are used by the solo violin in the cadenza. The solo progresses through the entire row by using overlapping fragments in this manner:

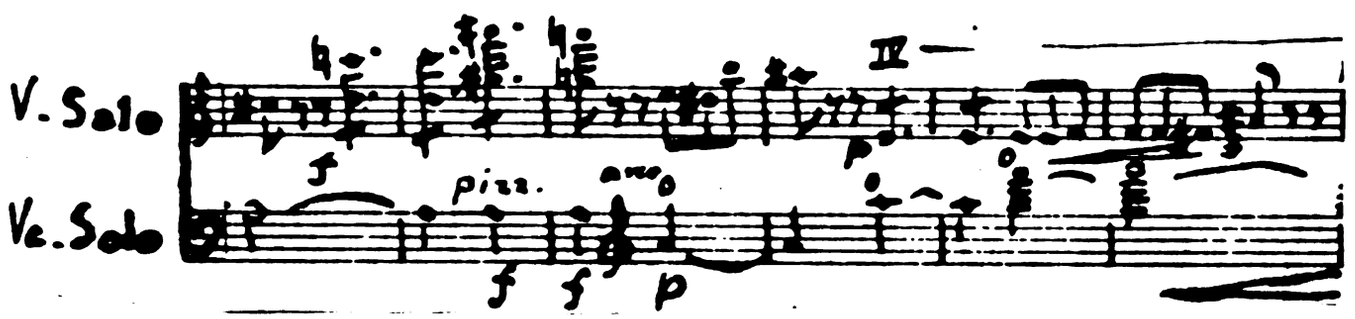
Ex. 104. Variations for Violin, meas. 319-22.



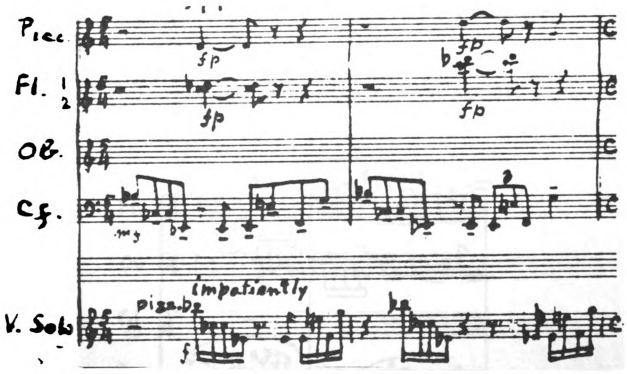
The importance of the row in this work is in its melodic implications, its linear rather than vertical employment. The simplest use of the row occurs in the Introduction and first variation. In these sections, the row is stated as a single melodic line accompanied by a sustained tone. More complicated textures appear as the work progresses.

The inversion of the row is used with the horizontal-vertical method of employment in measures 59-62. The sustained cello tone is the first member of this row, and it accompanies the presentation of the rest of the series in solo violin double stops. The notes of the double stops are successive row members in each case.

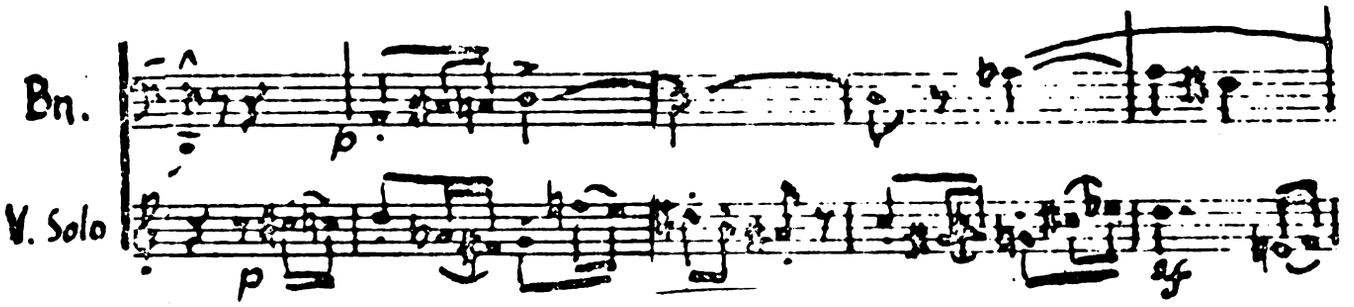
Ex. 105. Variations for Violin, meas. 59-64.

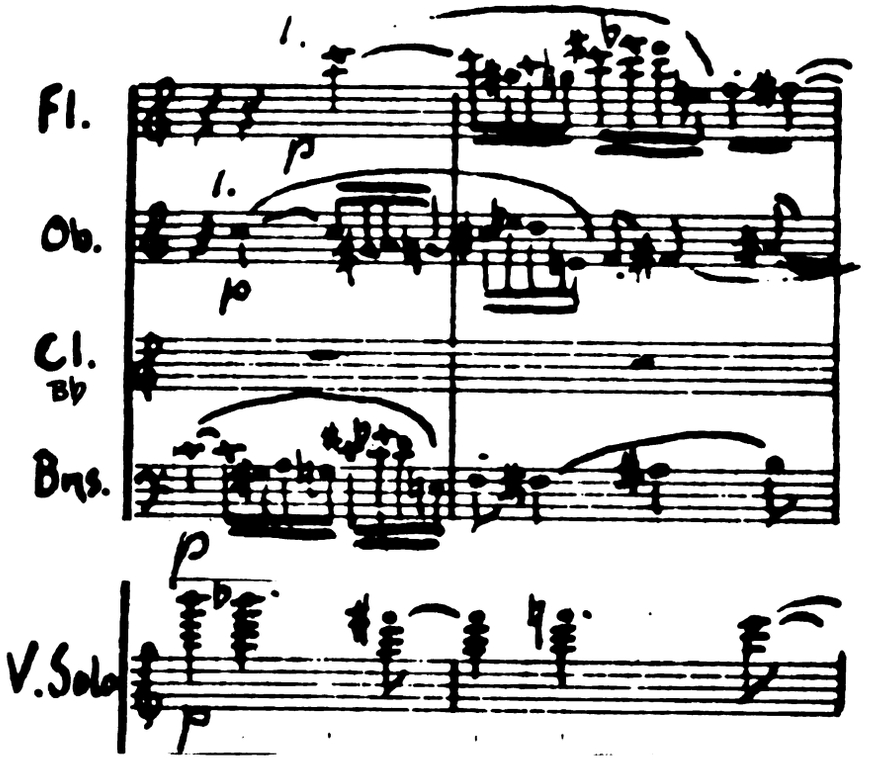


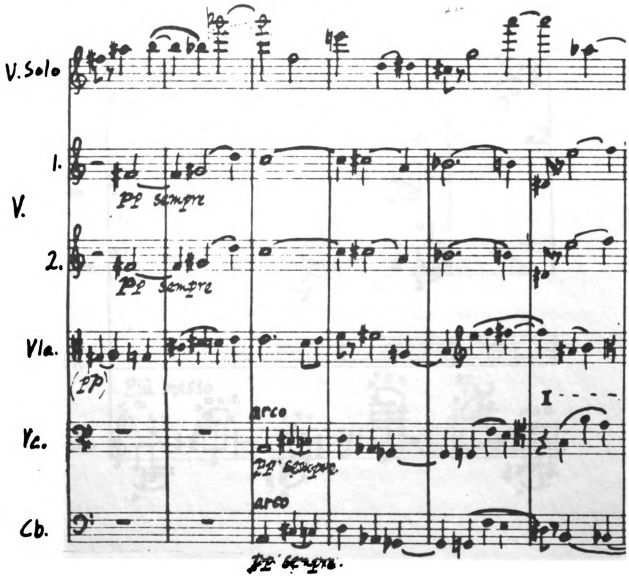
The canon previously discussed in Example 99 is constructed with the original row used for each voice entrance. Other examples which use the same version of the row in counterpoint include a passage in measures 113-18, and measures 134-37. This contrabassoon and solo violin passage begins with a canon in diminution at the double octave. The retrograde-inversion row in each part is accompanied by a woodwind cluster chord.

Ex. 106. Variations for Violin, meas. 134-35.

In Example 107, the solo violin states the complete inverted row followed by the original. This is in counterpoint with one bassoon statement of the inversion in longer

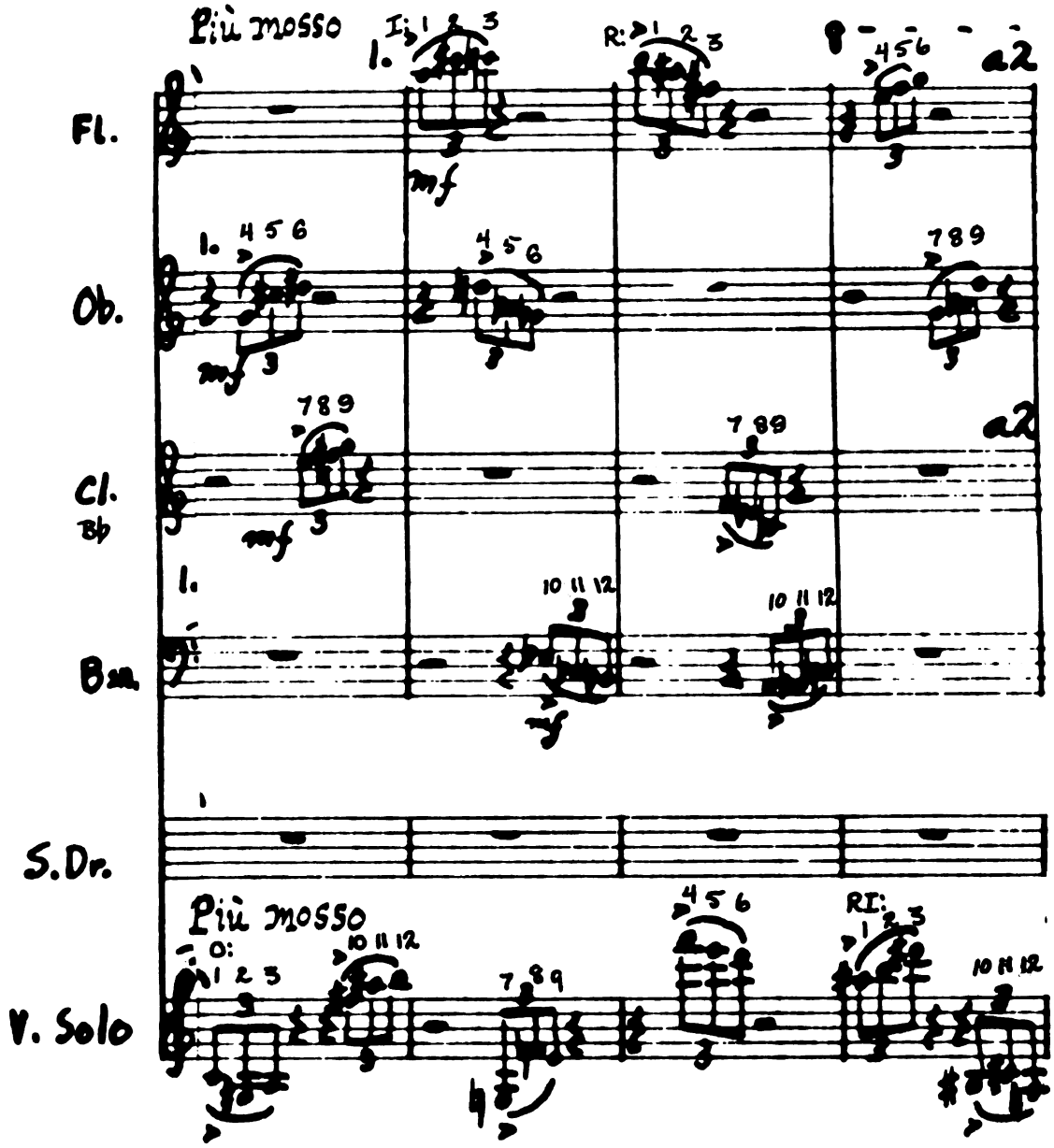
note values.

Ex. 107. Variations for Violin, meas. 80-84.

In other portions of this work, two different versions of the row are employed in a contrapuntal texture. Each part of the imitative woodwind passage in Example 108 states the original row, but the solo violin part is a retrograde statement of the row.

Ex. 108. Variations for Violin, meas. 130-31.

The extended contrapuntal passage of Variations X and XI contains the greatest variety of combinations of different row versions in the entire work. In measures 266-71 for example, each of the four separate lines is constructed with a different row version. The solo violin states the retrograde row against the retrograde-inversion in the violins. The viola part is composed of repeated fragments of the original row, and repeated fragments of the inverted row appear in the cello and bass line.

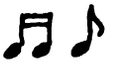
Ex. 109. Variations for Violin, meas. 266-71.

In an occasional short passage, the row is broken into segments which are successively stated by different instruments. This technique is best seen in measures 283-86. In these four measures, all four versions of the row are stated in this order; original, inversion, retrograde, and retrograde-inversion.

Ex. 110. Variations for Violin, meas. 283-86.



It remains to be noted that in Variations VI and XI the row is not in evidence. Although these sections are in keeping with the character of the rest of the work, only very free associations with the row can be found. The only other passages in the work which are free of the row are two short segments of the cadenza.

Rhythm. The rhythmic vitality of Variations for Violin is a prominent element of the music. Although there is no rhythmic motive used consistently throughout this work, several of the individual variations make use of a motive as a unifying device.

Variation II is constructed with the motive, , and the submotives,  , and (see previous examples). The following motive is important to the fourth variation: . In Variation VII, the figure is expanded by addition of notes in this manner: The submotive, , is also used. Variation VIII is based on the motive, . The duration of the second note varies in the many appearances of the motive.

Although each variation is in a meter different from the one preceding it, the variety of meters chosen by Riegger is limited to alla breve, $\frac{4}{4}$ and $\frac{3}{4}$ for the most part. Each of these time signatures is used for three variations, and only Variation II is in $\frac{2}{4}$ time. Changing meters are an important feature of Variations V and IX, and one short cadenza passage. It must be noted that, with one exception, this whole work is in simple time. The first variation in $\frac{6}{8}$

is the single occurrence of compound time.

The extensive use of borrowed divisions in several of the variations provides contrast with the normal division of the simple time signatures. Variations III, V, VI and VIII contain the use of borrowed divisions alternating with the normal division of the beat. These alternating divisions usually occur against the beat so that the rhythmic effect of two against three is rare. One extended passage in the cadenza, measures 345-356, is entirely in triplets, producing the effect of a meter change from simple to compound time.

The remaining time element to be discussed is that of tempo. Each variation is set in a different tempo as well as meter. In most cases, the tempo established at the beginning of a variation is maintained throughout, but Variations IV and XII contain some tempo changes. These take the form of a more animated middle section in the fourth variation, and ritards and accelerandos in Variation XII and the cadenza. The extremes in tempo are found in Variation V at 56 beats per minute, and in Variation XII at 144. The tempo for the twelfth variation is carried through to the end of the work. Variation VI is marked "Tempo comodo" (sic.), and "con brio" is the only indication given for Variation VIII.

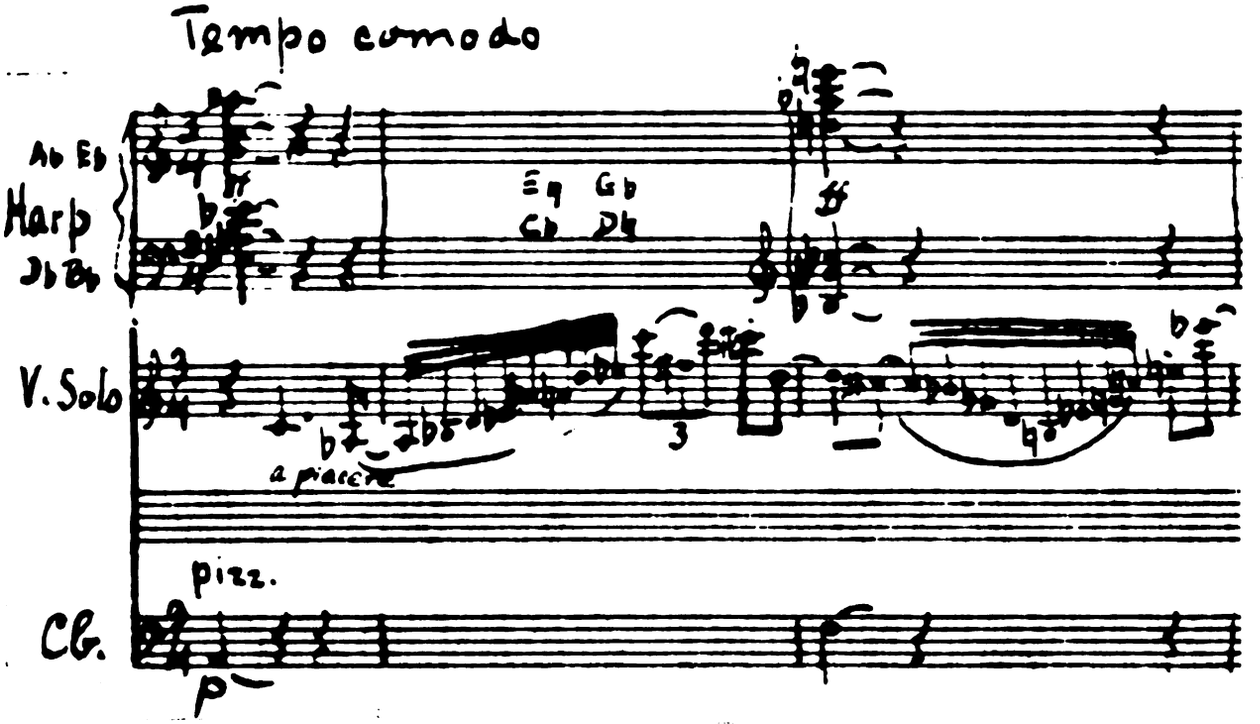
Harmonic Structures. The harmonic structures in Variations for Violin range from intervals to highly complex chords. Of these, simple two-note structures are especially important to the Introduction and Variations I, II and X. Dissonant intervals are used with the highest frequency, major

and minor seconds and ninths being especially important. Within the metric scheme, dissonant intervals occur on accented beats in proportion to their frequency. Accented sevenths, seconds and ninths are the most important to the harmony.

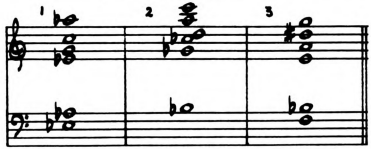
The tertian structures include a wide range of implied chords. Of those occurring as accented chords within the meter, first and second inversion triads are important, along with implied seventh and ninth chords (see Tables 1, 2 and 3).

The structures discussed to this point have resulted from the confluence of contrapuntal lines. In the homophonic textures, isolated chords are used to provide a sustained background to a melodic line, or to punctuate such a line. The whole range of tertian sonorities is used for this purpose as well as quartal structures and tone clusters. Example 111 shows the beginning of an extended passage for the solo violin, harp and double bass.

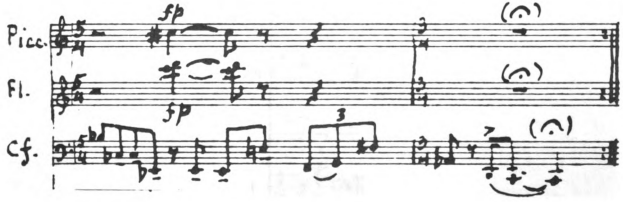
Ex. 111. Variations for Violin, meas. 143-45.



Among the various chords used by the harp as an accompanying instrument, the following are representative:

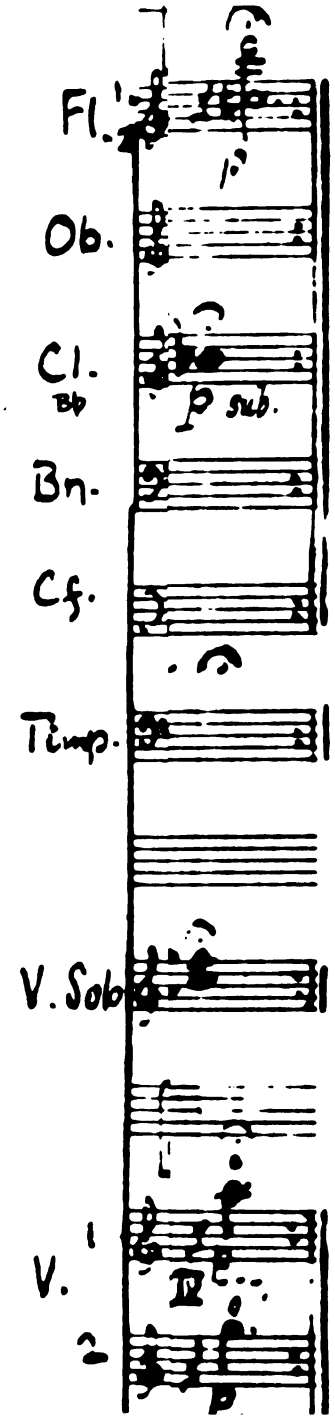
Ex. 112. Variations for Violin, harp chords.

Chord 1, a major seventh chord, is in second inversion. The second chord may be analyzed as a polychord composed of two implied ninth chords, and chord 3 is a quartal structure.

The flutes and piccolo are used to punctuate the contrabassoon line with a tone cluster in measure 141. Clusters

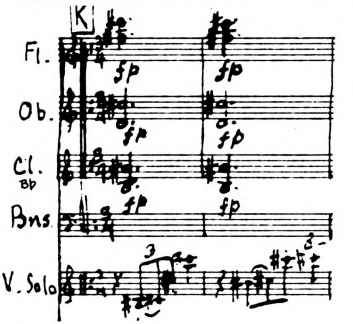
Ex. 113. Variations for Violin, meas. 141-42.

are also used as sustained chords. Others include the implied eleventh chord in measure 223, where both the major and minor third, major and minor ninth, and perfect and diminished

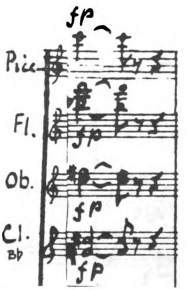
fifth are present;

Ex. 114. Variations for Violin, meas. 223.



the quartal structure in the woodwinds in measure 236;

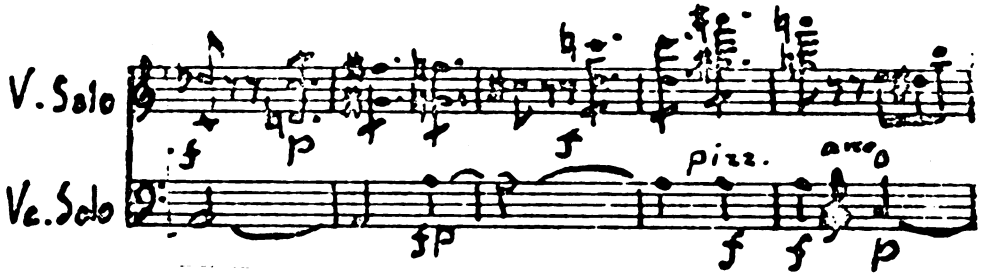
Ex. 115. Variations for Violin, meas. 236-37.

and the thirteenth chord in measure 110. It must be noted

Ex. 116. Variations for Violin, meas. 110.

that the implied eleventh chord seen in Example 114, and the thirteenth chord in the preceding example are not traditional chords. They might be analyzed as polychords rather than

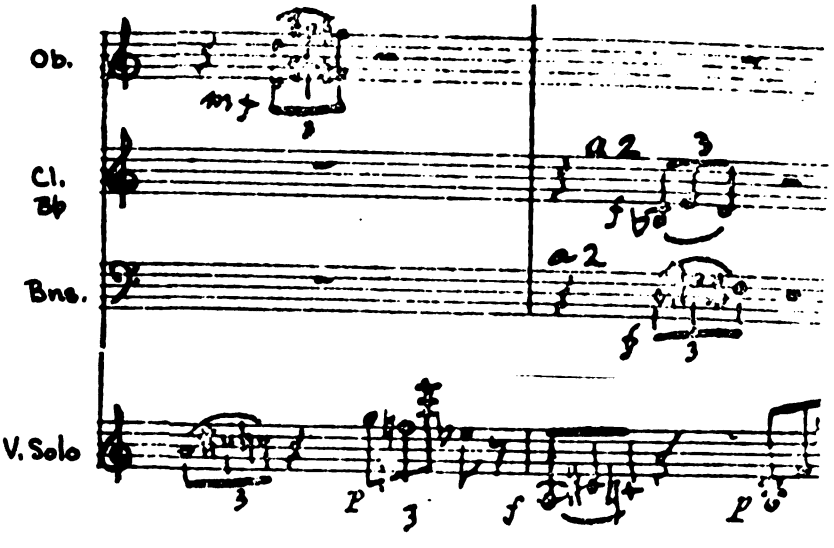
single tertian structures with added notes.

The technique of melodic doubling as used in this work again results in a variety of parallel structures, including intervallic, tertial, quartal, quintal and cluster chords. Parallel streams of intervals and quartal chords are most frequent and will be discussed first.

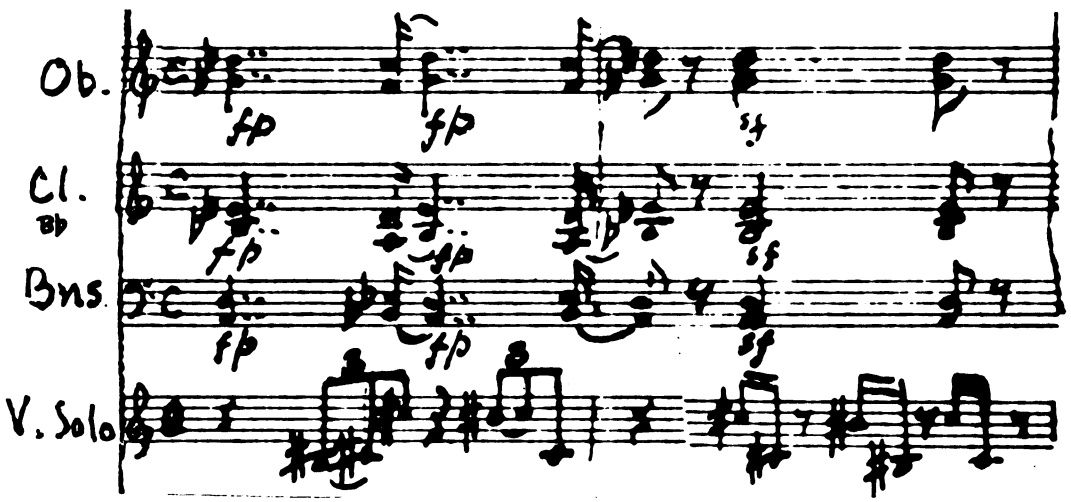
The solo violin produces a stream of parallel minor sevenths by means of double stops.

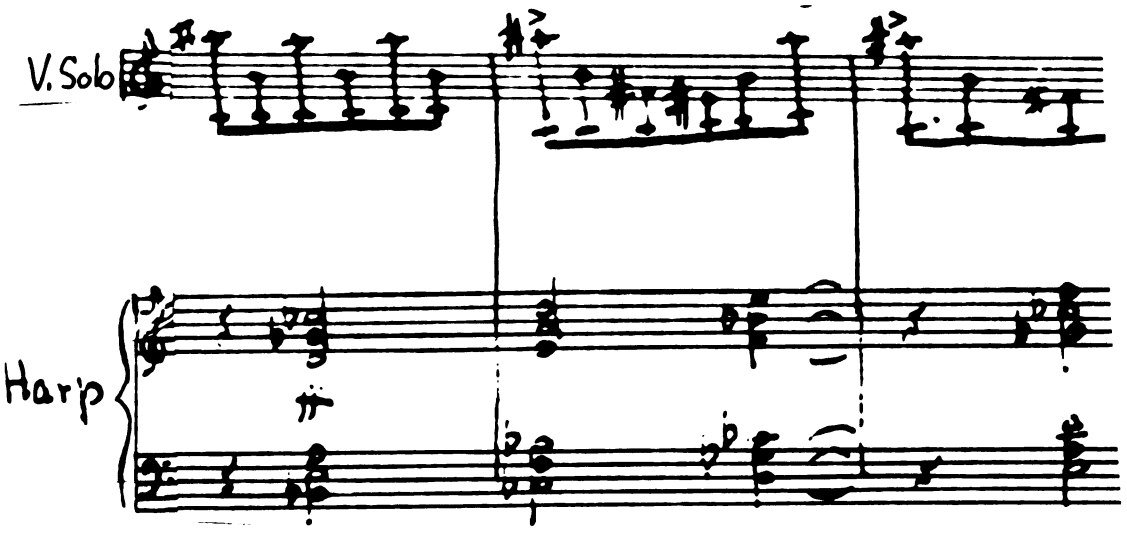
Ex. 117. Variations for Violin, meas. 57-61.

The tritone is the interval of doubling between the clarinets and bassoons in measure 104.

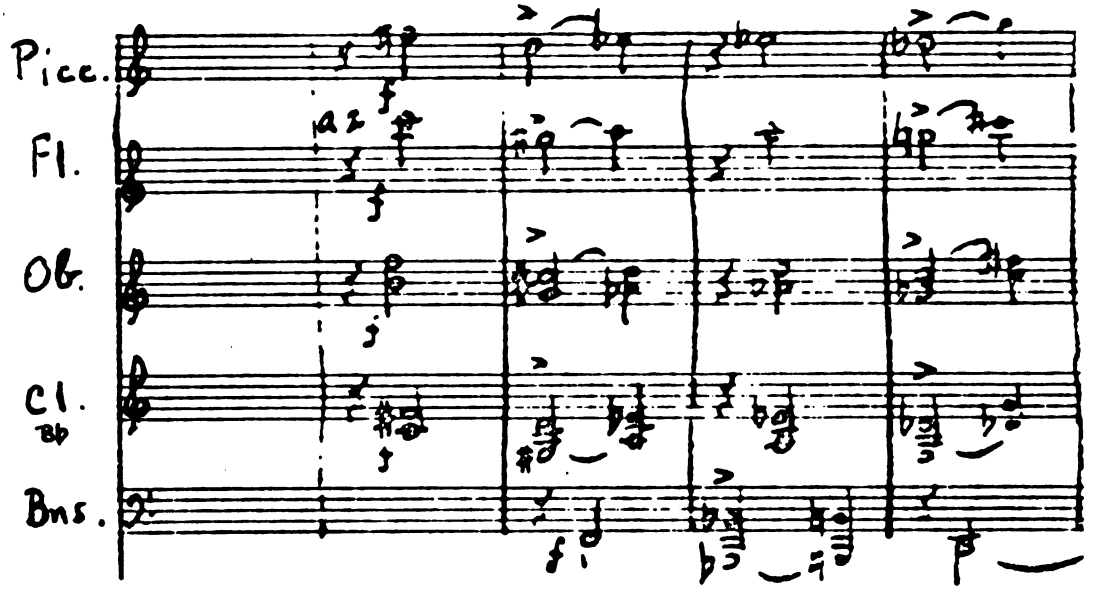
Ex. 118. Variations for Violin, meas. 103-04.

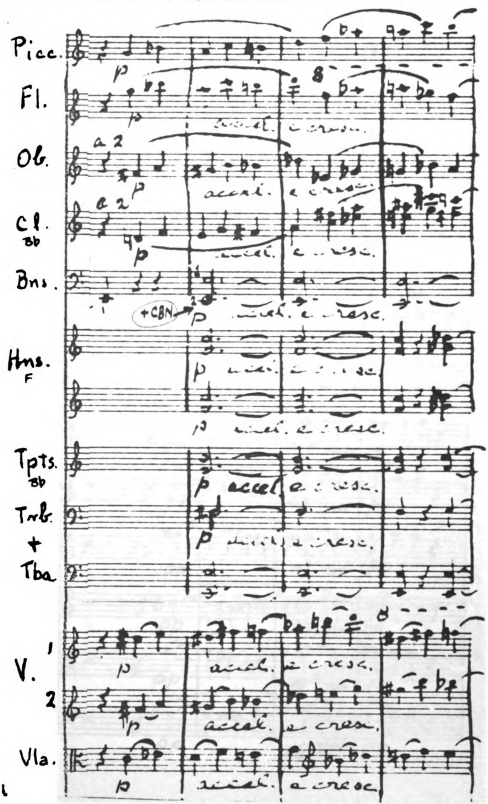


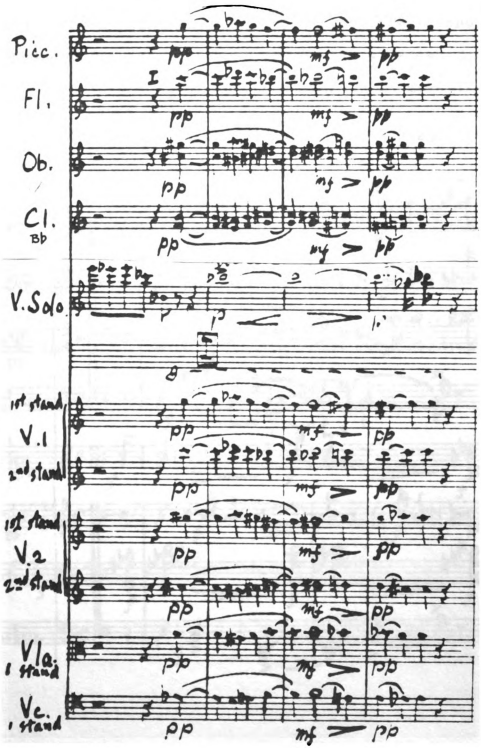
The following examples illustrate the use of parallel quartal structures, such as the woodwind chord stream in measures 239-40. The first oboe doubles the first clarinet at an octave, producing an interval of a perfect fifth between oboes I and II.

Ex. 119. Variations for Violin, meas. 239-40.

The harp chords in measure 383 are quartal structures containing perfect fourths, a tritone and a diminished fourth. It should be noted that these chords are not really parallel. The diminished fourth appears between different chord members in each case.

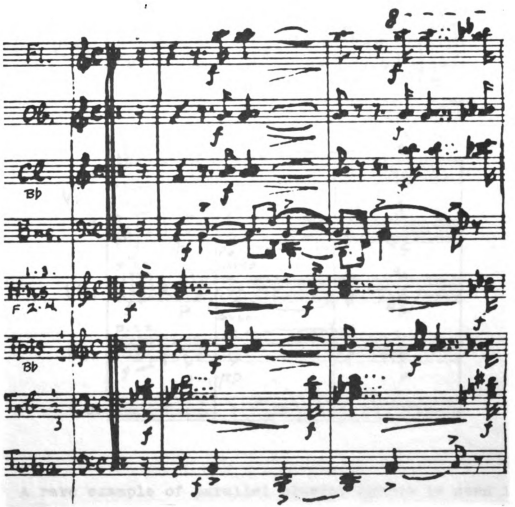
Ex. 120. Variations for Violin, meas. 383-85.

A quintal chord is used in a parallel stream in the woodwinds in measure 387. This structure is built with alternating diminished and perfect fifths. Immediately

Ex. 121. Variations for Violin, meas. 387-90.

following this passage, woodwinds and upper strings are doubled in a parallel quintal structure which occurs over a sustained eleventh chord in the brasses.

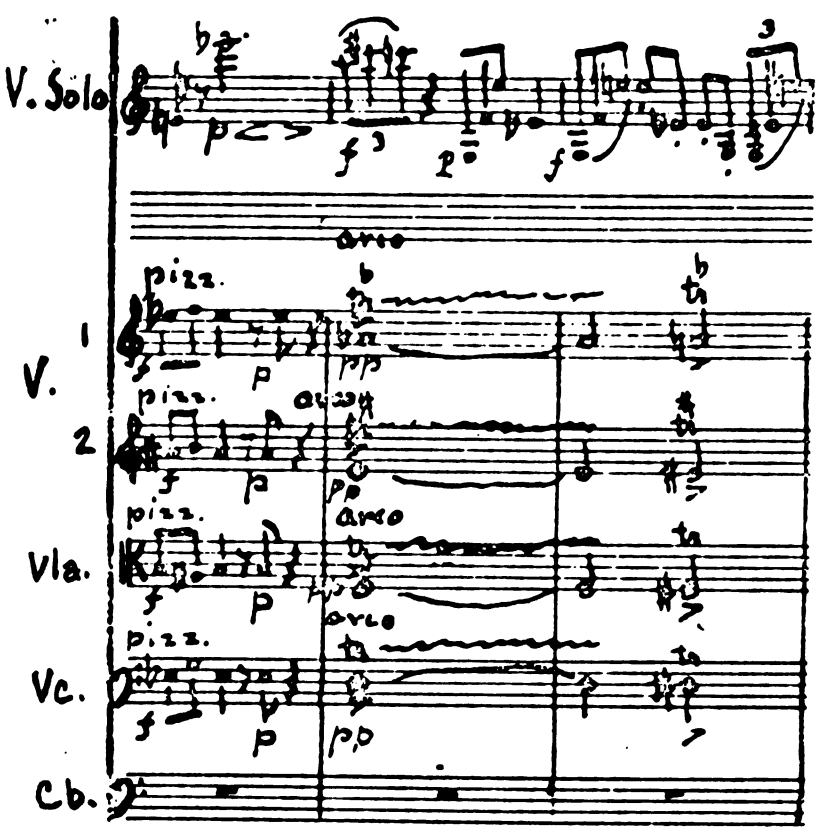
Ex. 122. Variations for Violin, meas. 391-94.

The tertian structures used in parallel streams are limited for the most part to seventh and ninth chords in this work. In measures 192-95, the piccolo, flute I and

Ex. 123. Variations for Violin, meas. 192-95.

oboe I are doubled with the first violins and the first stand of second violins to produce a parallel stream of major seventh chords in root position. The remaining woodwinds and strings produce another chord stream, this time diminished-minor seventh chords in root position with the third omitted. Enharmonic spellings are used within these seventh chords.

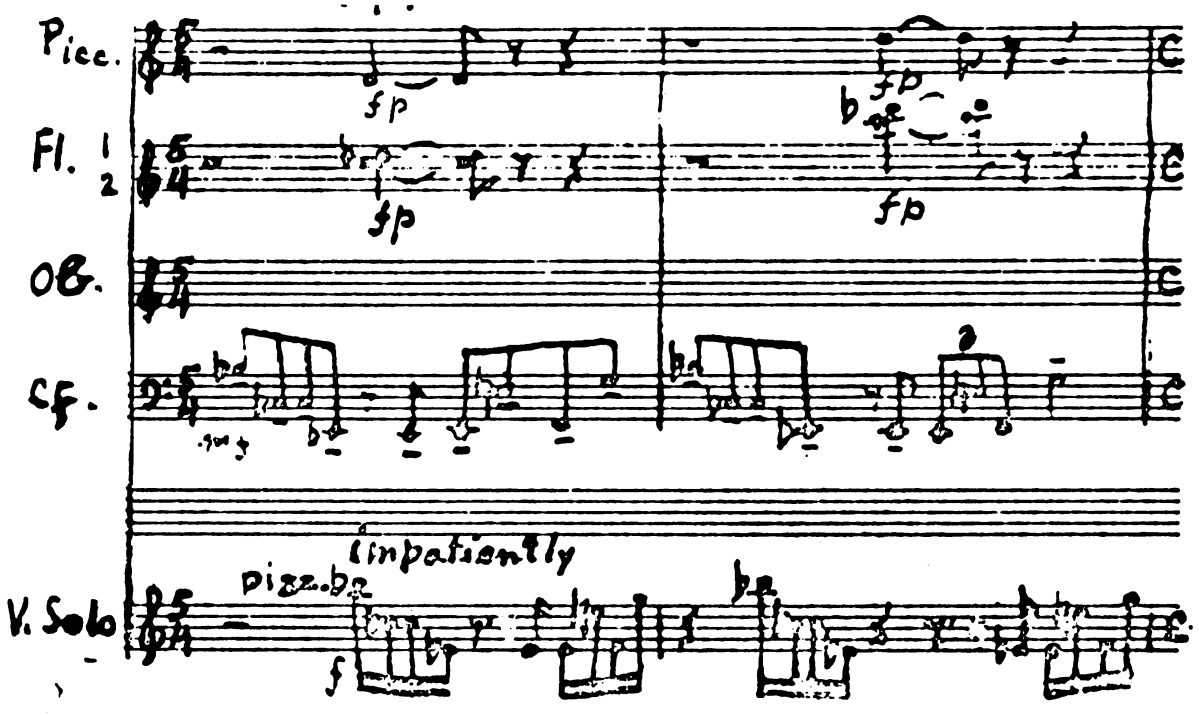
An augmented-major seventh chord with an added fourth is the structure in the horns and trombones in Example 124.

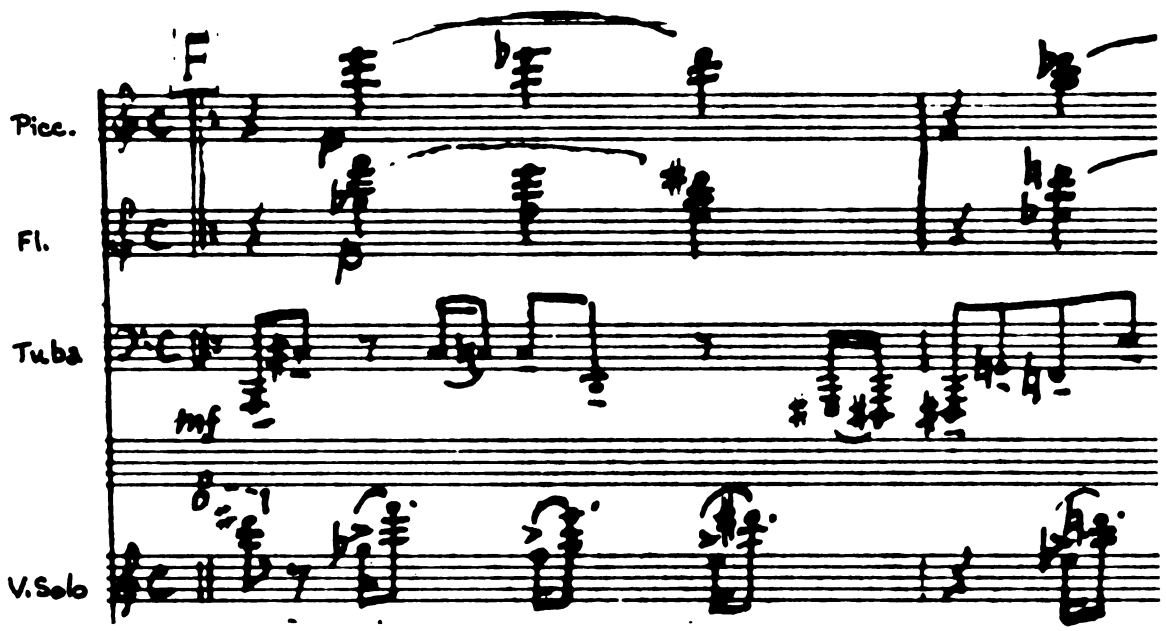
Ex. 124. Variations for Violin, meas. 224-25.

The strings doubling this chord are not shown. The entrance of the woodwinds and trumpets on the last sixteenth-note of beat two gives the combined sonority the effect of an augmented ninth chord.

The parallel, trilled string chords in Example 125 may best be described as incomplete eleventh chords. They are constructed with a minor third, major ninth and an augmented eleventh.

Ex. 125. Variations for Violin, meas. 105-07.

A rare example of parallel cluster chords is seen in measures 134-36. The piccolo and flutes, in minor seconds,

accompany the canonic imitation in the contrabassoon and solo violin. In the passage immediately following, this cluster

Ex. 126. Variations for Violin, meas. 134-36.

is respaced and the parallel piccolo and flute chord is built with major sevenths.

Ex. 127. Variations for Violin, meas. 138-39.

This work was commissioned by the Louisville Orchestra and was first performed in Louisville, Kentucky on April 1, 1959. The handling of the solo violin is imaginative and idiomatic within a tightly austere framework.[23]

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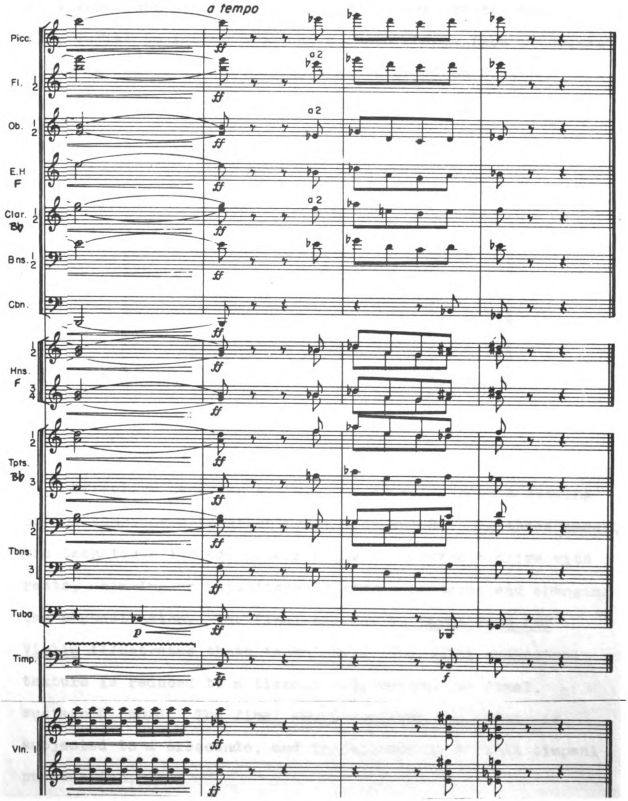
23. Sabin, op. cit., p. 1799.

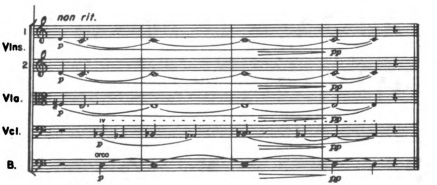
CHAPTER VI

CADENCES

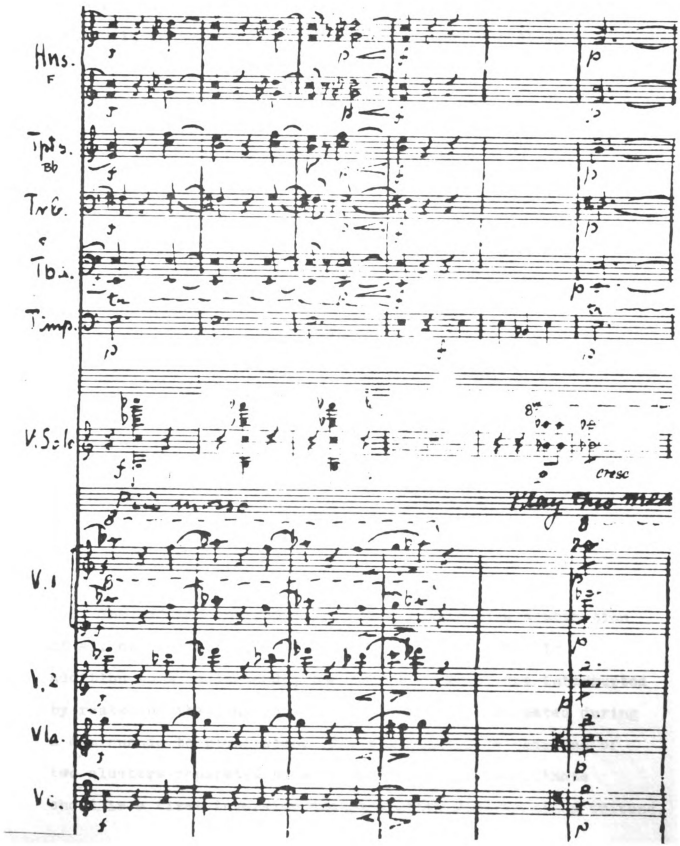
Traditional harmonic progressions were used for the cadences in Dance Rhythms, and some modified dominant-tonic relationships may be found in the other works, but in many instances other means of producing effective cadences were employed. Perhaps the simplest procedure for producing a cadential effect is that of a tempo change. In Example 128, the cadential measures return to the original tempo after an accelerando in the measures preceding. The percussive chords add to the feeling of finality. Each of the last two chords contains eleven notes, C# being omitted from the penultimate chord and C-natural from the final chord. The melodic intervals between the two chords are predominately half steps with whole steps in the brasses. The bass instruments, leap down a major third or up a minor sixth.

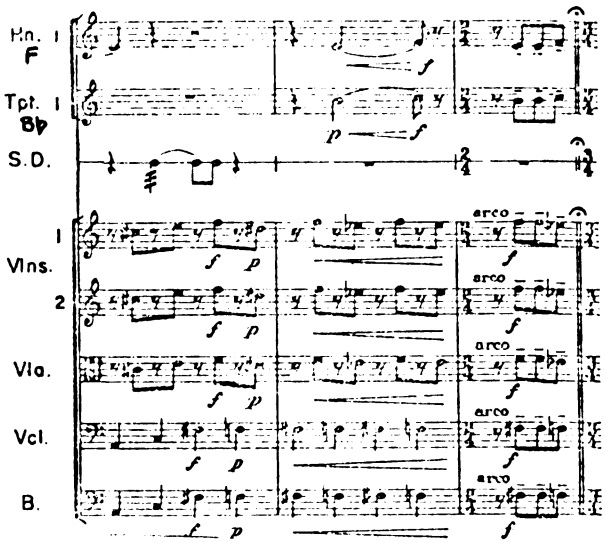
Ex. 128. Music for Orchestra, meas. 263-66.

The cadence is reached in Example 129 by a lengthening of note values in the cello line, and a sustained chord, all at a very soft dynamic level. The movement of the cellos from B-flat to A-flat produces a chord change from a dominant ninth in fourth inversion, to a ninth chord on D with a diminished fifth, minor seventh and a major ninth.

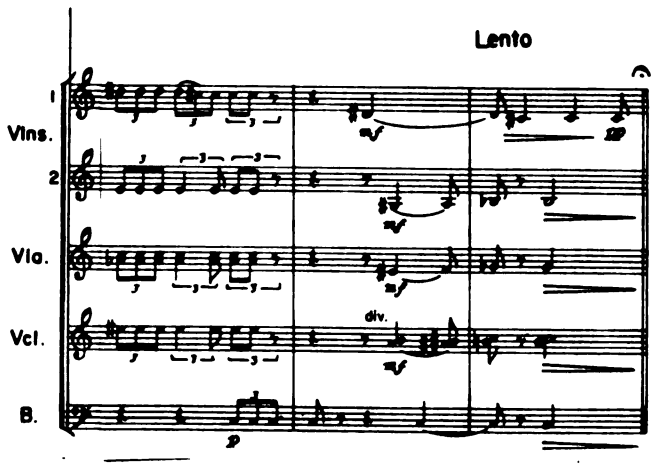
Ex. 129. Symphony No. 4, Mvt. II, meas. 172-75.

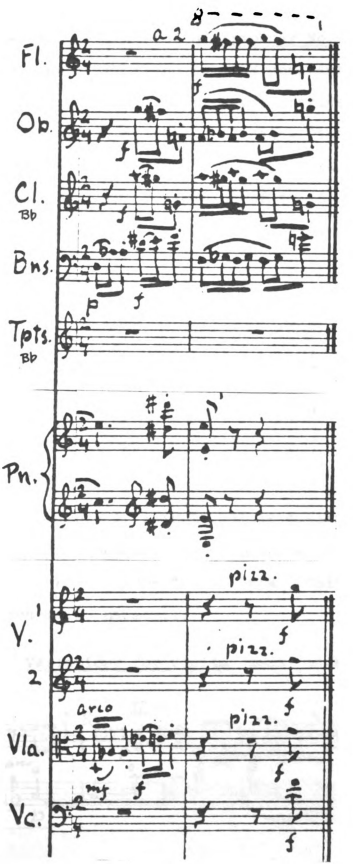


Effective cadences are also produced without a slowing of the tempo or a lengthening of note values. In these cases, the techniques include interrupting the rhythmic drive with rests, changing an established rhythmic pattern, and changing the orchestration. The final cadence in Variations for Violin illustrates these techniques. The tutti orchestral texture is reduced to a timpani solo before the final, sustained chord. The final chord contains ten notes, is subjected to a crescendo, and is followed by a final timpani punctuation.

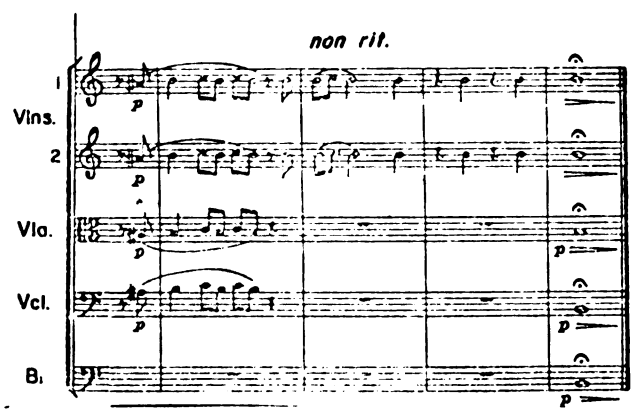
Ex. 130. Variations for Violin, meas. 395-400.

One of the cadences from the second movement of Symphony No. 4 also illustrates this technique. The established rhythmic motion is interrupted by a meter change and a rest on a strategic beat. The final chord is a quartal structure, approached by a minor-major seventh chord with the major seventh spelled as a diminished octave.

Ex. 131. Symphony No. 4, Mvt. II, meas. 57-59.

The cadence in Example 132 is a result of a combination of all of the techniques discussed to this point. In addition to a rallentando, the triplet figures are interrupted by rests and the lengthened note values are syncopated during a diminuendo to pianissimo. The final chord is composed of two clusters separated by a tritone, and the penultimate chord is a first inversion dominant ninth with an added tritone.

Ex. 132. Symphony No. 4, Mvt. III, meas. 73-75.

Some of the cadences appear with no apparent rhythmic preparation. These usually feature a percussive final chord or note to aid the cadential effect. Example 133 is such a case. The rhythmic drive continues through the final measure where the music simply stops. The final structure in the woodwinds is a major second doubled at the octave. Pizzicato strings doubling the woodwinds give a punctuating effect to the cadence. The wide melodic leaps in the woodwinds also contribute to the effect.

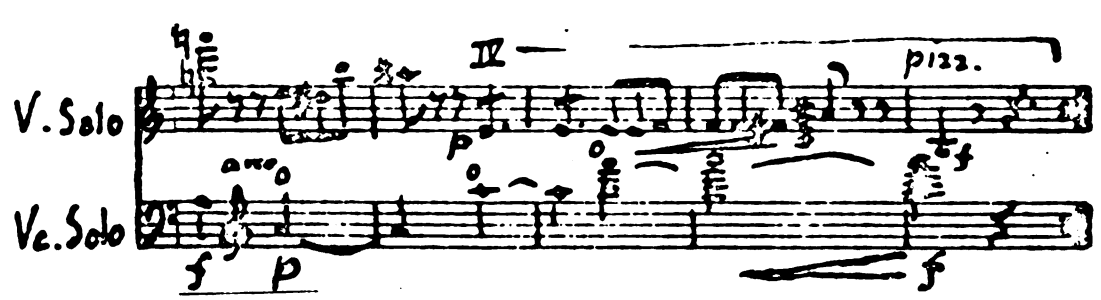
Ex. 133. Variations for Piano, meas. 75-76.

Most of the examples so far have involved relatively complex vertical structures, but cadences are also effected in a linear manner. Movement I of Symphony No. 4 closes with such a cadence. The tempo remains constant, but the quarter rests in the penultimate measure provide enough hesitation in the rhythm to make the ending final. The voice leading is very important here. The resolution of the A# in measure 403, and the repetition of the B-natural establish B as a tonal center for this brief moment.

Ex. 134. Symphony No. 4, Mvt. I, meas. 403-07.

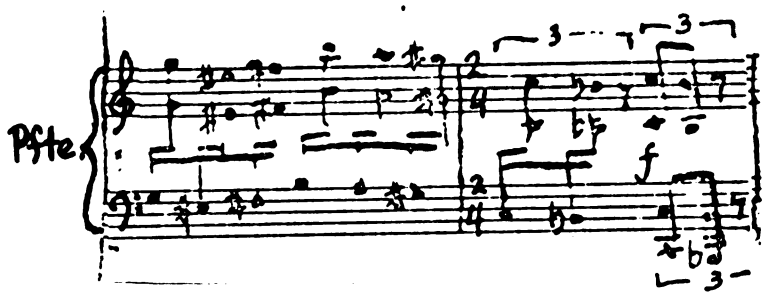


The linear cadence in Example 135 is achieved through a pause in the rhythmic motion, a descending melodic leap of a major seventh, and a crescendo to forte. This occurs with a sustained cello harmonic.

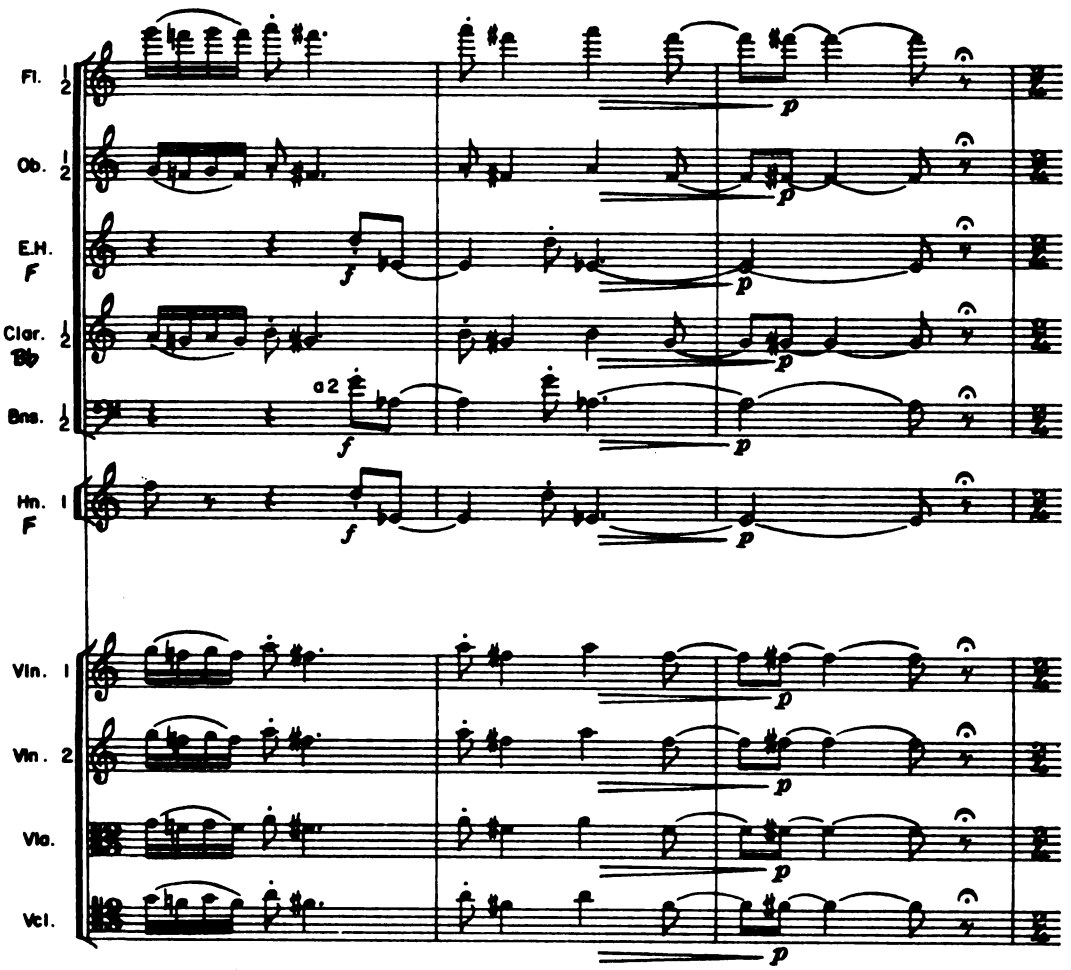
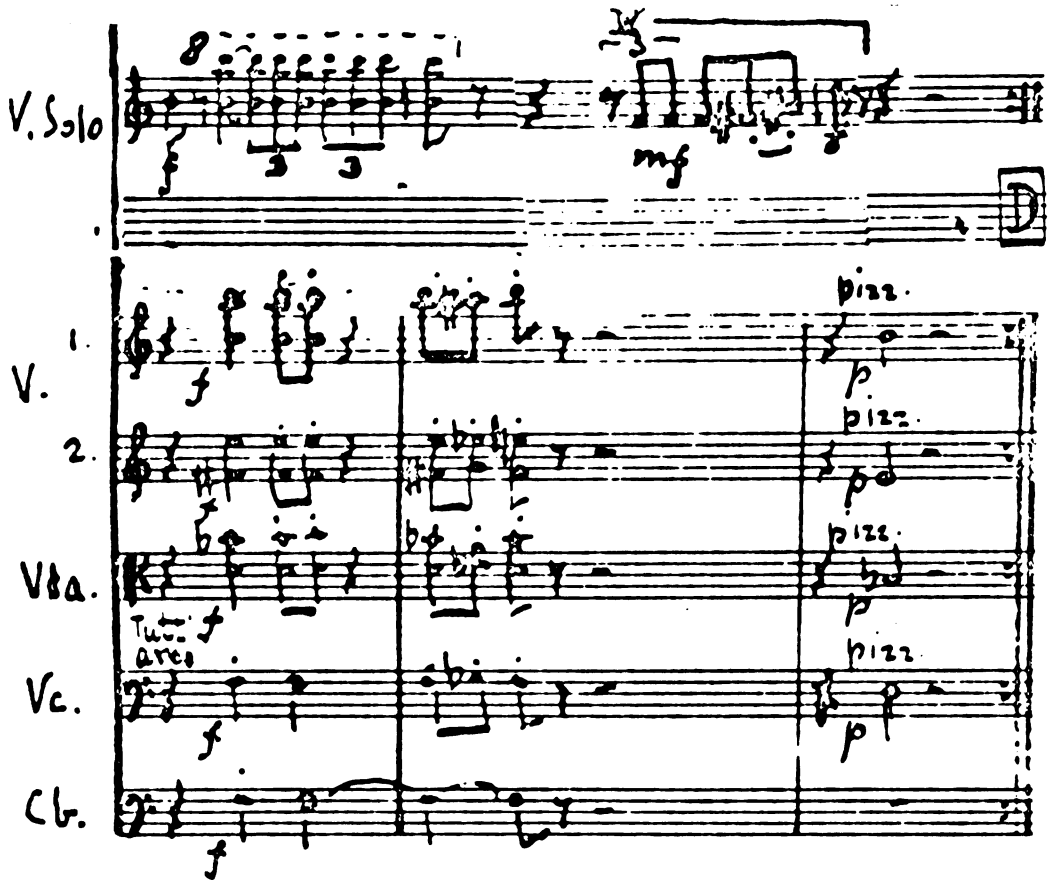
Ex. 135. Variations for Violin, meas. 61-65.

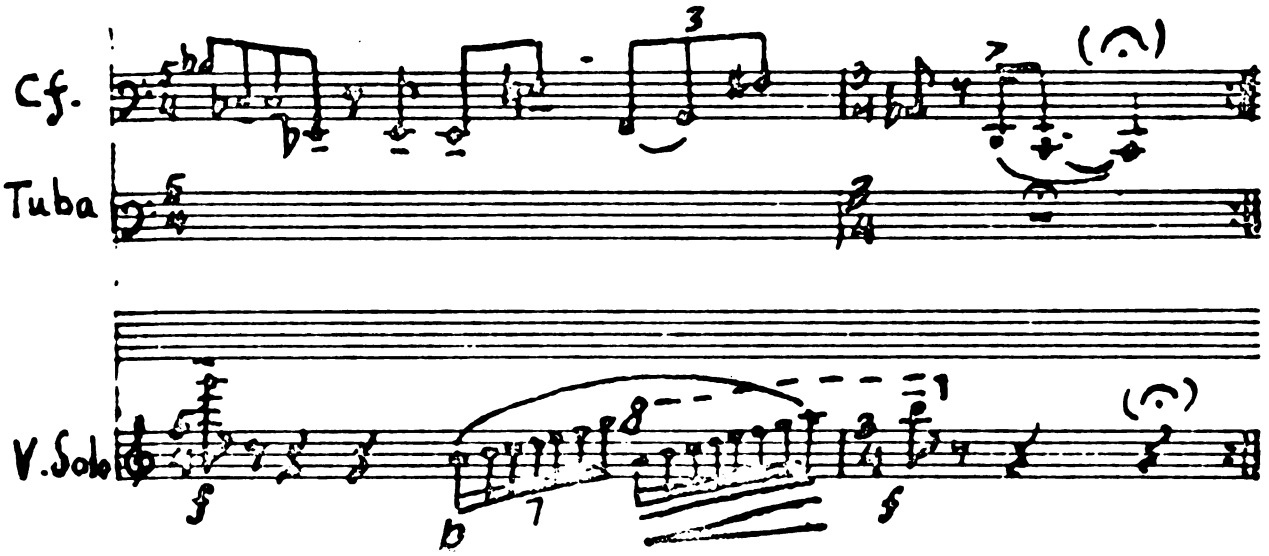


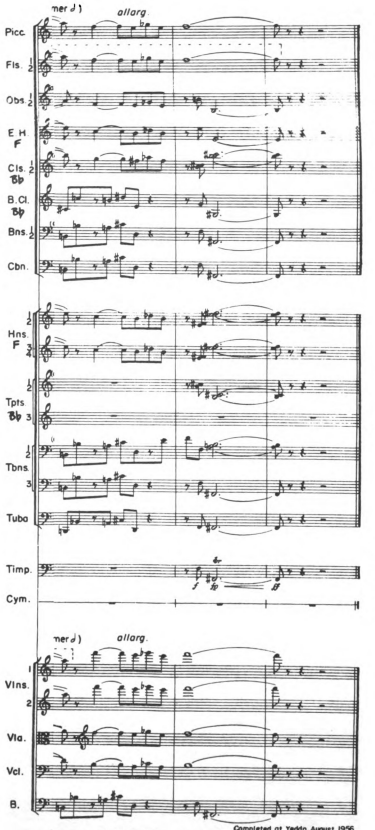
A cadential effect is achieved in Example 136 by the repetition of a rhythmic pattern in longer note values.

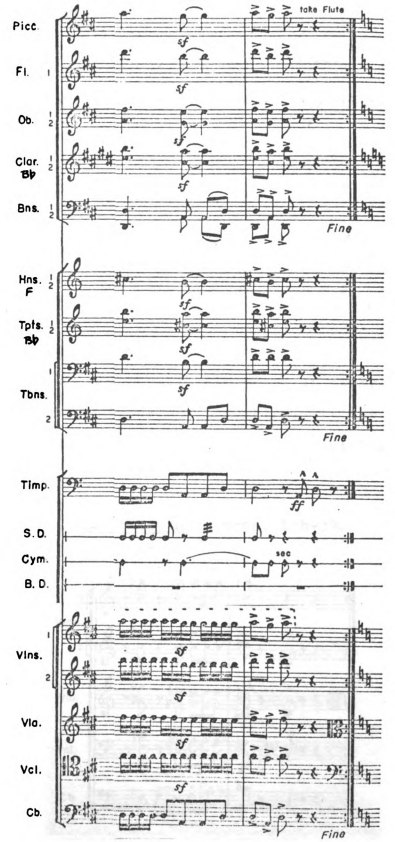
Ex. 136. Variations for Piano, meas. 39-40.

One more cadential element must be discussed, and that is the matter of where the final chord or note occurs within the meter. Of the examples already seen, a percussive chord on a strong beat occurs in Example 128, and Example 133 is an illustration of a percussive ending on a weak part of a beat. The sustained final note as seen in Example 134 is on a strong beat.

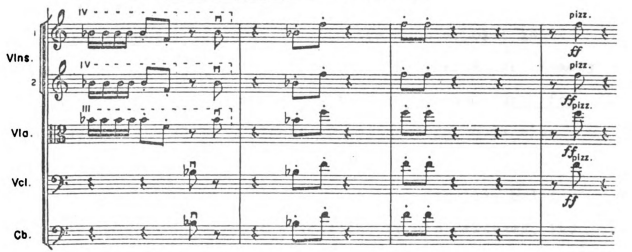
Some further possibilities include the sustained ending in Example 137 in a relatively weak metric position, and the woodwind chord punctuated by pizzicato strings on a weak beat, in quadruple meter in Example 138.

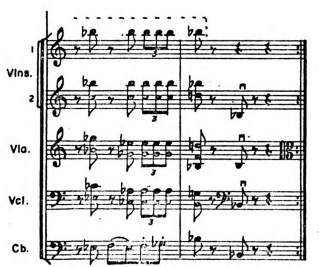
Ex. 137. Music for Orchestra, meas. 17-19.

Ex. 138. Variations for Violin, meas. 100-02.

A few of the cadences feature a percussive penultimate chord or note followed by a sustained ending. In Example 139, the punctuating note is accented in relation to the sustained final note.

Ex. 139. Variations for Violin, meas. 141-42.

The reverse is true in the final cadence of Symphony No. 4.

Ex. 140. Symphony No. 4, Mvt. III, meas. 773-75.

The cadences in Dance Rhythms have all the characteristics of those in the other works, but include the element of functional harmonic progression as well. An authentic cadence in the key of D major is seen in Example 141. The penultimate chord is a dominant eleventh. The root movement of the cadence is echoed by the timpani a beat later.

Ex. 141. Dance Rhythms, meas. 92-93.

A half cadence appears in Example 142 in the key of B-flat. The harmonic progression is implied by the voice leading in this case.

Ex. 142. Dance Rhythms, meas. 144-47.

The diminished-minor seventh chord with a minor ninth which serves as the penultimate chord in Example 143 is built on C and is in second inversion. In the key of B-flat minor, this is a supertonic ninth chord, giving the cadence a plagal effect.

Ex. 143. Dance Rhythms, meas. 138-39.

CHAPTER VII

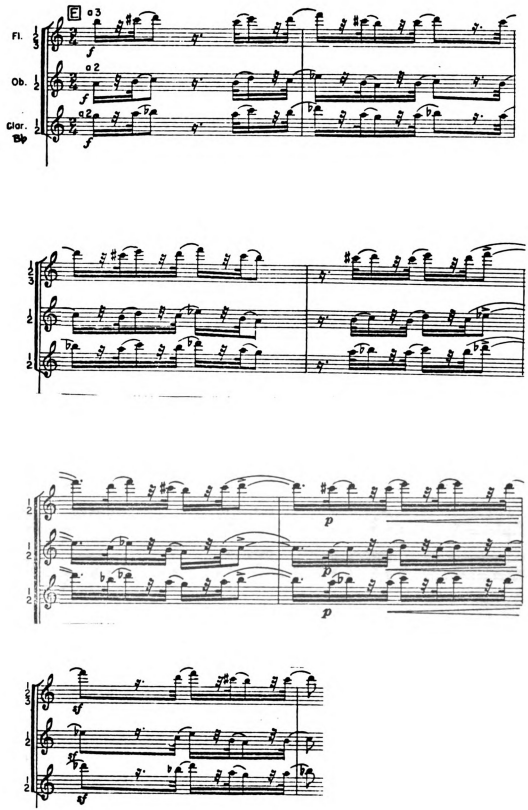
TEXTURES

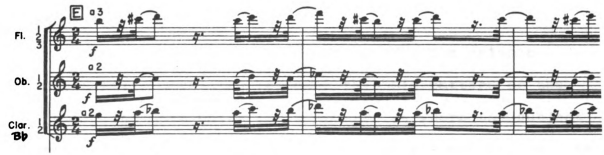
The relationship of the textures used in each work is shown in Table 4 on page 250.

Contrapuntal Textures. Imitative counterpoint is especially important to three of these Riegger works, namely Variations for Piano, Variations for Violin, and Music for Orchestra. The first movement of Symphony No. 4 is also primarily contrapuntal.

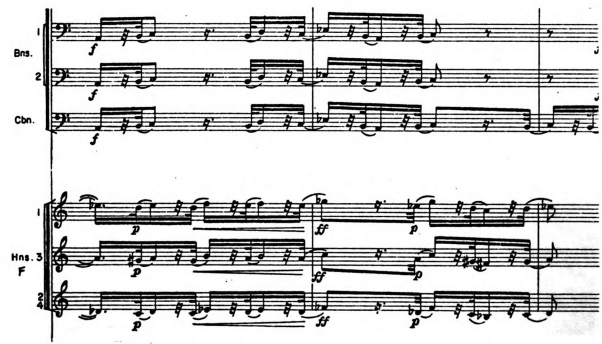
The imitative passages in these works include brief motivic imitation, canonic imitation, fugato passages, and fugues occurring in Music for Orchestra, and in Variation XII of Variations for Piano.

The seven-measure subject of the fugue in Music for Orchestra contains several distinctive features. Only five pitches are used within a range of a tritone; the melodic motion is dominated by minor seconds and sequential patterns of ascending thirds; and a single recurring rhythmic motive is used throughout. This motive is actually the submotive discussed on page 13.

Ex. 144. Music for Orchestra, fugue subject.

The subject is frequently doubled at various intervals, so that its statement is a parallel stream of chords. This is true of the opening statement in the woodwinds, of

Ex. 145. Music for Orchestra, meas. 43-45.

the answer in the horns, and of several of the middle entries.

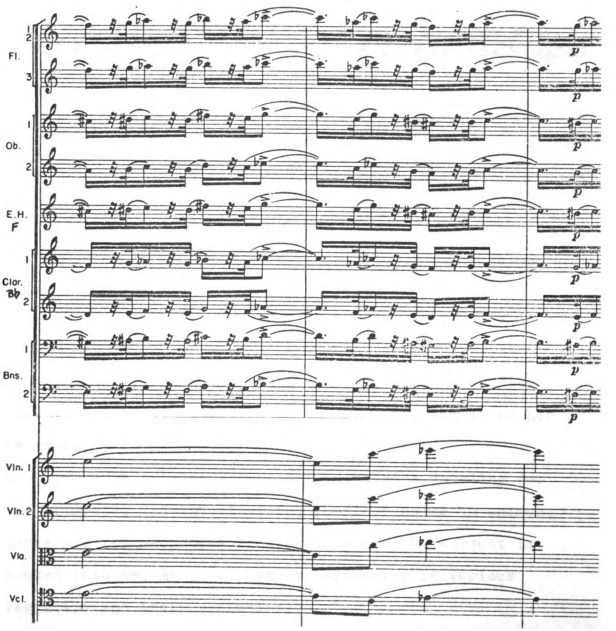
The answer in the horns is a tritone away from the first statement, and before it is completed, another statement begins in the low woodwinds, measure 55.

Ex. 146. Music for Orchestra, meas. 55-56.

This overlapping section is followed immediately by another horn entrance which proves to be truncated, with only two measures of the subject being stated. At this point, the subject having been stated completely in three different registers, the exposition is over and the first episode appears.

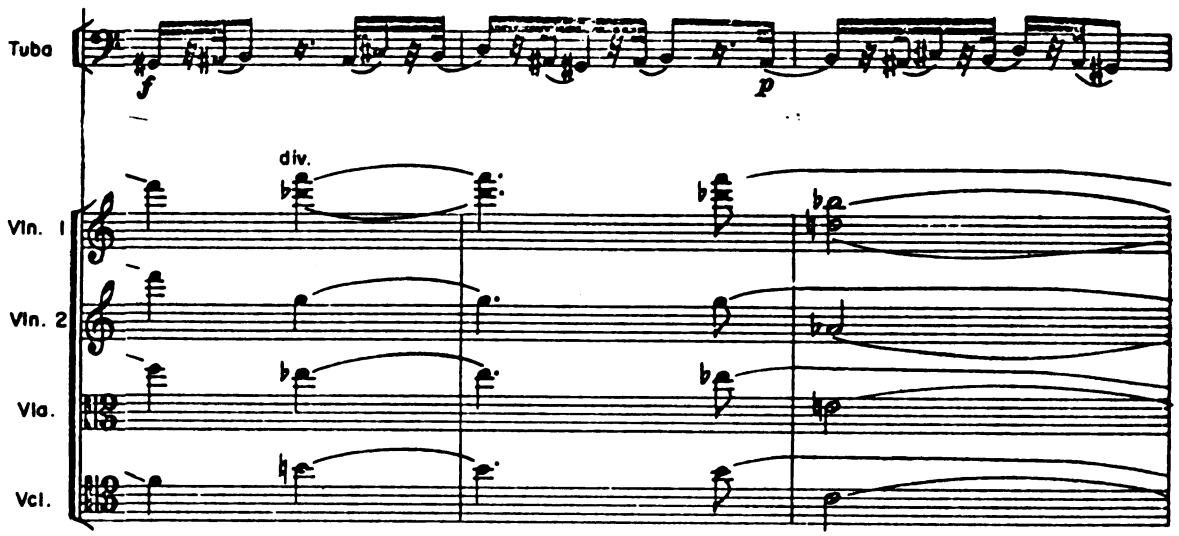
Extending from measure 64 through 73, the episode provides relief from the repeated rhythmic pattern of the subject. The next entry is in measure 74 where the subject is presented by the flutes, oboes, clarinets and bassoons in melodic doubling. The episode following this entry is longer than the first, and this time is based on the rhythmic motive of the subject.

The two consecutive entries following the second episode are especially interesting for their contrasting orchestration. The first is a woodwind statement at eight different pitch levels.

Ex. 147. Music for Orchestra, meas. 107-09.

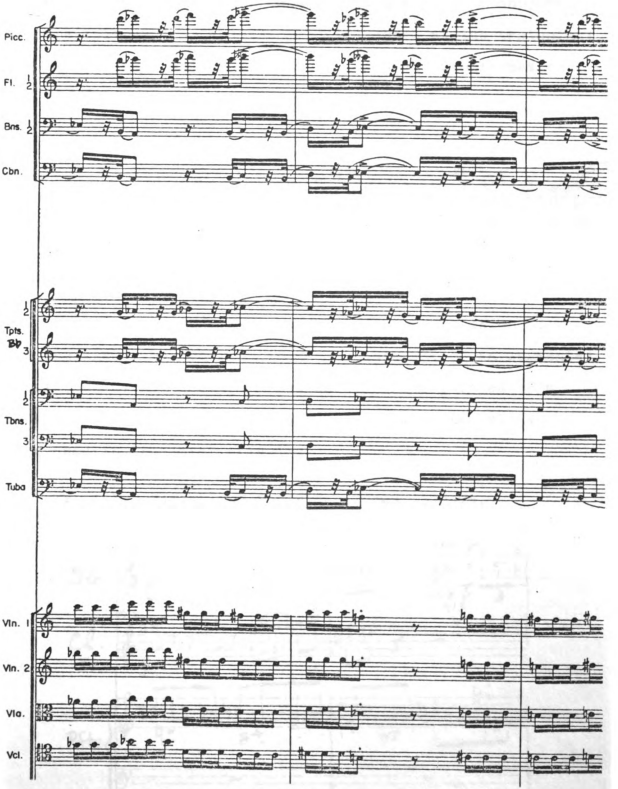


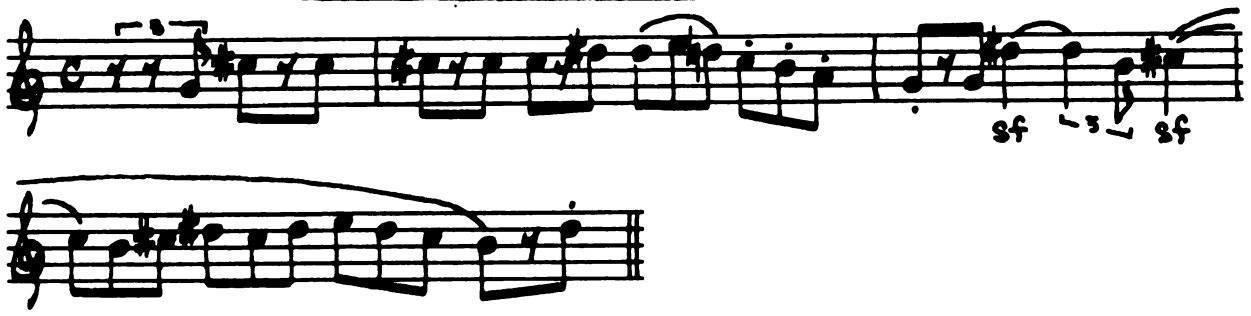
This is followed immediately by a statement for a single tuba.

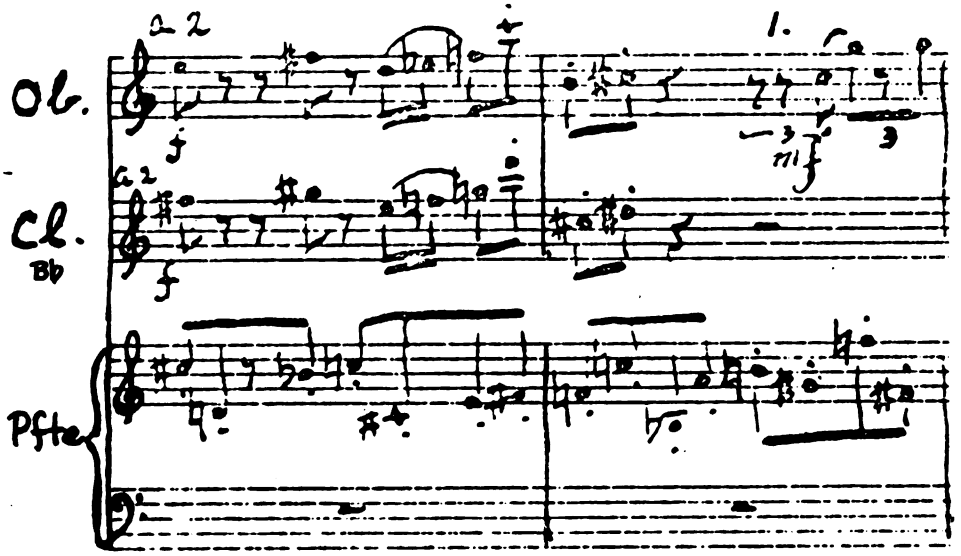
Ex. 148. Music for Orchestra, meas. 111-13.

The episode following the tuba entry is again free from the driving rhythmic motive of the subject, and is rather extended.

Two more entries occur, one in melodic doubling for the trumpets, and the other for the four horns in unison. These are followed by a section in which the subject is broken into two-measure segments appearing in various registers and instrumentations.

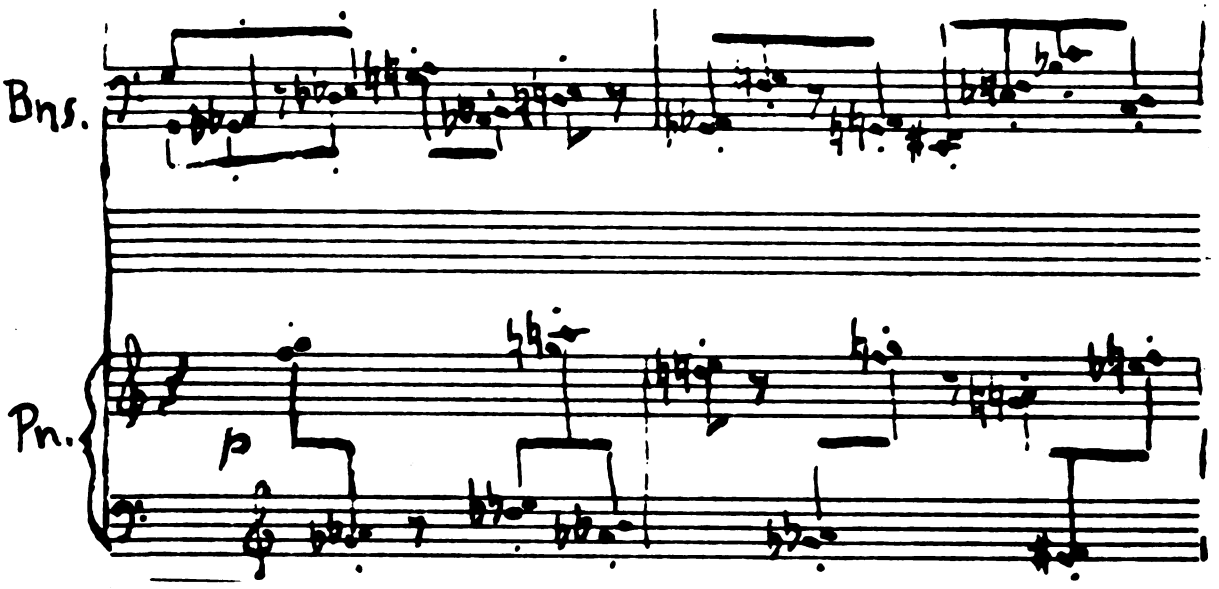
Finally, the subject is treated in stretto, each statement in parallelism. The stretto section leads to a coda which brings Music for Orchestra to a close.

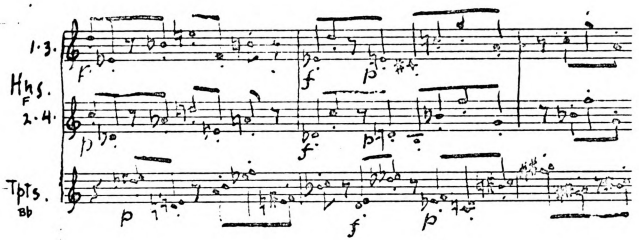
Ex. 149. Music for Orchestra, meas. 231-33.

The fugue in Variations for Piano is constructed with a three-measure subject, and is closer to the traditional concept of fugal texture. Notable features of the subject are the tritone leap and the repeated notes at the beginning; the narrow range and predominantly conjunct melodic motion; and the borrowed divisions of the beat.

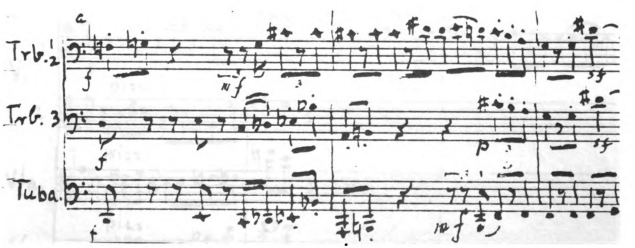
Ex. 150. Variations for Piano, fugue subject.

The initial subject statement by the piano is on G, and the answer by the oboe is at the interval of an augmented fourth, on C#. The subject and answer are separated by a link passage in measures 373 and 374. This material is also used in the later episodes.

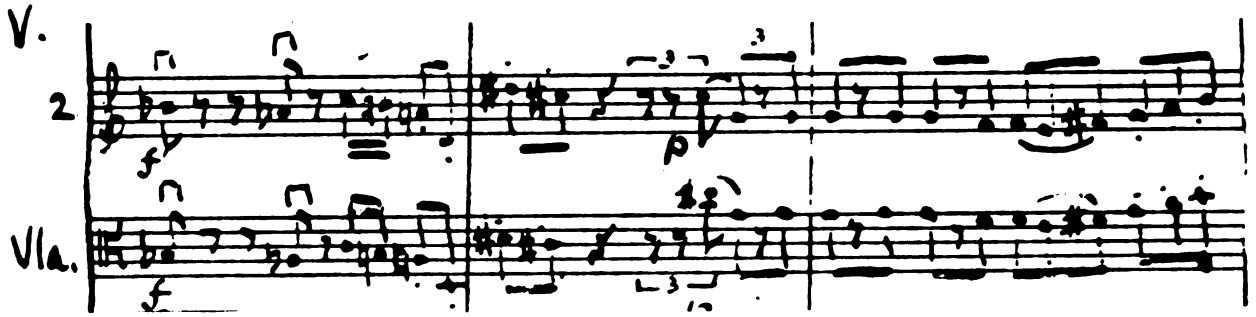
Ex. 151. Variations for Piano, meas. 373-74.

The use of the woodwind and piano motives which occur against the subject is not consistent, therefore neither is identified as a countersubject.

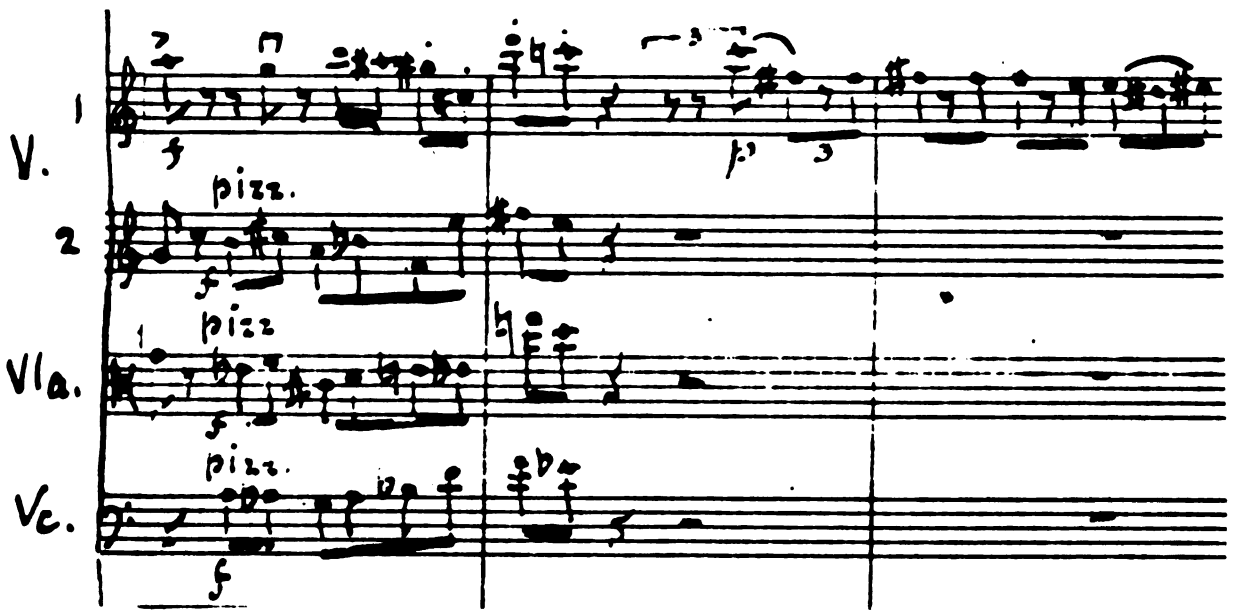
After a four-measure episode, a counter-exposition begins in measure 381 with a flute statement on G. Again the subject is followed by a two-measure link before the answer on C# in the bassoon. The counter-exposition is followed by an eight-measure episode featuring canonic imitation. The canon is at the double octave, at a time interval of one beat. Each of the lines is doubled at a major second.

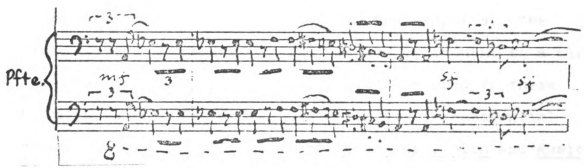
Ex. 152. Variations for Piano, meas. 390-91.

This canon is continued for three more measures by the horns and trumpets, but the interval of imitation changes from an octave to a minor sixth.

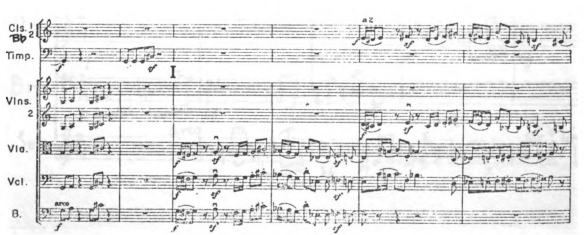
Ex. 153. Variations for Piano, meas. 392-94.

Following this extended episodic passage, the subject is stated in stretto. The statement by the trombones in measure 397 is accompanied by another statement by the tuba a measure later. The trombone statement is on G, the tuba on B.

Ex. 154. Variations for Piano, meas. 397-99.

Inverted statements of the subject are next to appear. The second violin and violas state the inverted subject on C# in measure 403, and the first violins follow with the

Ex. 155. Variations for Piano, meas. 402-04.

inverted subject on C-natural in measure 408. The two-measures separating these two statements contain the previous episodic material also inverted.

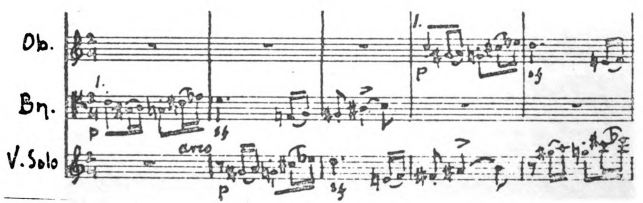
Ex. 156. Variations for Piano, meas. 407-09.

The inverted subject in the first violins is followed immediately by the final statement of the original subject. This occurs in the piano, where the subject was first introduced, but on A instead of G. This last entry is in the low piano register and is doubled at the octave.

Ex. 157. Variations for Piano, meas. 412-14.

The first movement of Symphony No. 4 contains several fugato passages. Representative of these is the first, beginning in measure 68. The theme on G in the low strings is answered two measures later by the clarinets and second violins on D.

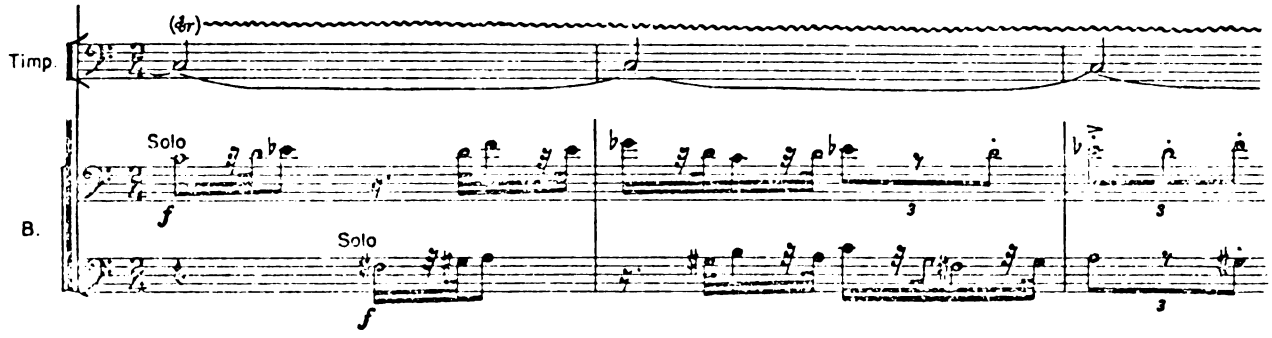
Ex. 158. Symphony No. 4, Mvt. I, meas. 66-71.

The subject appears again on G in the first violins in measure 73, and is answered again on D by the low woodwinds and strings. After these four entries, the fugato ends.

Later in the movement, a somewhat less traditional fugato is employed. The first statement of the subject on F by the trombones is answered on A by the horns five measures later. The third and last entry occurs after six measures, again on A, and is made by the trumpets. The last entry is incomplete as the passage is brought to a close.

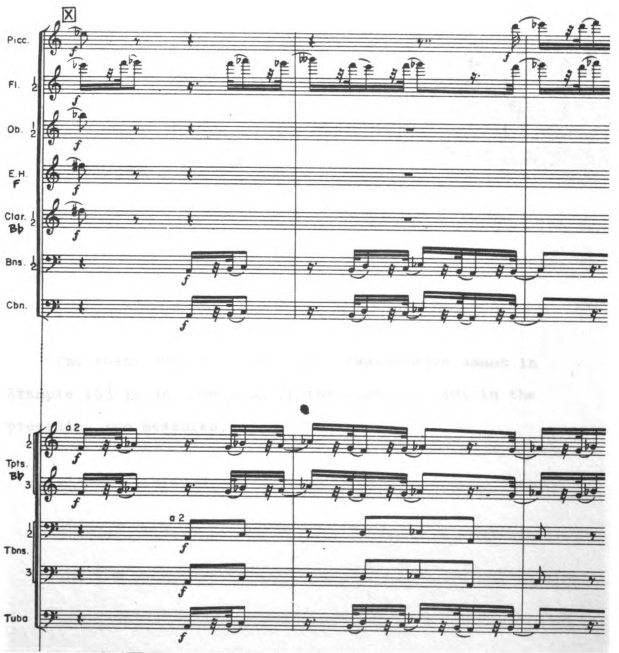
The most frequent imitative technique used in these works is canonic imitation. This results in substantial passages in strict canon in Variations for Violin and Music for Orchestra, and in the other works, many passages beginning with canonic imitation and continuing in free counterpoint. The canon in Example 159 at the octave is repeated twice with a different woodwind instrument each time. The solo violin is alternately the upper and lower voice.

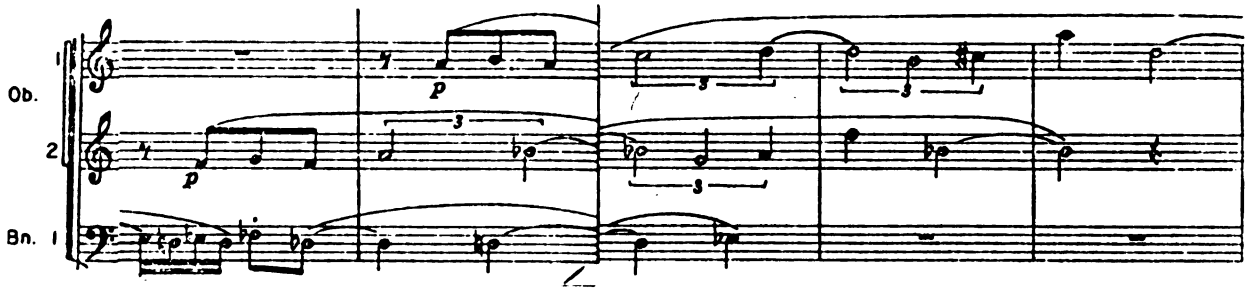
Ex. 159. Variations for Violin, meas. 66-70.

The double basses appear in a canon at a tritone in Example 160 with a sustained C in the timpani.

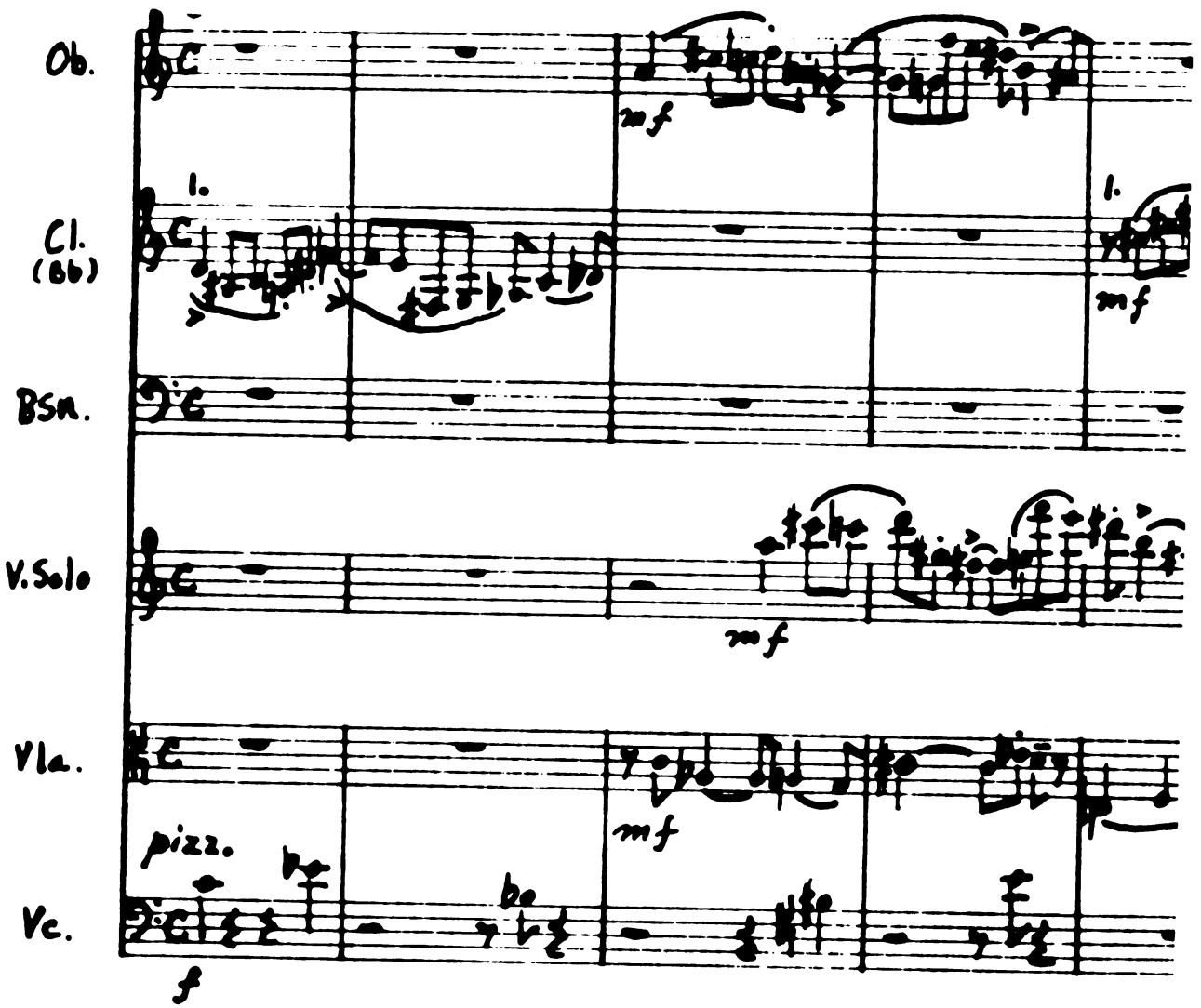
Ex. 160. Music for Orchestra, meas. 238-40.

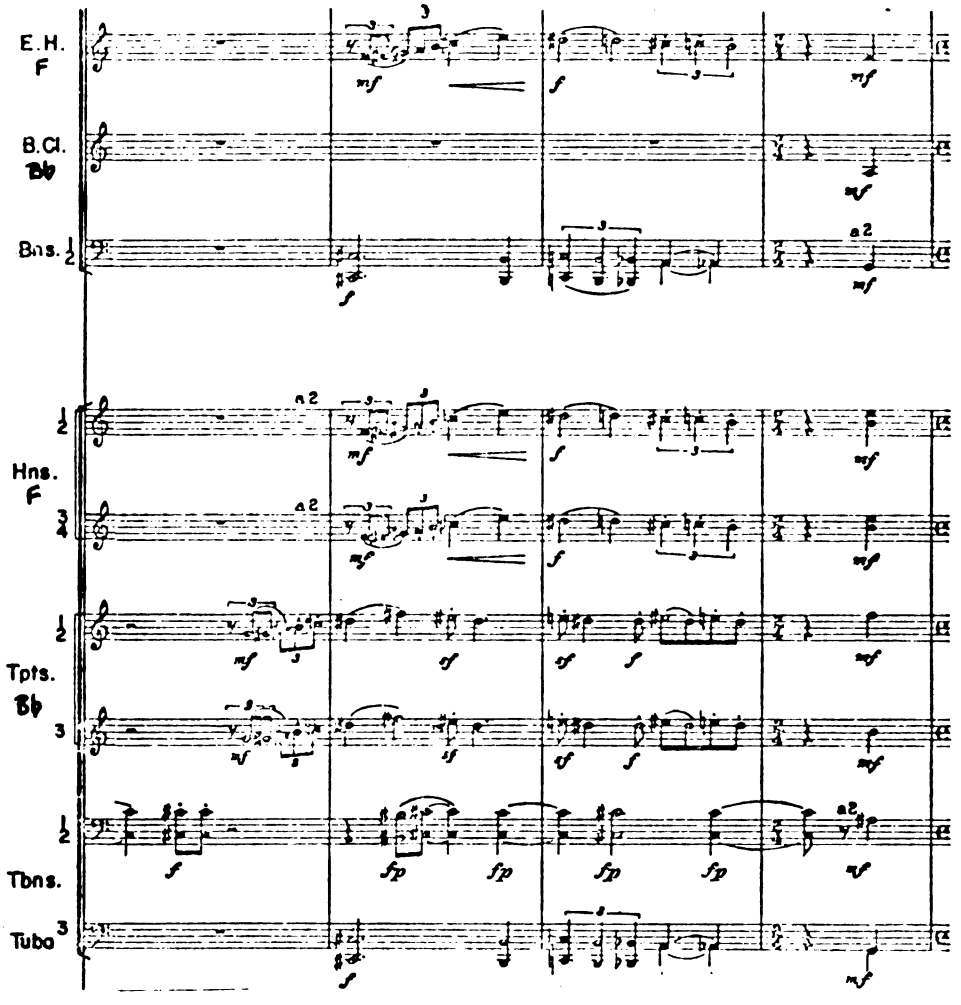


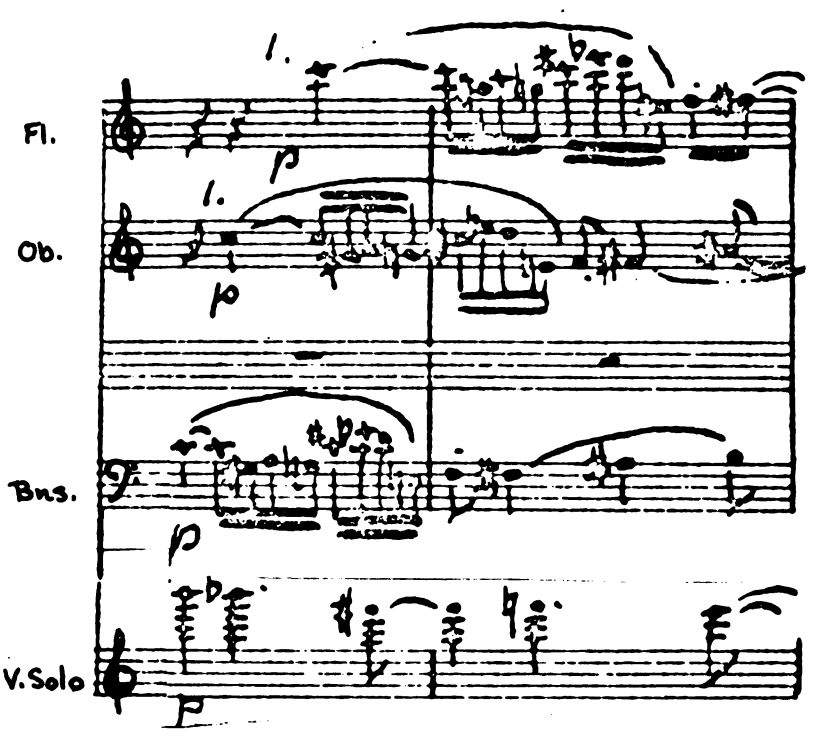
The voices of the canon are doubled in octaves in Example 161. The imitation is at a tritone, and the canon is in counterpoint with a string line in parallelism. This passage is from the stretto section of the fugue in Music for Orchestra.

Ex. 161. Music for Orchestra, meas. 228-30.

A somewhat shorter canon appears in Example 162 in the oboes. This canon at a major third is part of a larger contrapuntal passage.

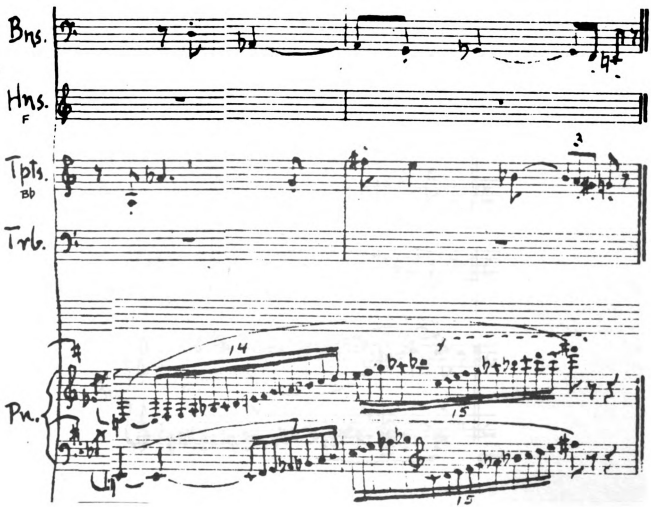
Ex. 162. Music for Orchestra, meas. 170-74.

The theme used for the short, two-measure canon in Example 163 is an inversion of the clarinet line in the preceding two measures.

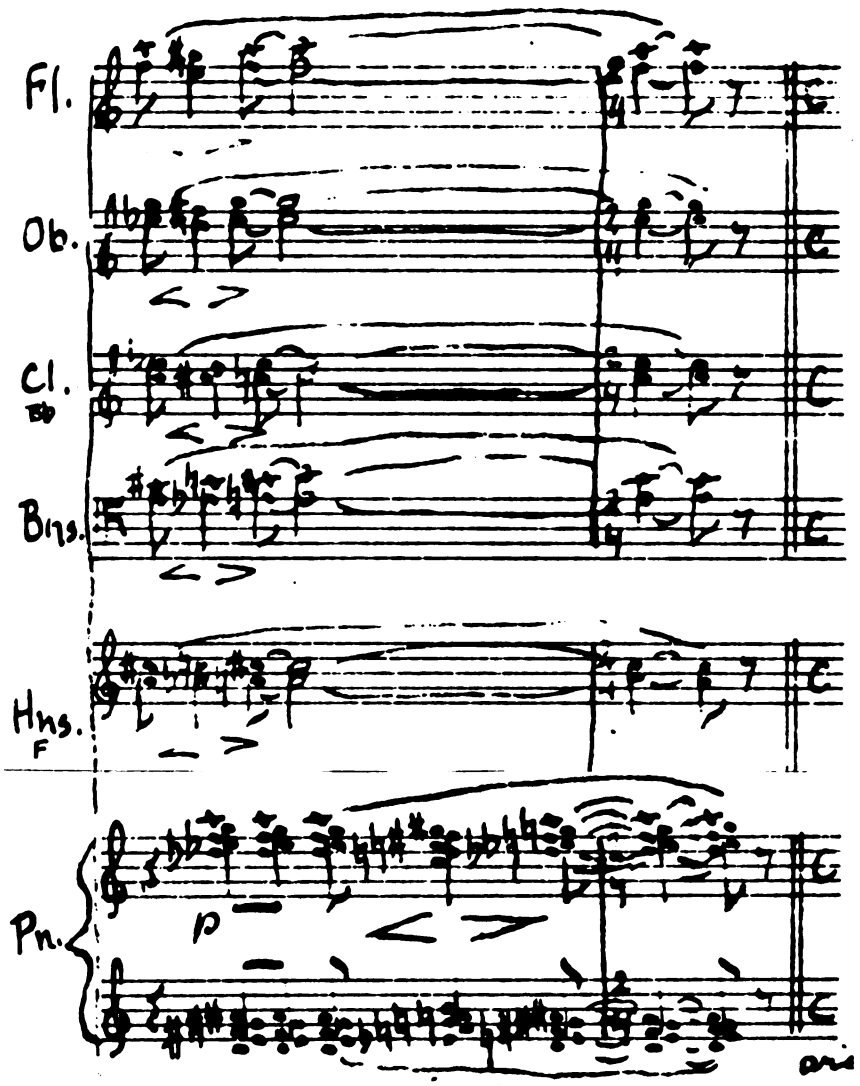
Ex. 163. Variations for Violin, meas. 275-79.

The use of canonic imitation at the beginning of, or within extended contrapuntal passages is a frequent technique. In Example 164, the imitation at a fifth between the brasses and the English horn occurs within a contrapuntal section.

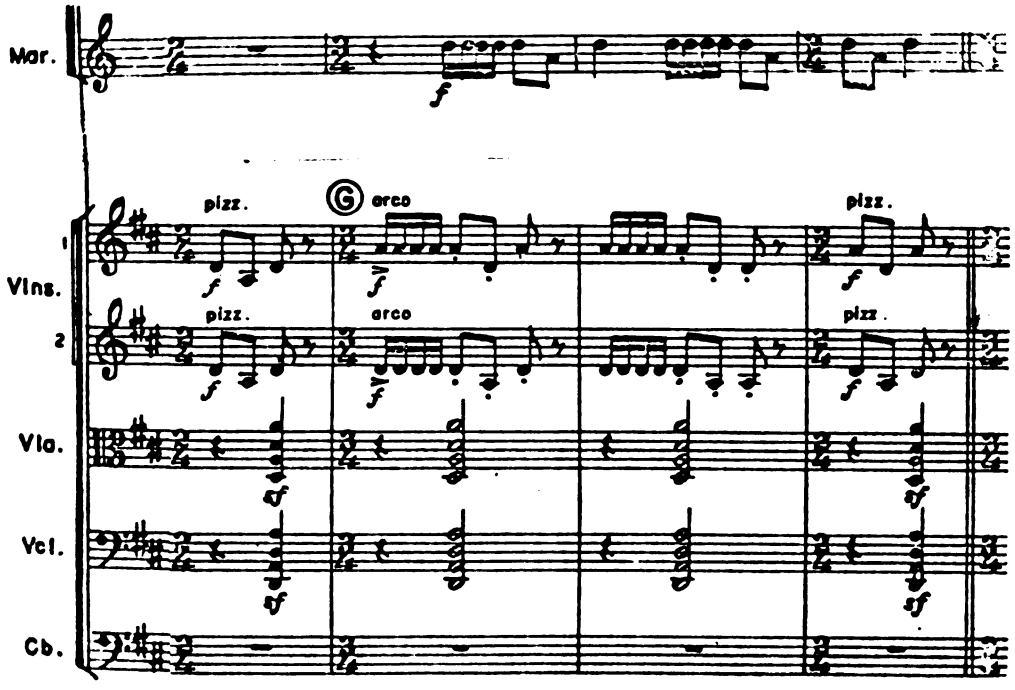
Ex. 164. Symphony No. 4, Mvt. I, meas. 100-03.

A very short, three-part woodwind canon in octaves accompanies the Solo in Example 165.

Ex. 165. Variations for Violin, meas. 130-31.

Occasionally, the imitation in these canonic passages is not direct. Example 126 previously seen on page 108 illustrated imitation in diminution between the contrabassoon and solo violin. Because of the rests added to the violin

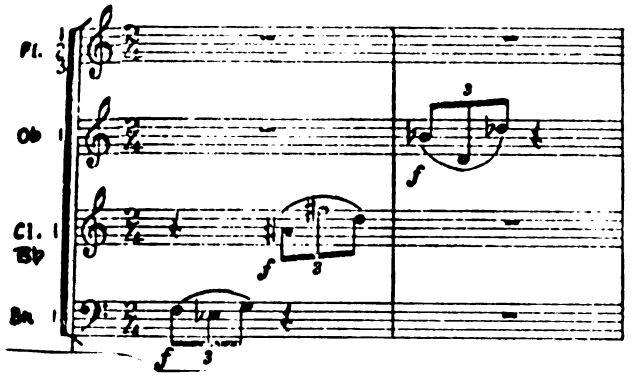
part, the imitation is not strict. The canonic imitation at the end of Variation VI of Variations for Piano is also altered, but the aural impression of an inverted canon is preserved. Both the trumpets and bassoons are doubled in octaves by the strings.

Ex. 166. Variations for Piano, meas. 140-41.

In some of the canonic imitations, the individual lines are doubled melodically. This was the case in Example 80. The melodic doubling in Example 167 results in two streams of parallel clusters used in canonic imitation.

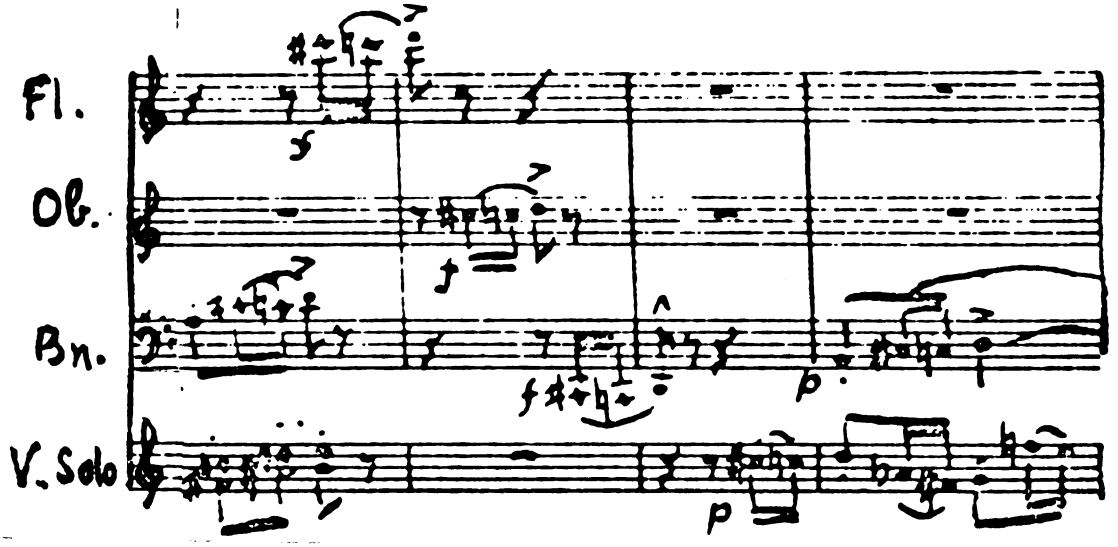
Ex. 167. Variations for Piano, meas. 99-100.

The imitation at a fourth in Example 168 between the violins and marimba, is interesting in that it is the only example of canonic imitation in all of Dance Rhythms.

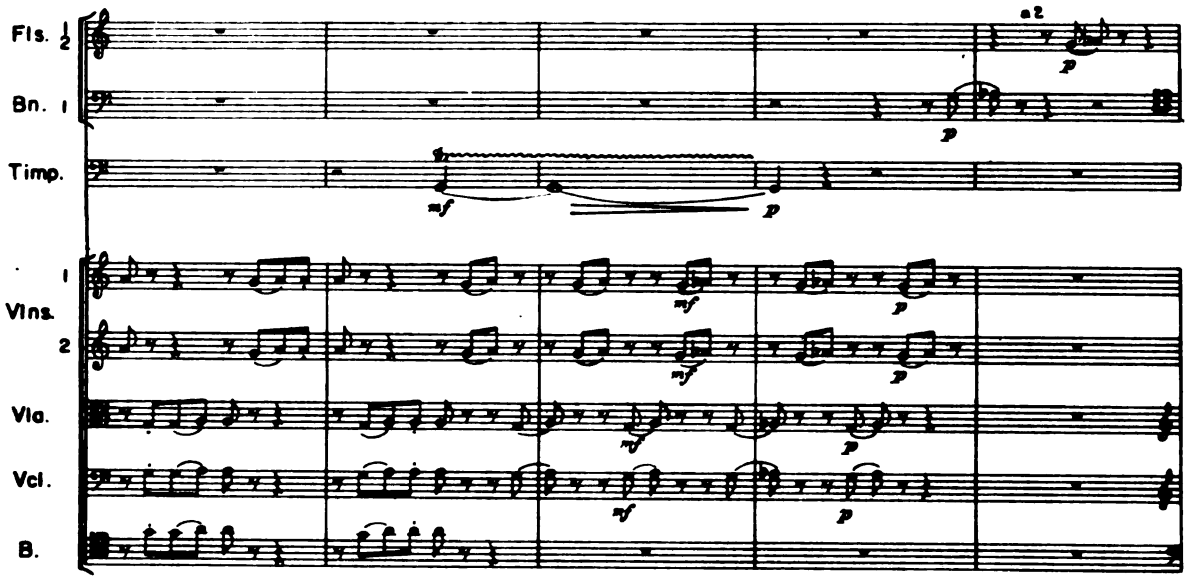
Ex. 168. Dance Rhythms, meas. 38-41.

The portions of these works employing counterpoint contain many instances of very brief imitations of rhythmic figures, especially the triplet pattern. In Example 169, the woodwind triplets serve as a bridge between two contrapuntal sections.

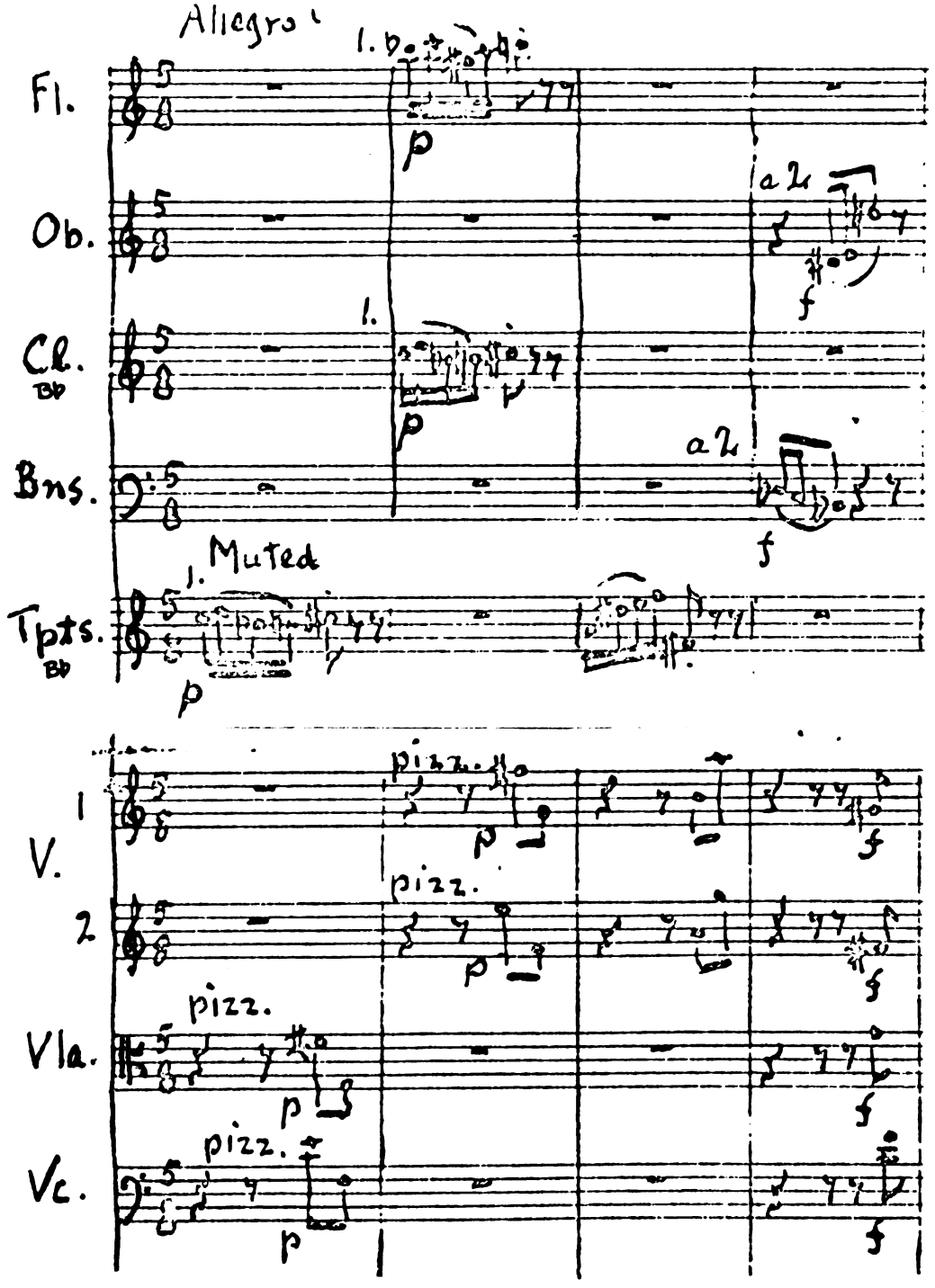
Ex. 169. Music for Orchestra, meas. 181-82.



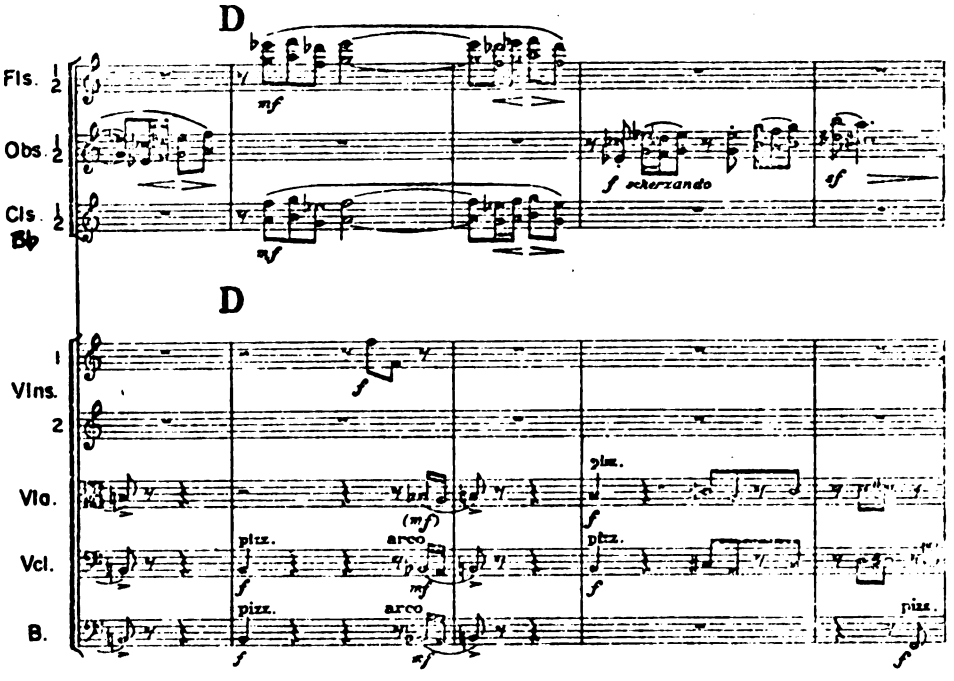
This particular technique seems to be a favorite of the composer. The rapidly changing woodwind timbre produced by imitative triplet figures was seen previously in Variations for Violin in Example 110, and in Variations for Piano in Example 24. A passage in the same character occurs in Example 170, but a different rhythmic figure is employed.

Ex. 170. Variations for Violin, meas. 78-81.

This type of imitation is used in the first movement of the symphony to end a contrapuntal section.

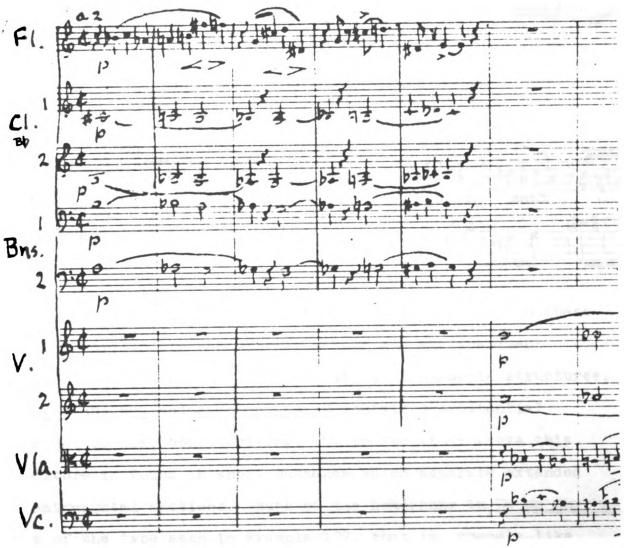
Ex. 171. Symphony No. 4, Mvt. I, meas. 32-36.

The imitating figures between the trumpets and woodwinds are tied together by a punctuating string accompaniment in Example 172.

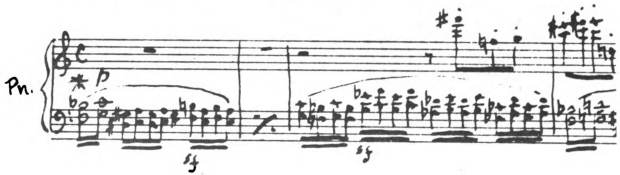
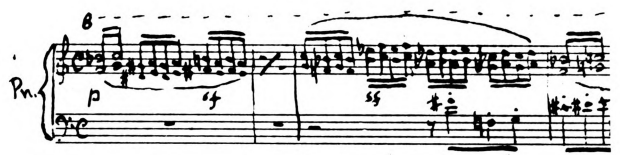
Ex. 172. Variations for Piano, meas. 47-50.

A somewhat more substantial melodic unit doubled in minor sixths by the oboes, is imitated by flutes and clarinets in Example 173.

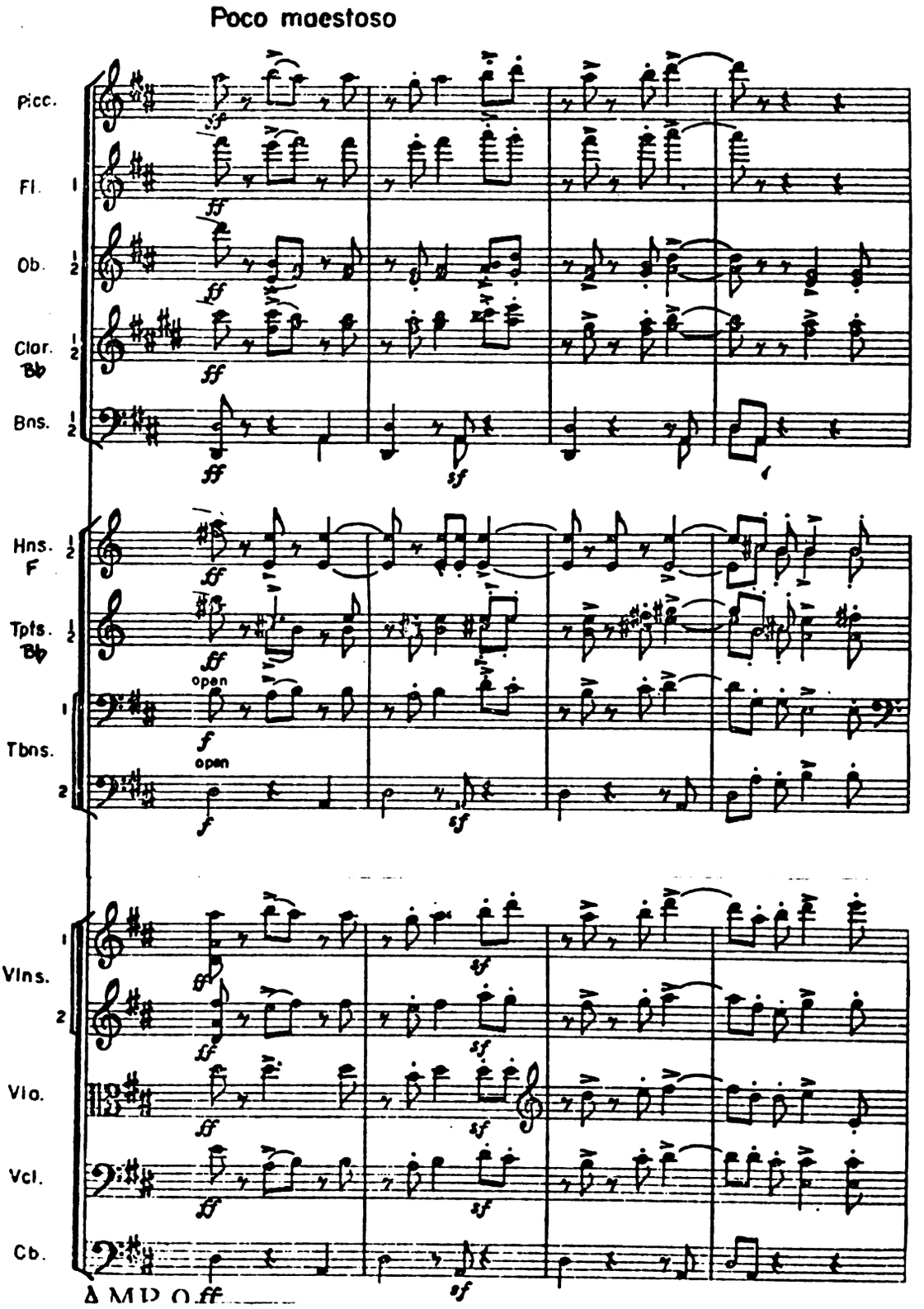
Ex. 173. Symphony No. 4, Mvt. II, meas. 25-29.

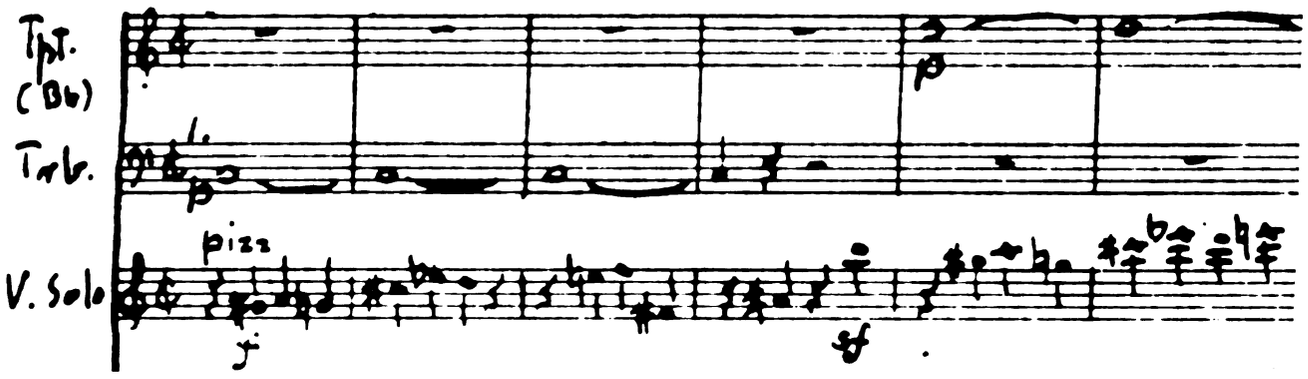


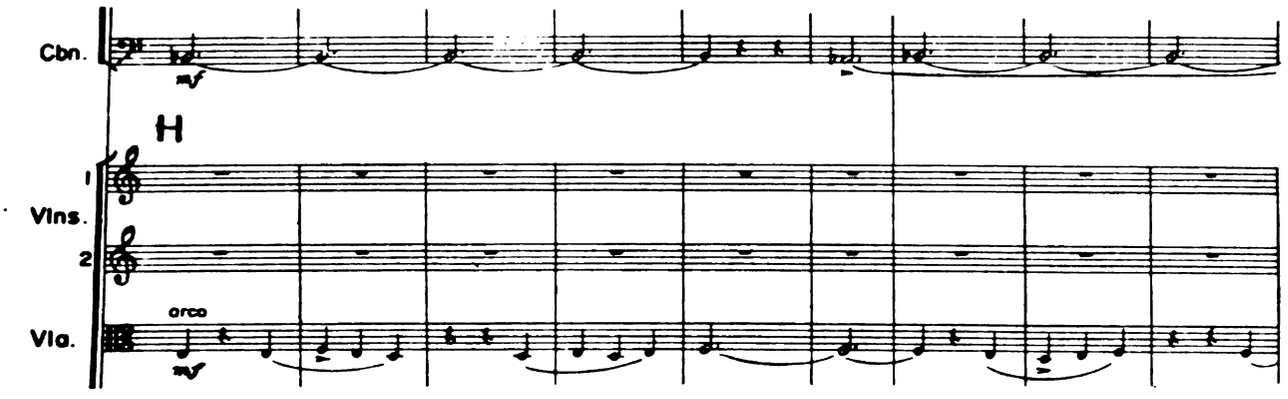
One more contrapuntal device to be discussed is invertible or double counterpoint. This technique appears several times in Variations for Piano, and in fact is used in the very opening measures. The woodwind passage appears inverted with the string passage beginning in measure 6.

Ex. 174. Variations for Piano, meas. 1-7.

The solo piano passage in measure 250-253 is inverted in measures 259-262 after an intervening orchestral passage.

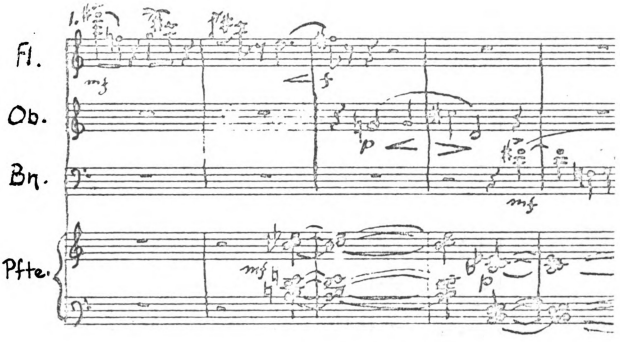
Ex. 175. Variations for Piano, meas. 250-53.

Ex. 176. Variations for Piano, meas. 259-62.

Homophonic Textures. The homophonic textures in these works involve the traditional melody and accompaniment relationships applied to non-traditional harmonic structures. Dance Rhythms and Symphony No. 4 contain a substantial amount of homophonic writing, but in the other works this texture is found in short passages which separate extended contrapuntal sections. Much of the homophony in Dance Rhythms is of the type seen in Example 177, that is, chorale-like harmonization with the harmonic rhythm parallel to the rhythm of the melody.

Ex. 177. Dance Rhythms, meas. 85-88.

The other four works contain a wide variety of accompaniments, the simplest of which may be found in the opening measures of Variations for Violin. The solo violin in this example is supported by a single sustained note.

Ex. 178. Variations for Violin, meas. 1-6.

In a similar example, a sustained contrabassoon note is the accompaniment to the violas in measure 122 of the third movement of the symphony.

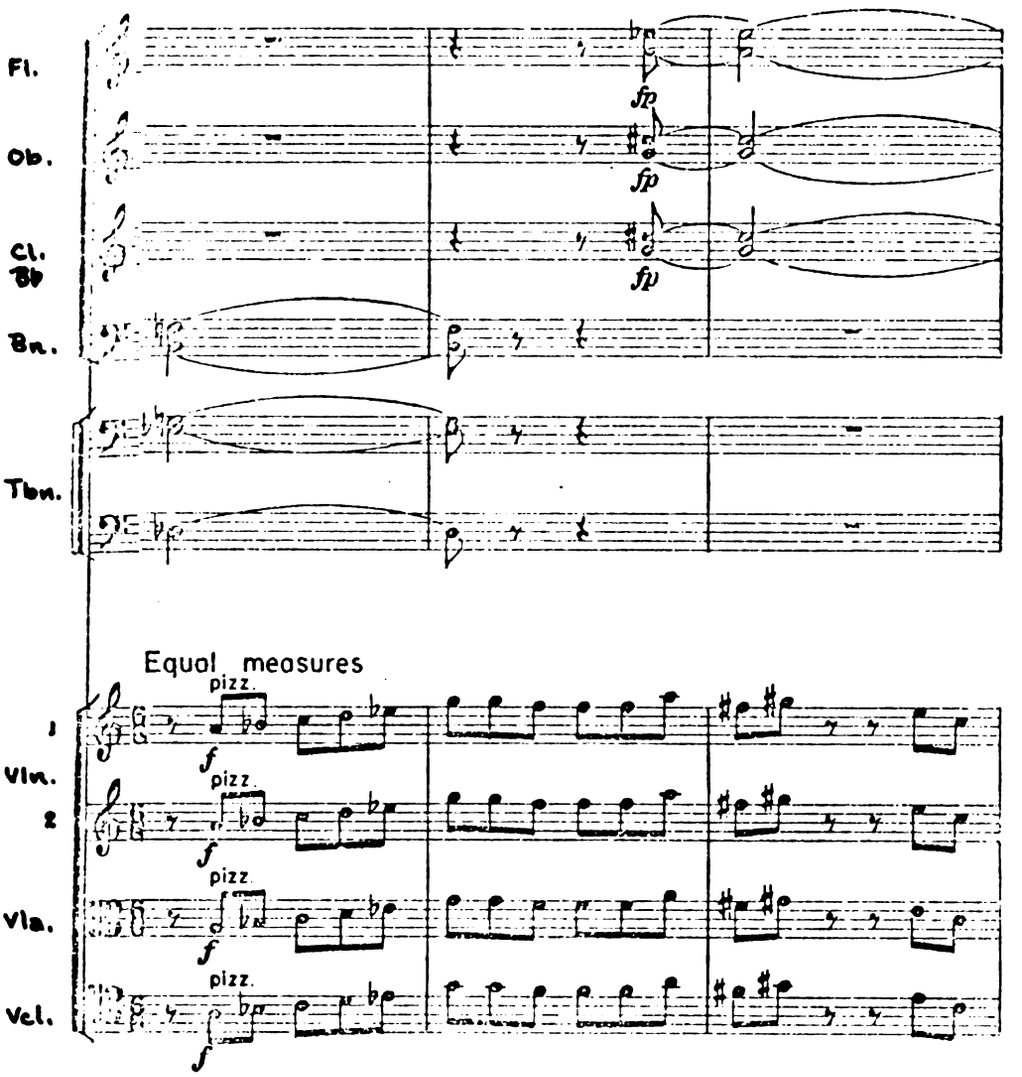
Ex. 179. Symphony No. 4, Mvt. III, meas. 122-30.

The melodic line shared by successive woodwind instruments in Example 180 is accompanied by a sustained piano chord.

Ex. 180. Variations for Piano, meas. 307-11.

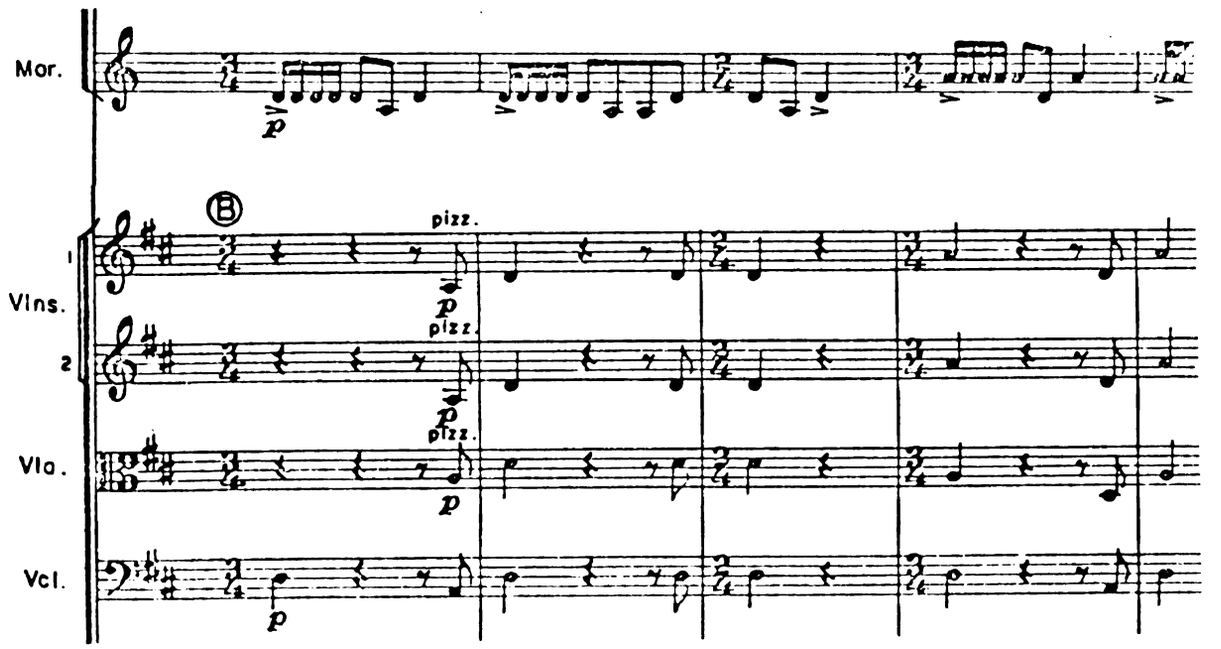


Occasionally, the sustained chord accompaniment includes resister and timbre changes as in Example 181.

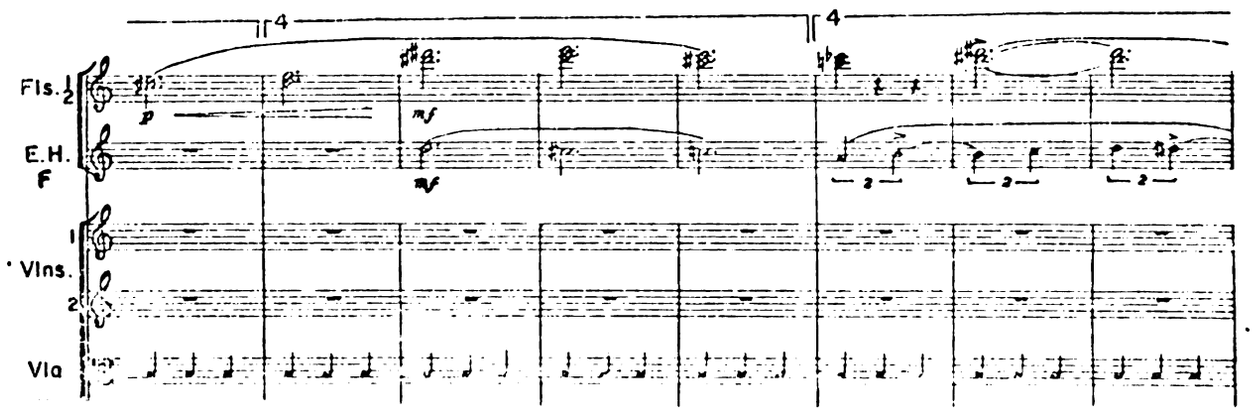
Ex. 181. Music for Orchestra, meas. 206-08.



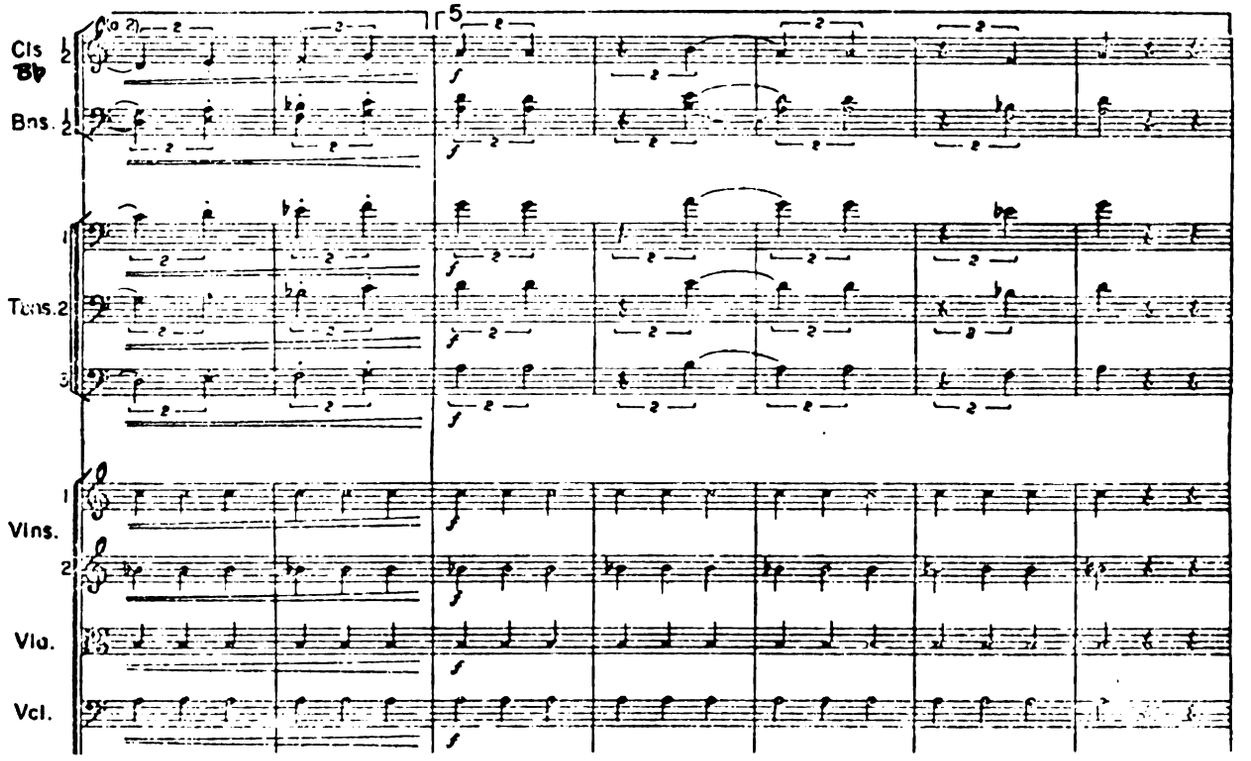
Repeated notes and chords are frequently used as accompaniments. In Example 182, the octaves and fifths of the pizzicato string passage provide the accompaniment to the marimba melody. A regular pulse is established by the

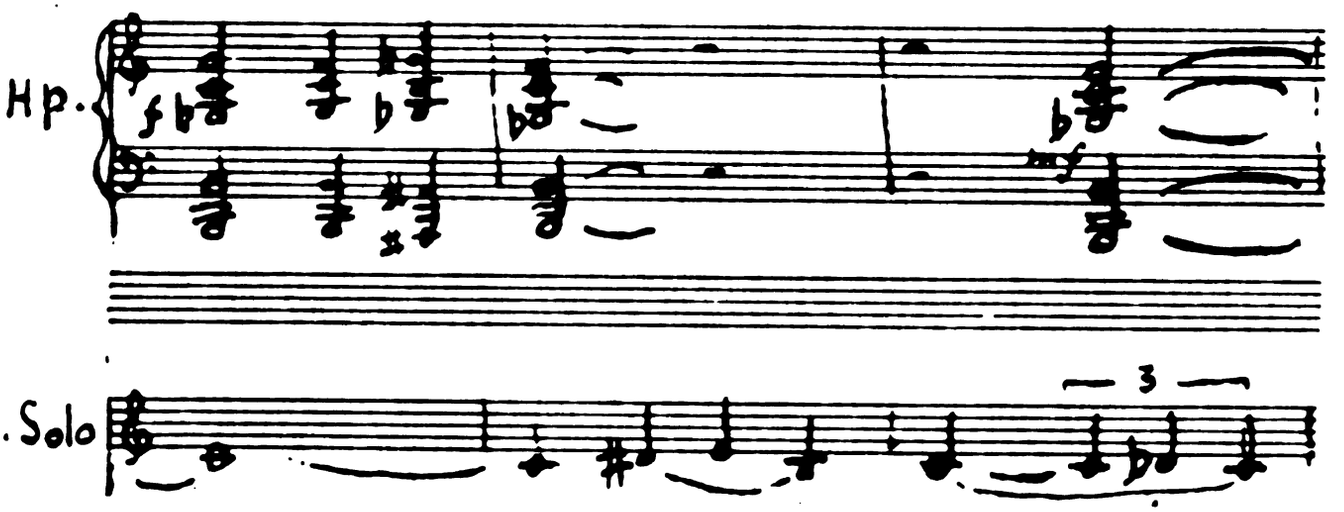
Ex. 182. Dance Rhythms, meas. 12-15.

repeated viola note in Example 183. Later in this passage,

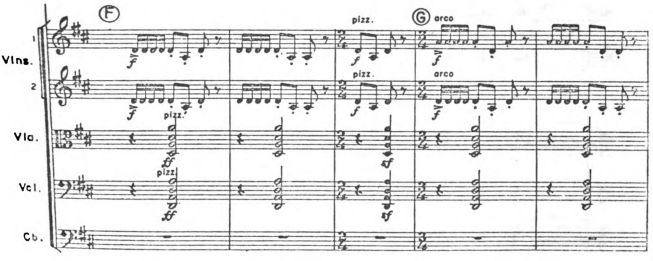
Ex. 183. Symphony No. 4, Mvt. III, meas. 174-81.

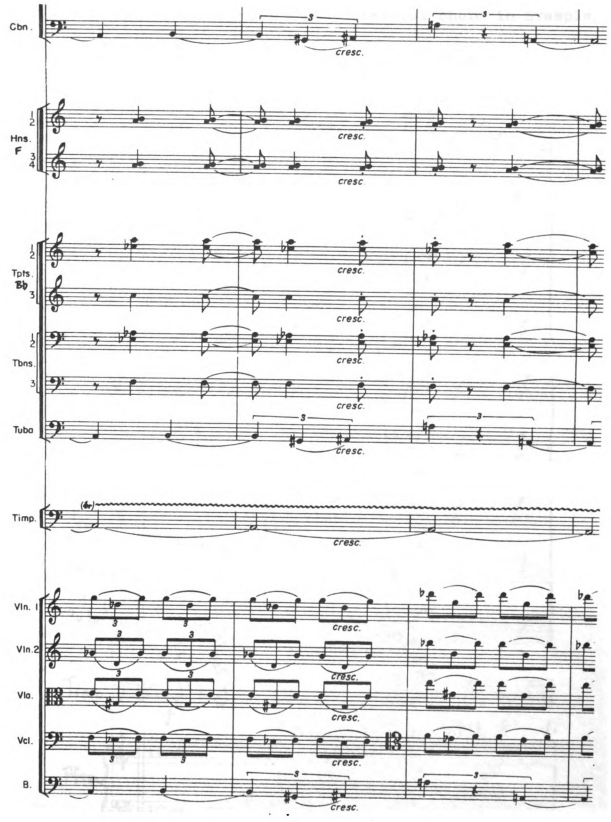


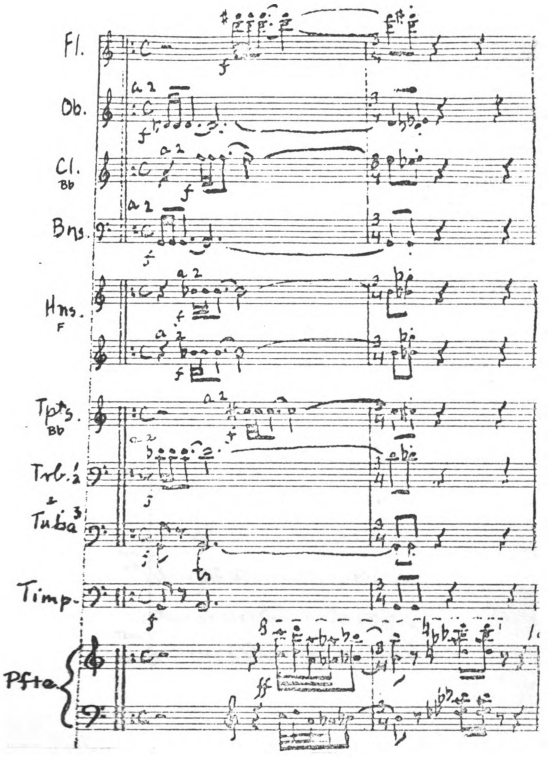
the accompaniment becomes a repeated chord and the melody is doubled to become a parallel stream of quartal chords.

Ex. 184. Symphony No. 4, Mvt. III, meas. 213-19.

Repeated chords in measures 246 to 250 of Variations for Violin are used in a less persistent accompaniment.

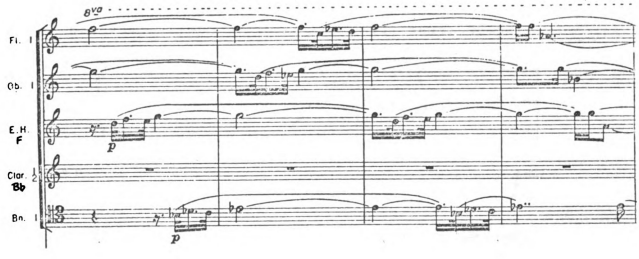
Ex. 185. Variations for Violin, meas. 246-48.

In Example 186, the string chords consistently accent weak beats within the meter.

Ex. 186. Dance Rhythms, meas. 36-40.

A rapid alternation between two chords in the strings is combined with repeated brass chords in syncopation to provide the accompaniment in the passage shown in Example 187.

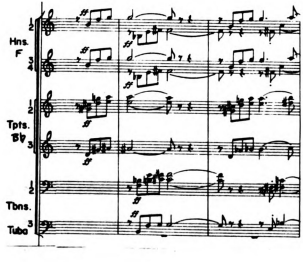
Ex. 187. Music for Orchestra, meas. 187-90.

Chords are occasionally animated, creating tension and lending more interest to the accompaniment. A simple pyramiding effect is used to produce an orchestral chord in Example 188.

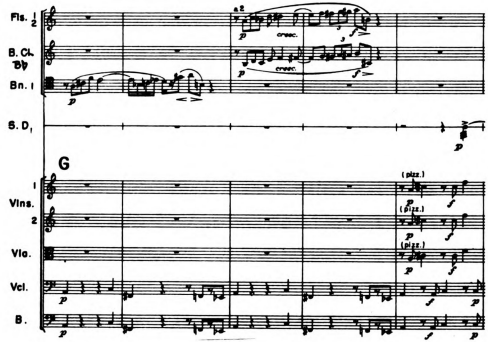
Ex. 188. Variations for Piano, meas. 287-88.

Imitation of a distinctive rhythmic figure animates the woodwind chord in Example 189, and in a more complicated

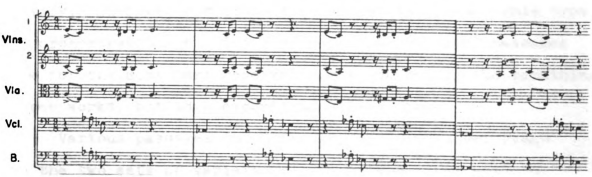
Ex. 189. Music for Orchestra, meas. 90-93.



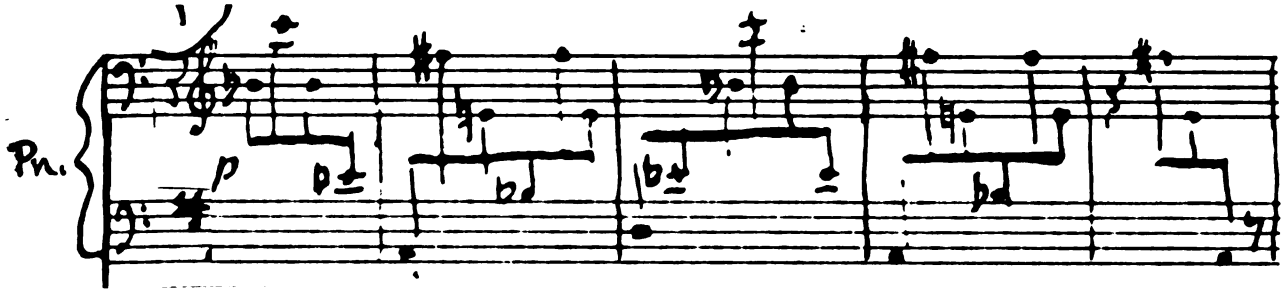
situation, the alternating brass chords of Example 190 also involve this technique.

Ex. 190. Symphony No. 4, Mvt. I, meas. 190-92.

An ostinato used in Symphony No. 4 to accompany a woodwind melody is seen in Example 191. Although the harmonic implications of the device are not traditional, the effect of an ostinato is achieved by the rhythm.

Ex. 191. Symphony No. 4, Mvt. II, meas. 48-52.

A further example of this technique occurs later in the second movement where the B theme of the movement is accompanied by an ostinato.

Ex. 192. Symphony No. 4, Mvt. II, meas. 100-04.

These two examples are long enough to show only the basic ostinato pattern, but in each case the pattern is used for an extended passage.

One more very distinctive traditional pattern remains to be discussed. Variation XII of Variations for Piano contains a continuous accompaniment resembling Alberti Bass. Again, this example shows only a small segment of a substantial passage in which this technique is used.

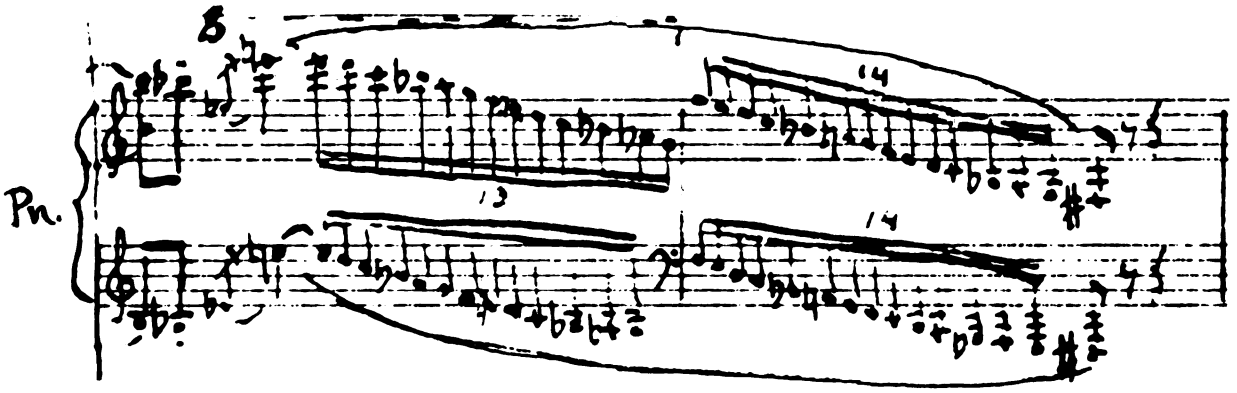
Ex. 193. Variations for Piano, meas. 343-47.

Solo Passages. The solo and exposed passages in these works are representative of the over-all melodic writing. Of interest here, are the instruments which are given these passages, as well as the nature of the passages.

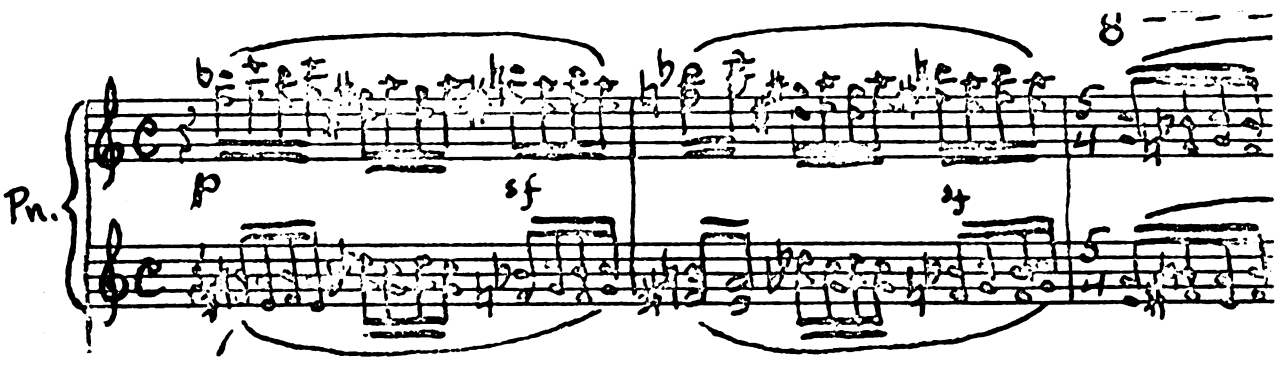
Symphony No. 4, of all the works, has solo and exposed passages for the greatest variety of instruments in each family. In Music for Orchestra on the other hand, this type of orchestration is quite rare. Solo and exposed passages are for the most part reserved for woodwinds in the remaining three works, but some exceptions will be seen.

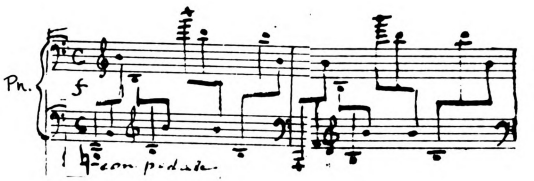
Various passages for both the solo violin and piano in the two sets of variations have already been used to

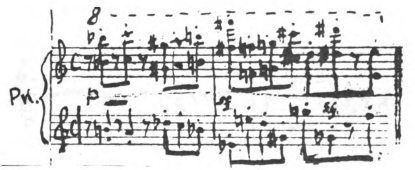
illustrate other aspects of the music. These solo parts are idiomatic in each case, and both are technically demanding.

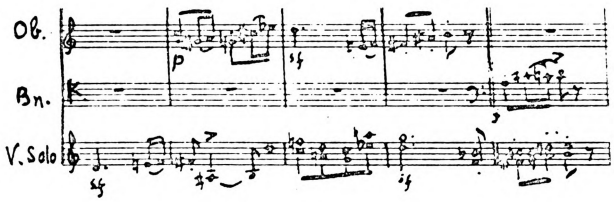
Some of the demanding piano passages include the rapid lines in measure 135; the parallel fourths in both hands

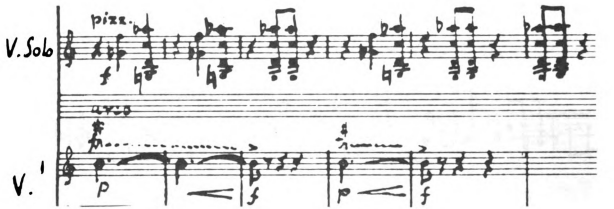
Ex. 194. Variations for Piano, meas. 135-36.

in measure 273; and in measure 418, the highly disjunct

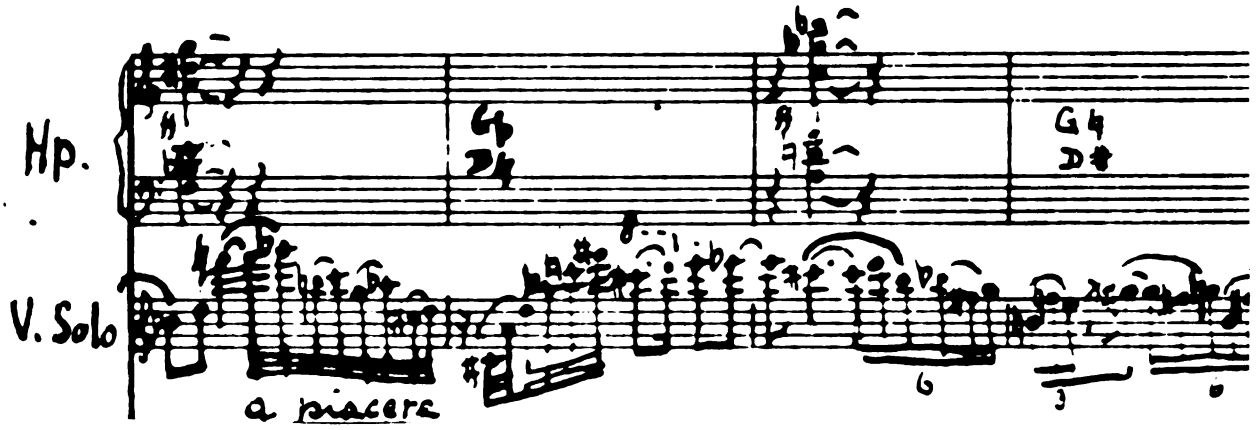
Ex. 195. Variations for Piano, meas. 273-75.

passage.

Ex. 196. Variations for Piano, meas. 418-19.

The piano is employed not only as a solo instrument, but as an orchestral instrument as well. In measure 82, the piano imitates the texture of the entire string section.

Ex. 197. Variations for Piano, meas. 82-83.

The solo violin part involves string harmonics,

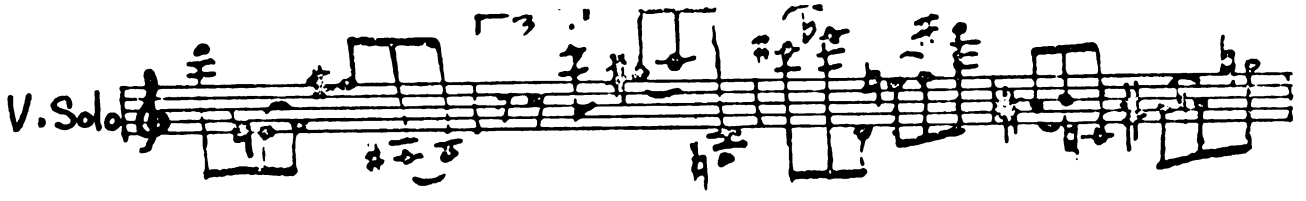
Ex. 198. Variations for Violin, meas. 74-78.

multiple stops, and many very rapid passages such as

Ex. 199. Variations for Violin, meas. 299-304.

the one in Example 200. In measure 119, rests are added

Ex. 200. Variations for Violin, meas. 156-59.

to further complicate a very rapid passage. An example of

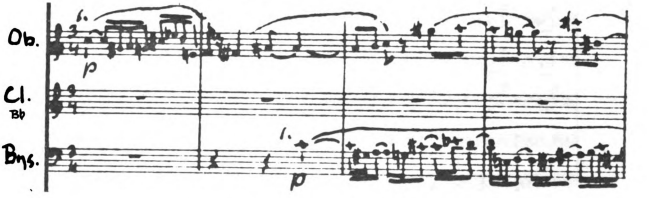
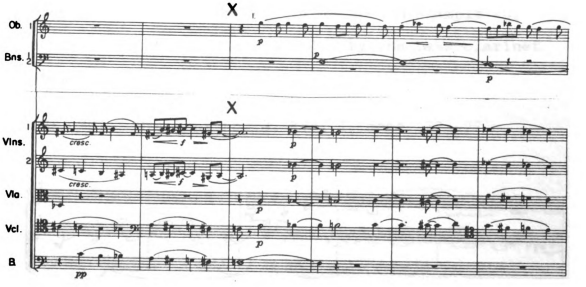
Ex. 201. Variations for Violin, meas. 119-20.

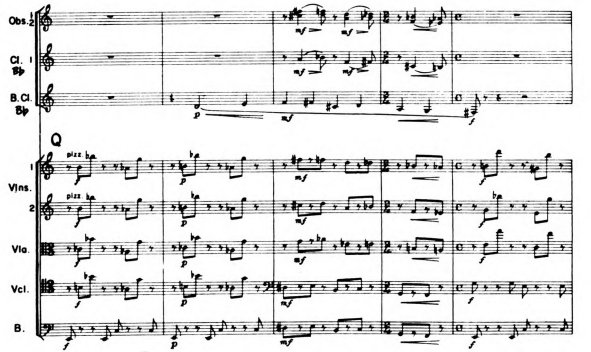
a disjunct line for the solo violin is found in measure 345.

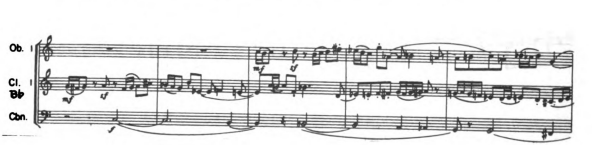
Ex. 202. Variations for Violin, meas. 348-51.

The following examples are representative of Riegger's treatment of individual instruments in solo or otherwise exposed situations. The woodwinds are most frequently given these passages.

Many of these passages are predominantely conjunct and quite lyrical.

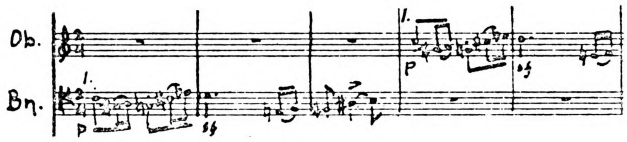
Ex. 203. Music for Orchestra, meas. 1-5.

Ex. 204. Variations for Violin, meas. 113-16.

Ex. 205. Symphony No. 4, Mvt. I, meas. 211-16.

The bass clarinet passage in Example 206 is a rare case of that instrument being used in a light orchestration.

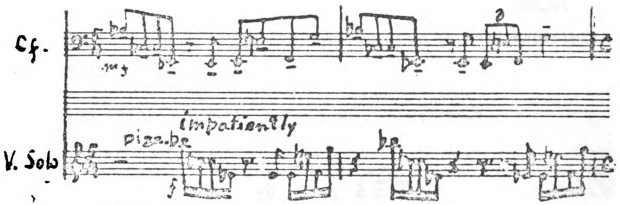
Ex. 206. Symphony No. 4, Mvt. II, meas. 137-41.

The appearance of the contrabassoon in Example 207 is unusual in that it is not doubled by the bass clarinet or tuba.

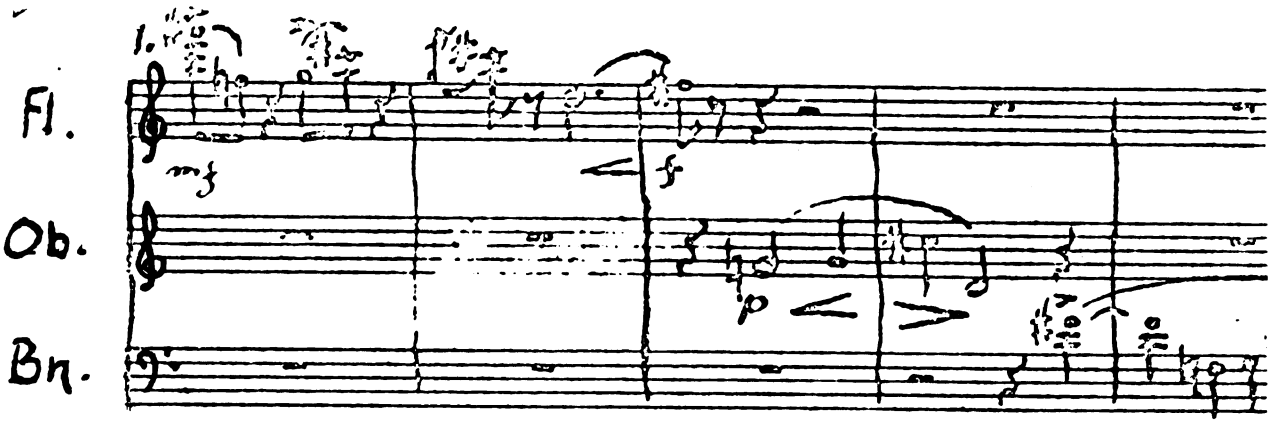
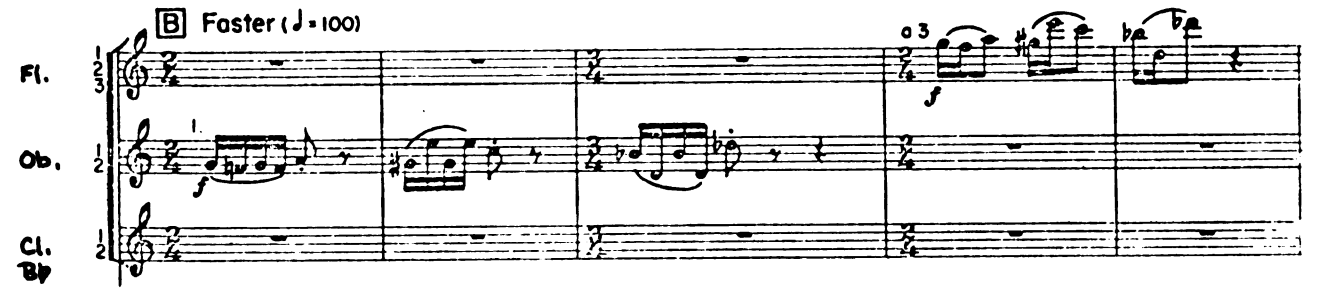
Ex. 207. Symphony No. 4, Mvt. I, meas. 273-77.

The clarinet and oboe lines in the previous example are more separated and less lyrical than the examples have been to this point. They are in fact closer to the nature of the woodwind lines in Variations for Violin.

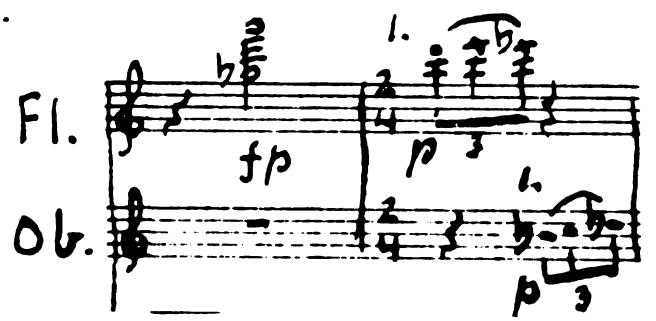
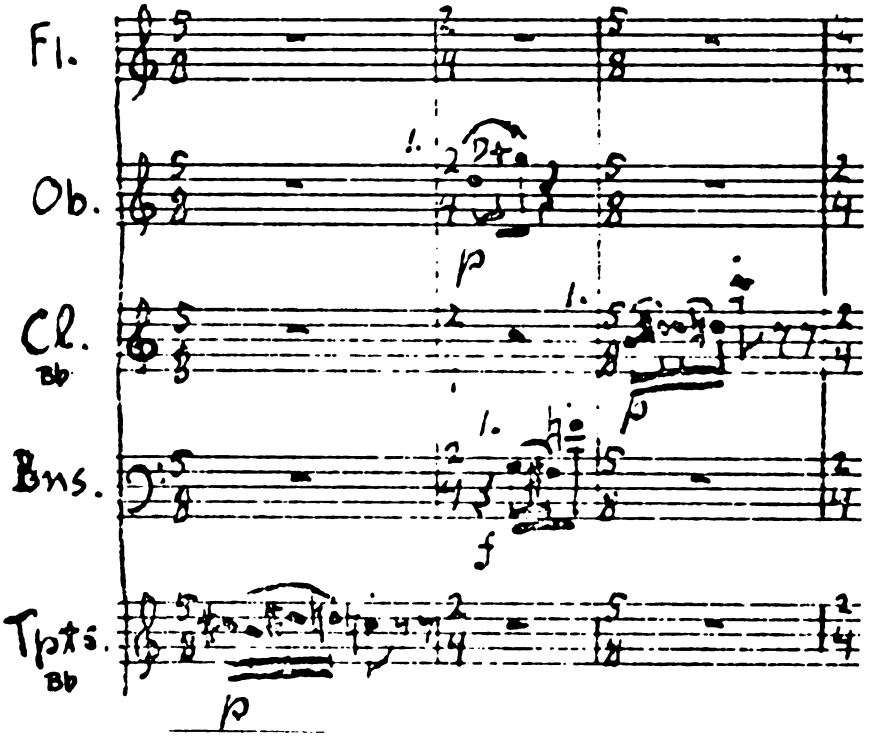
Ex. 208. Variations for Violin, meas. 66-70.

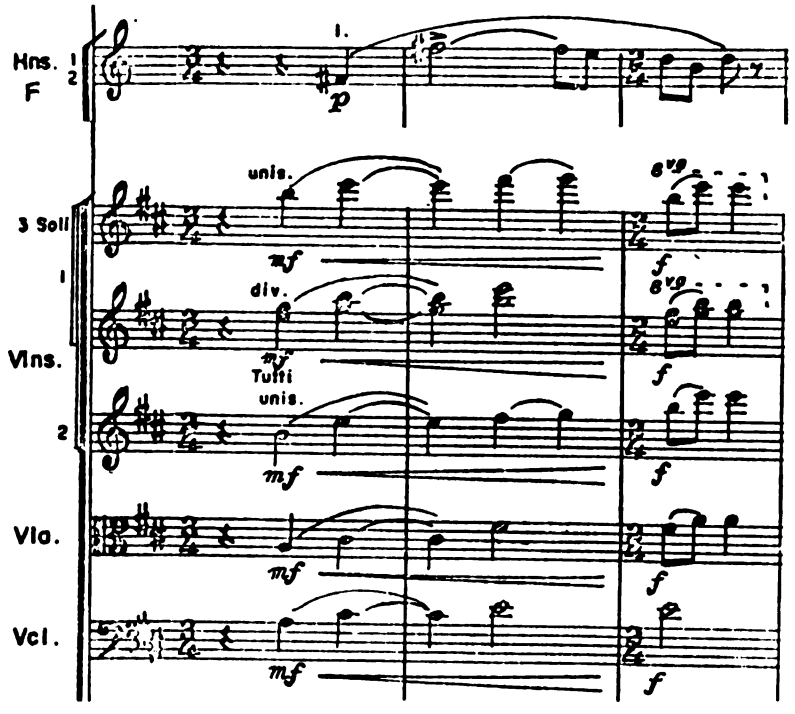


The contrabassoon line is not only separated, but quite disjunct in Example 209.

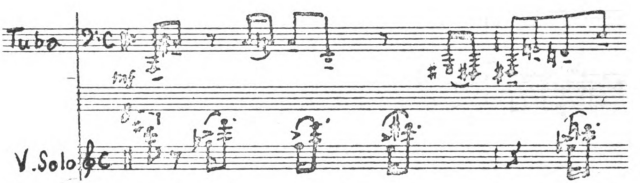
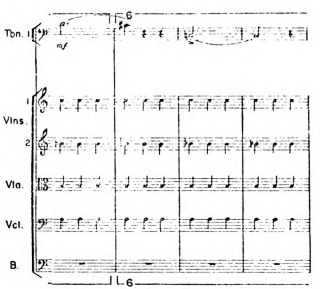
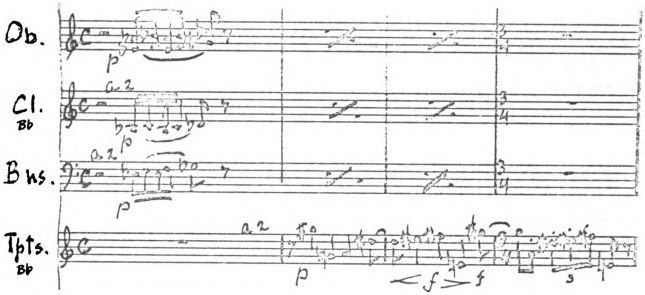
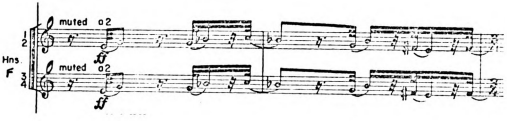
Ex. 209. Variations for Violin, meas. 134-35.

The woodwind lines in the piano variations and Music for Orchestra tend to be lyrical, but predominantely disjunct in melodic motion. Many of the solo passages for

Ex. 210. Variations for Piano, meas. 307-11.

Ex. 211. Music for Orchestra, meas. 20-24.

woodwinds are very brief, providing rapid timbre changes in the over-all sonority. This technique is used especially in Variations for Piano.

Ex. 212. Variations for Piano, meas. 35-36.

Ex. 213. Variations for Piano, meas. 52-54.

The lyrical brass passages are usually reserved for the French horn; the more separated and disjunct passages

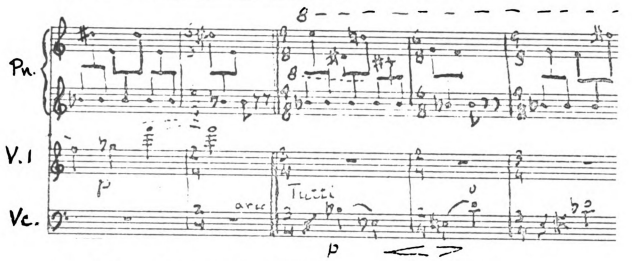
Ex. 214. Dance Rhythms, meas. 55-57.

Ex. 215. Music for Orchestra, meas. 133-36.

being scored for the rest of the brasses.

Ex. 216. Variations for Violin, meas. 138-40.

Ex. 217. Symphony No. 4, Mvt. III, meas. 194-97.

Ex. 218. Variations for Piano, meas. 264-67.

Ex. 219. Music for Orchestra, meas. 62-63.

The passage for horns in Example 219, the fugue subject, appears as a solo for tuba later in the work. Trumpets are occasionally used in very brief solo passages as was seen in Example 213.

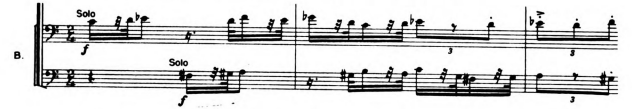
The lyrical string passages tend to be disjunct,

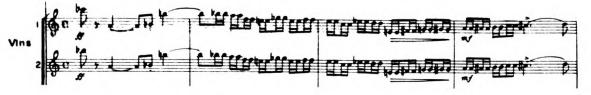
Ex. 220. Variations for Piano, meas. 188-92.



Ex. 221. Variations for Violin, meas. 251-55.

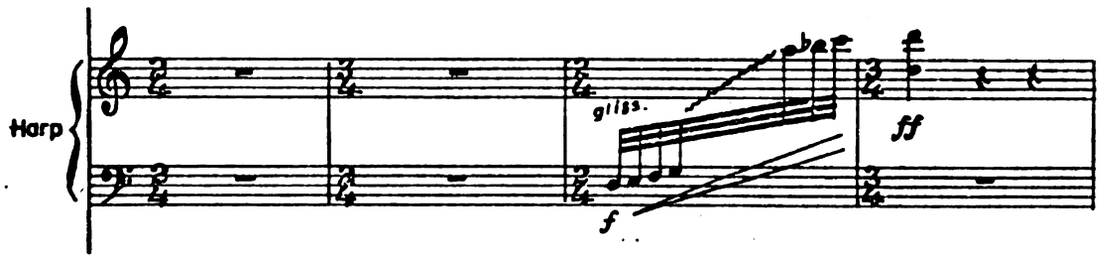
while the conjunct string passages are often separated and have greater rhythmic drive.

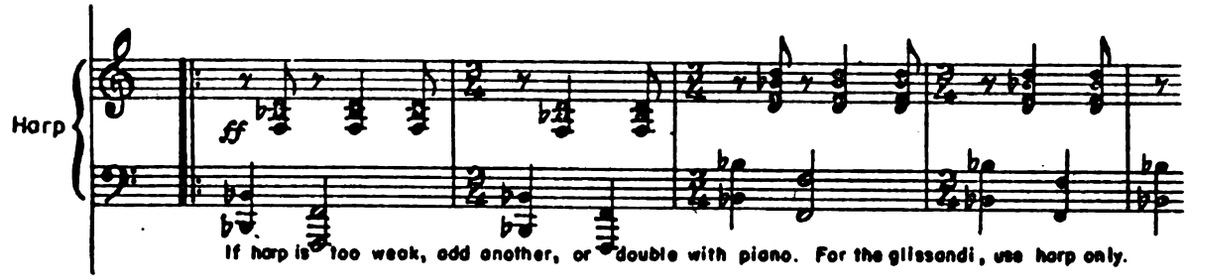
Ex. 222. Music for Orchestra, meas. 238-40.

Ex. 223. Symphony No. 4, Mvt. III, meas. 758-61.

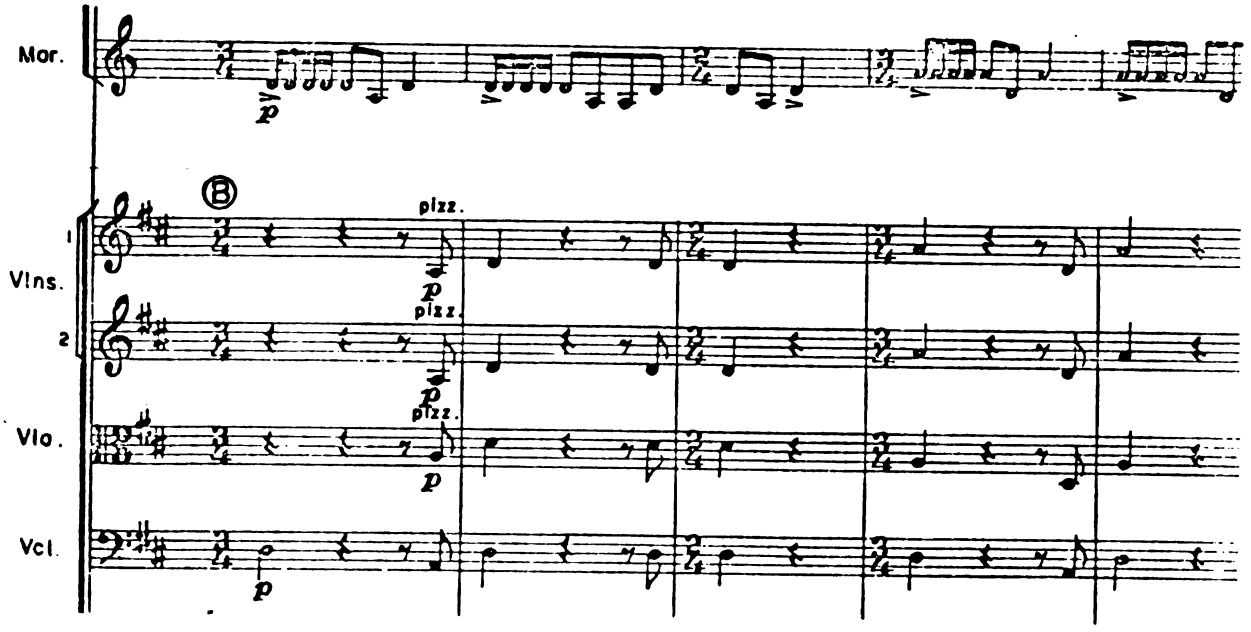


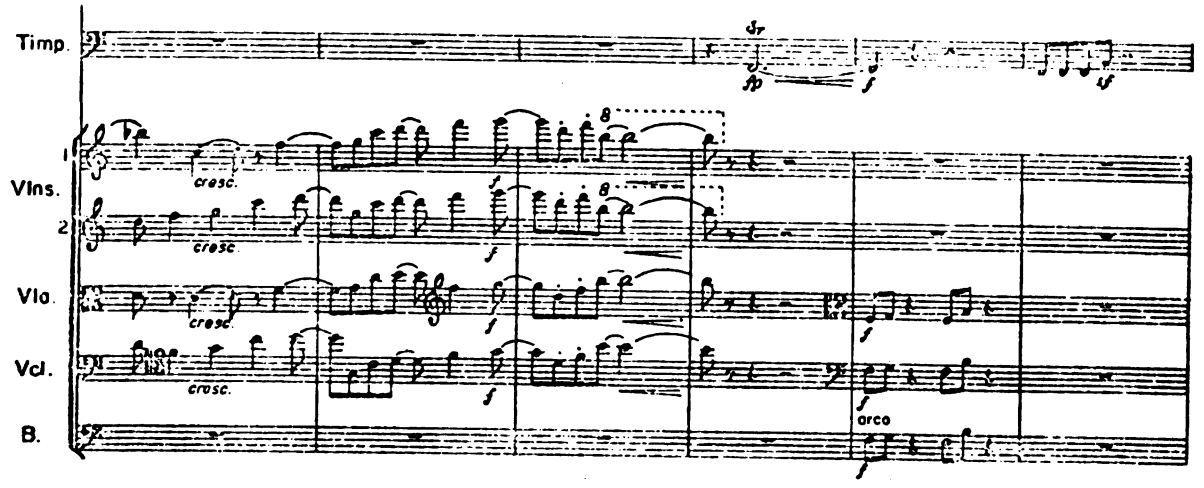
Extended solo passages of repeated notes for strings have been seen occurring in the last movement of the symphony.

The harp in Dance Rhythms is often employed in solo and other exposed situations. The glissando in measure 102 occurs alone in the texture, and the harp passage in

Ex. 224. Dance Rhythms, meas. 100-03.

Example 225 functions as an ostinato which appears as a unifying device throughout this section of the work.

Ex. 225. Dance Rhythms, meas. 94-98.

The marimba plays an important role in Dance Rhythms where its timbre is exploited in solo passages.

Ex. 226. Dance Rhythms, meas. 12-16.

Although the timpani is used in all the works, it is consistently employed in especially exposed situations in Movement I of Symphony No. 4.

Ex. 227. Symphony No. 4, Mvt. I, meas. 267-72.

Melodic Motion. The results of a survey of the melodic motion of each instrument in each of the five works is recorded in Table 5 on page 251. Dance Rhythms and Music for Orchestra contain the most conjunct melodic writing, the smoothest melodic lines. Disjunct lines are very much a feature of the piano variations, and sustained notes play an important role in the individual lines in Variations for Violin.

Each work contains distinctive melodic characteristics in a different area. Sustained notes for woodwind and strings are a prominent feature of the symphony, especially in the third movement. In Dance Rhythms, the contrast between conjunct woodwind lines and disjunct string lines is a noticeable melodic characteristic. The most conjunct melodic writing for brass and the lower strings occurs in Music for Orchestra, and the most disjunct brass and woodwind lines appear in Variations for Piano. The notable melodic features of the violin variations are the highly conjunct violin and viola parts and the sustained brass notes, both providing contrast with the highly disjunct solo violin.

CHAPTER VIII

ORCHESTRATION

Instrumentation of Each Work. The instrumentation requirements of each of these works can easily be met by any symphony orchestra. Besides the normal complement of strings, the woodwind, brass and percussion requirements are traditional.

Flutes, oboes, clarinets, bassoons and a piccolo are employed in each work. These instruments are used in pairs, except for Symphony No. 4 which calls for three flutes and three clarinets, and Music for Orchestra which is also scored for three flutes. In addition to this basic woodwind section, the symphony and Music for Orchestra are scored for English horn. These same two works, plus the violin variations require a contrabassoon. A bass clarinet is needed only in Symphony No. 4, and is played by the third clarinetist.

The only exception to the normal brass requirement of horns, trumpets, trombones and a tuba is in Dance Rhythms which is not scored for tuba. Four horns and three trombones are standard, again with the exception of Dance Rhythms which calls for only two of each of these brasses. Three trumpets are used in Symphony No. 4 and Music for Orchestra, and two in the other works.

The percussion instruments common to each of these works are timpani, snare drum, cymbals, and bass drum.

In addition to these, a xylophone is used in the symphony and the piano variations, a tam-tam in Symphony No. 4, and a marimba and glockenspiel are required in Dance Rhythms. The violin variations and Dance Rhythms are scored for a harp. The only use of a piano is that of the solo instrument in Variations for Piano.

A comparison of the instrumentation of each work reveals that the symphony and Music for Orchestra use the largest orchestra in terms of numbers of woodwind and brass instruments. Dance Rhythms requires the smallest orchestra, especially in its use of only six brass instruments, but employs the greatest variety of percussion instruments.

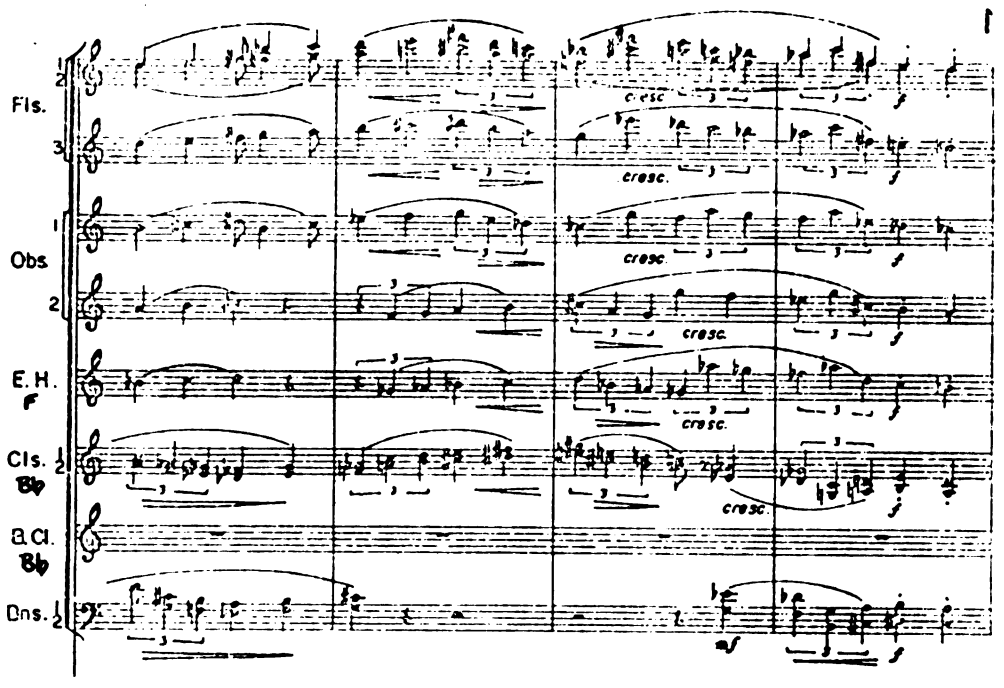
Table 6 on page 254 lists the percentage of each work in which each instrument is used. From this it is readily seen that the cello is the most frequently used of all instruments, except in the piano variations where the use of all the strings is more closely balanced. The woodwind instrument most frequently part of the texture in the symphony and Dance Rhythms is the clarinet, and in Music for Orchestra it is the flute. The two sets of variations are scored with an almost equal balance of woodwinds, excepting the piccolo and contrabassoon. The use of the brasses is proportionately balanced in each of the works, with the tuba being the least used in each case. The use of percussion instruments, in terms of frequency of appearance, is not significant in any of the works but Dance Rhythms.

Ranges. The range of each instrument in all of these works is given in Table 7 on page 255. Generally, the ranges are not extreme and often do not include the highest and lowest possible pitches of the instruments. The widest oboe range appears in Variations for Piano, and this same work makes use of the widest trombone range. The widest range scored for the contrabassoon is in both Music for Orchestra and the symphony. Three octaves plus a major sixth is the widest range for any instrument, and it appears in the solo violin in Variations for Violin. The extreme ranges for all of the rest of the instruments appear in Symphony No. 4, as do most of the highest pitches written for each instrument. String harmonics are scored only for the first violin, cellos and the solo violin in Variations for Violin.

Instrument Groupings. The possibilities of different combinations of instruments, with varying numbers in each family is practically infinite. Table 8 on page 260 shows the percentage of each work which is scored for the various instrumental combinations. Pertinent generalizations concerning the orchestration of each work can be drawn from these statistics.

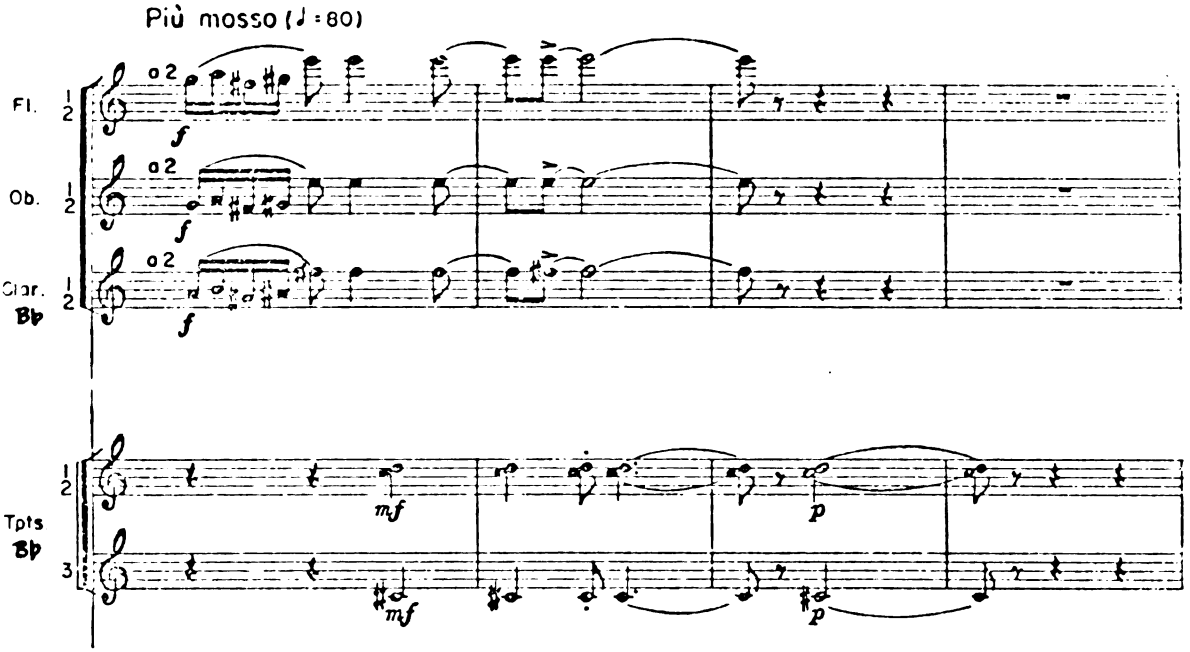
Symphony No. 4: The predominant orchestration in the symphony is strings and woodwinds, especially in contrapuntal passages; and strings, woodwinds and brasses, important in homophonic sections. Passages in which only strings are employed are found in all of the textures.

Of the various other orchestrations comprising 40% of the work, woodwinds alone in the texture is the most important. These passages are usually five or six measures in length, and as is seen in Example 228, they often involve parallelism.

Ex. 228. Symphony No. 4, Mvt. I, meas. 110-13.

Music for Orchestra: Combinations of strings and woodwinds, and strings, woodwinds and brasses are the basis of the orchestration of this work as they were for the symphony. These groups are used for about 50% of the work, mostly in contrapuntal sections.

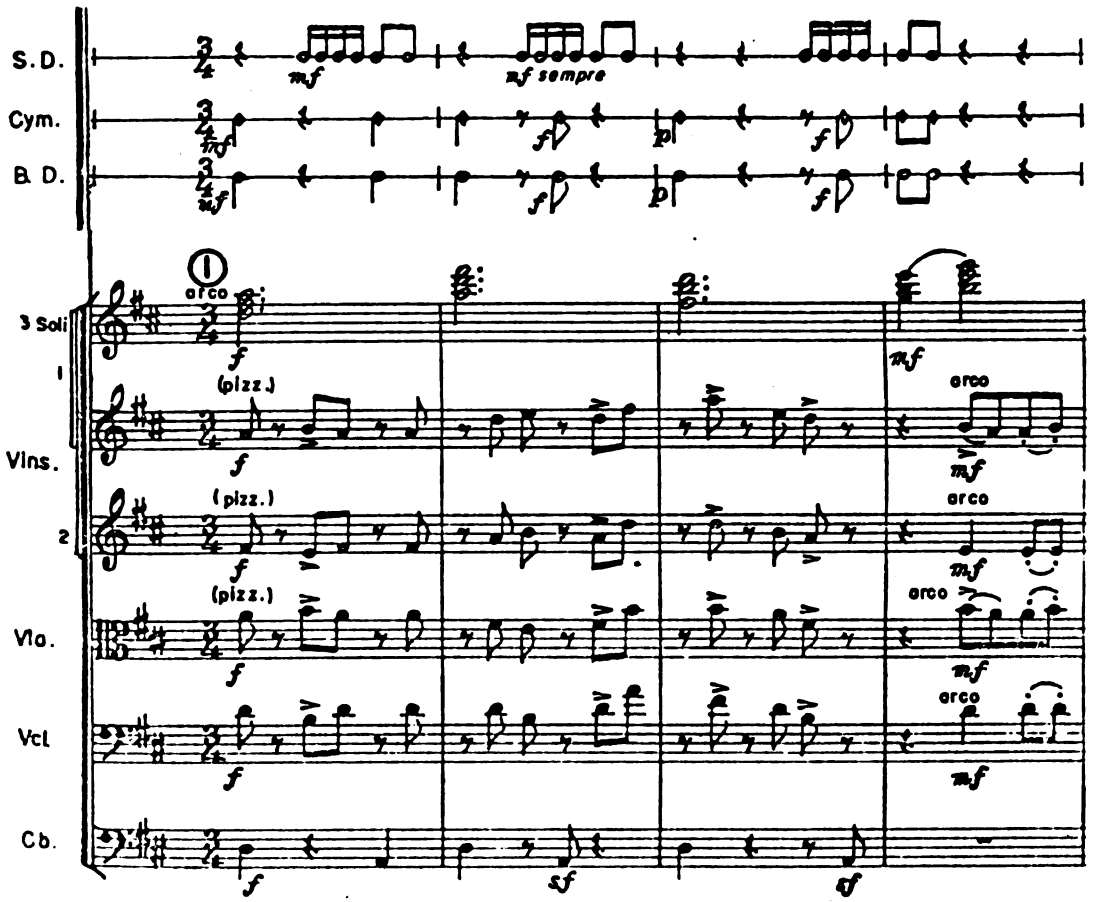
The high percentage of scoring for woodwinds and brasses, relative to the other works, is a notable feature of the orchestration. The material of Example 229 returns several times with varying woodwind and brass instrumentations.

Ex. 229. Music for Orchestra, meas. 7-10.



Dance Rhythms: The most frequent single instrumentation in Dance Rhythms involves members from each family of instruments, including percussion, most often in a homophonic texture. A large portion of these passages are for tutti orchestra.

The use of some of the other groupings makes the orchestration of this work somewhat unique. The percentage of the work scored for strings and percussion is relatively high.

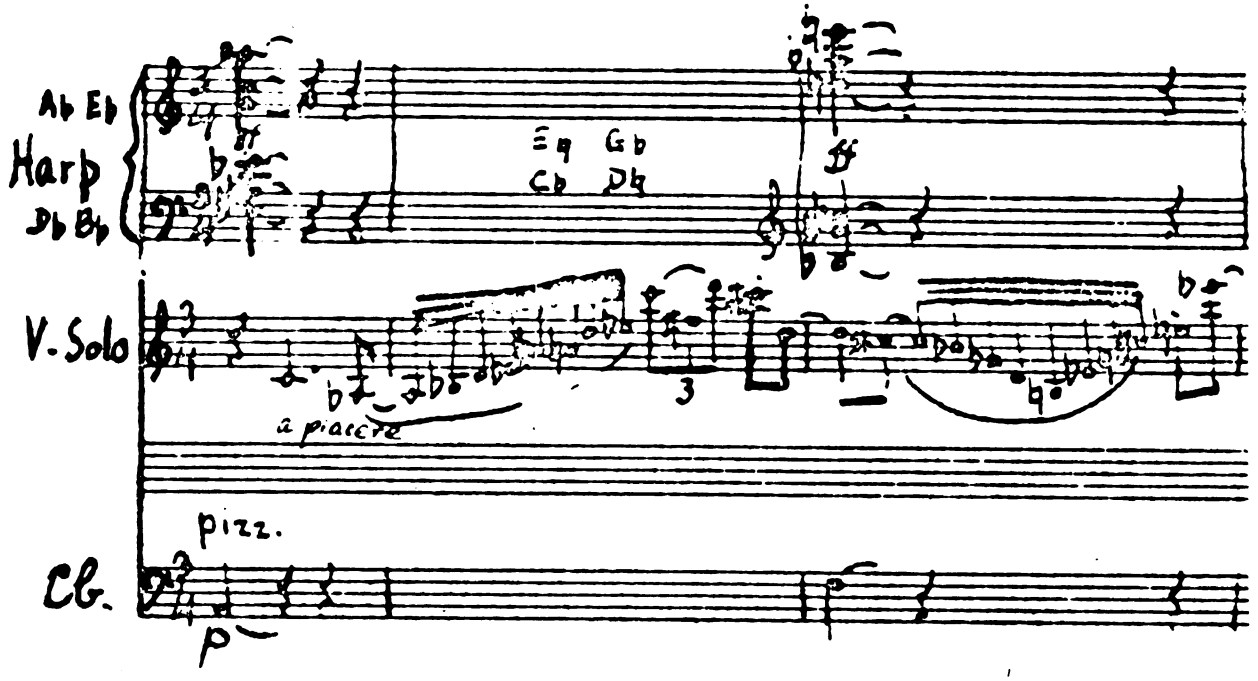
Ex. 230. Dance Rhythms, meas. 47-50.

The various combinations which include the harp also make the orchestration unique, especially since the harp appears in only one of the other works, Variations for Violin. Example 225, seen on page 178, ends with a short passage for solo harp. This instrument is also frequently used in an accompanying role.

Variations for Violin: Almost half of this work is scored for Solo and strings, and Solo with strings and woodwinds. The latter of these two groupings is especially important in the contrapuntal sections, while the first is used equally in homophonic and contrapuntal sections.

A unique instrumentation is found in the combination

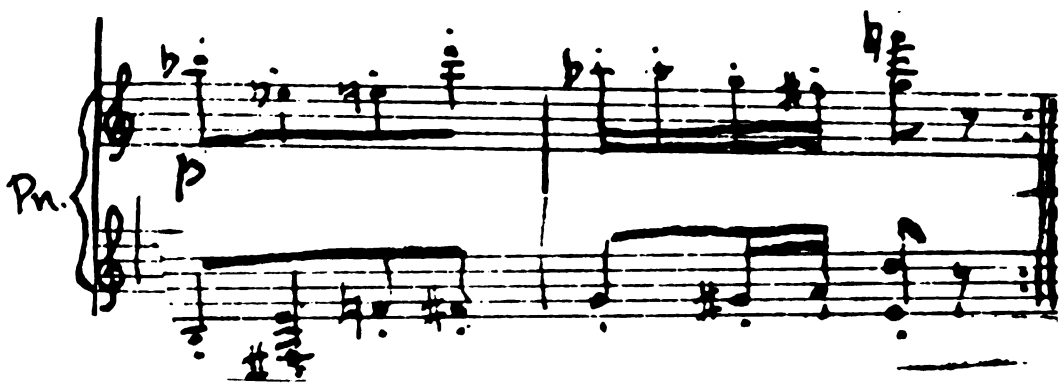
of solo violin and harp with the orchestral strings. In Example 231, the strings are represented by the pizzicato double basses. This is the only instrumentation used in Variation VI.

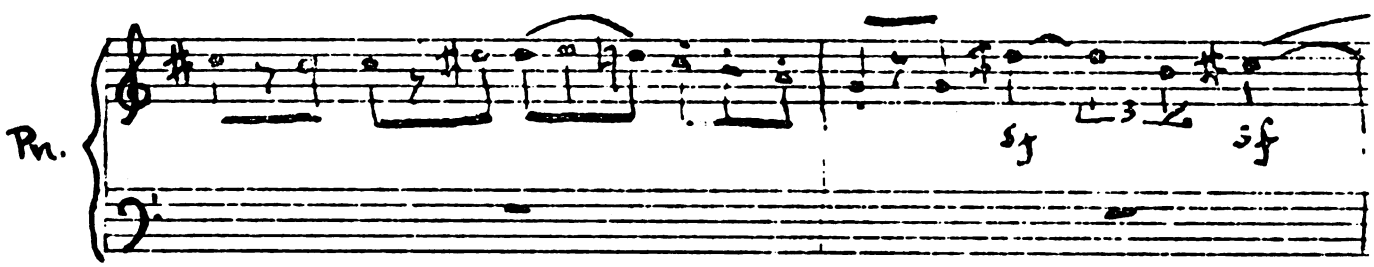
Ex. 231. Variations for Violin, meas. 143-45.



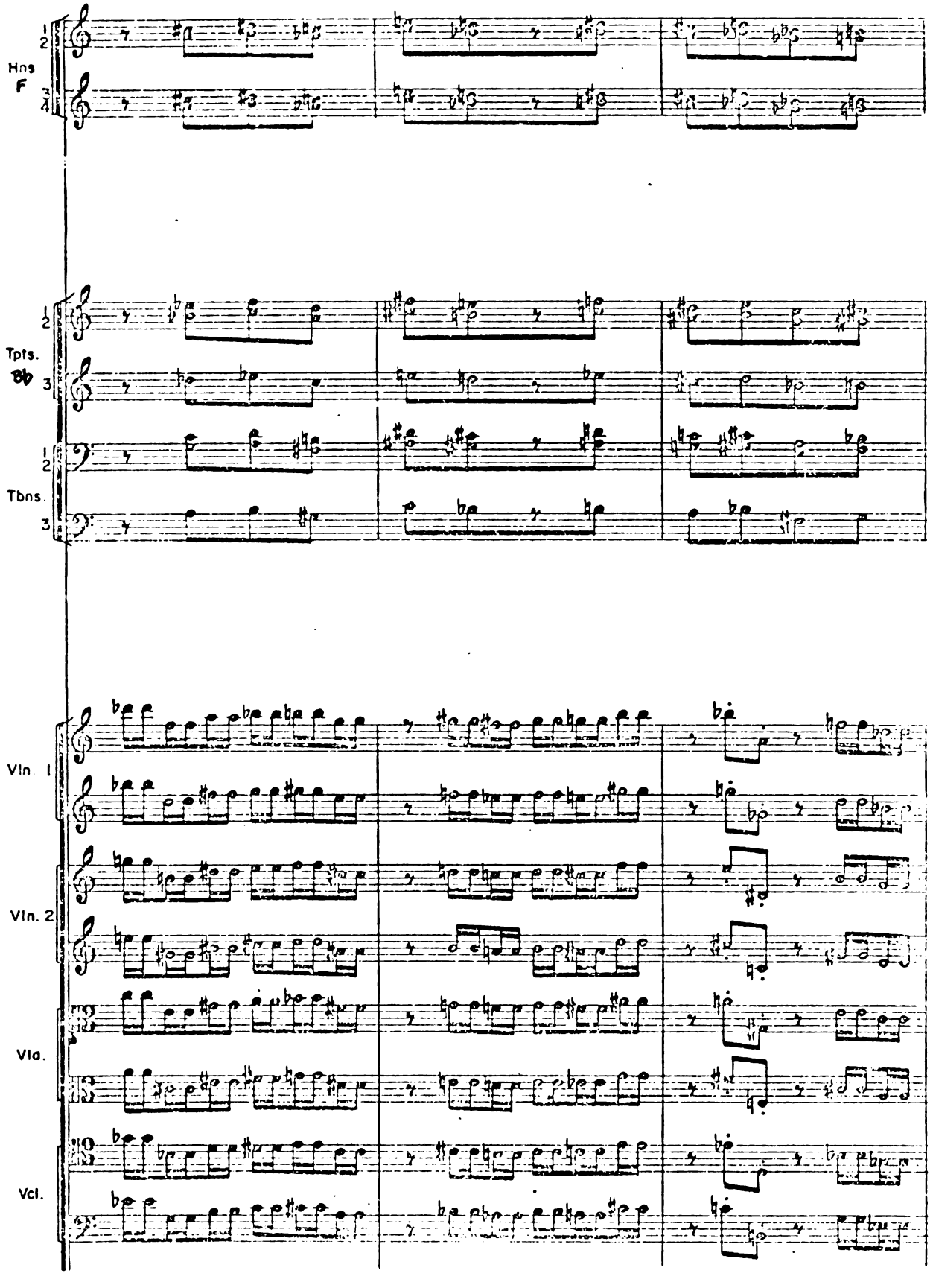
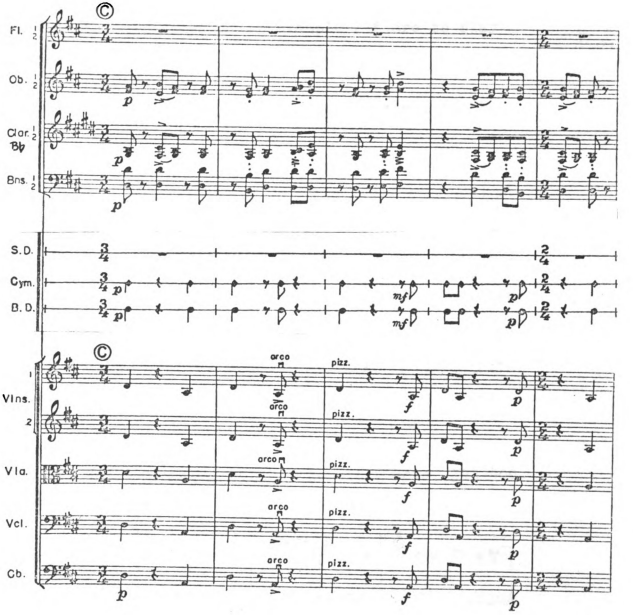
Variations for Piano: The basic instrumentation for this work is solo piano with string accompaniment. Relative to the rest of the instrumental combinations, the Solo appears alone in the texture a high percentage of the time.

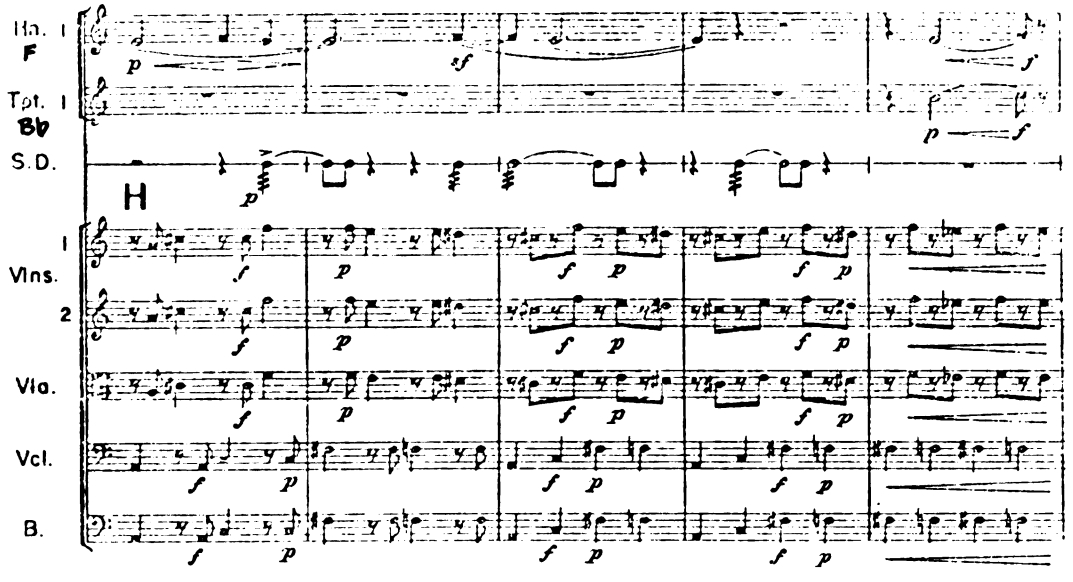
Some of these solo piano passages are brief contrapuntal sections, as in Example 232, but most are single lines such

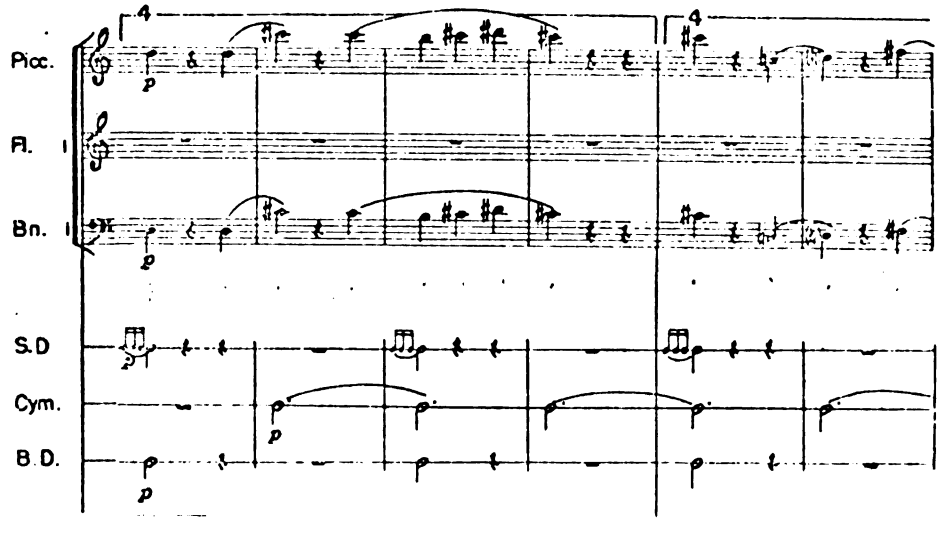
Ex. 232. Variations for Piano, meas. 120-21.

as the opening statement of the fugue in Variation XII, or such lines doubled in octaves.

Ex. 233. Variations for Piano, meas. 370-72.

Other Combinations. Some of the combinations are only rarely used, often occurring in very short passages between phrases or contrapuntal sections. For example, the brass and percussion combinations in these situations are usually used for sustained or percussive chords.

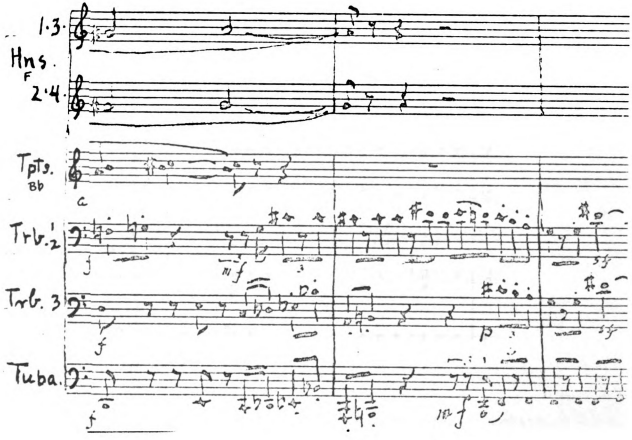
Others of these infrequently employed combinations are used in more substantial passages, such as the strings and brasses of Example 234, and the string, woodwind and percussion combination in Example 235.

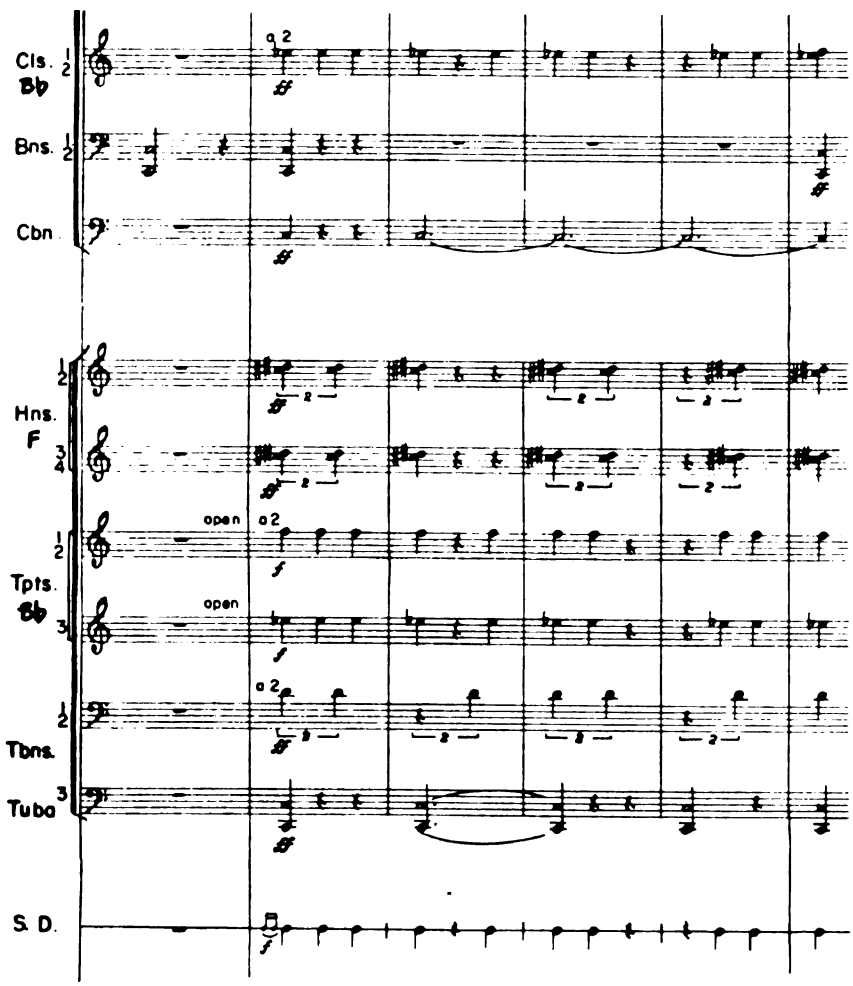
Ex. 234. Music for Orchestra, meas. 249-51.

Ex. 235. Dance Rhythms, meas. 18-22.

Two combinations as seen in Examples 236 and 237 create some interesting orchestral effects using percussion instruments. The strings in Example 236 are to play pizzicato at this point.

Ex. 236. Symphony No. 4, Mvt. II, meas. 54-58.

Ex. 237. Symphony No. 4, Mvt. III, meas. 393-400.

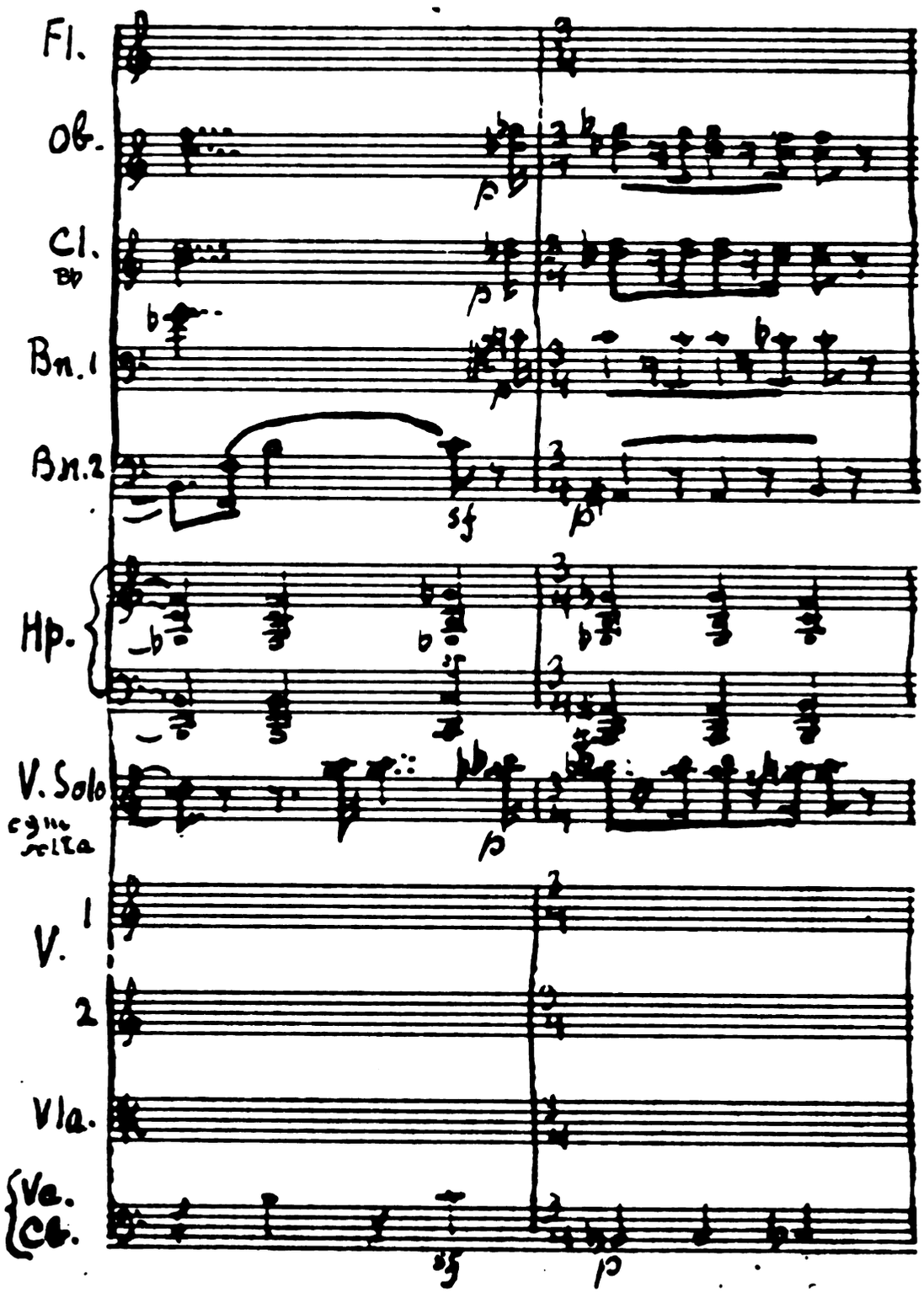


In light of the great variety of instrumental combinations used by Riegger, it is rather interesting to note how few of them involve brasses alone in the texture. Example 238 shows one such passage.

Ex. 238. Variations for Piano, meas. 397-99.

Woodwinds and brasses with percussion are used in extended passages only in Symphony No. 4, and strings.

Ex. 239. Symphony No. 4, Mvt. III, meas. 742-46.

Woodwinds and harp appear in combination in only one passage of Variations for Violin.

Ex. 240. Variations for Violin, meas. 228-29.



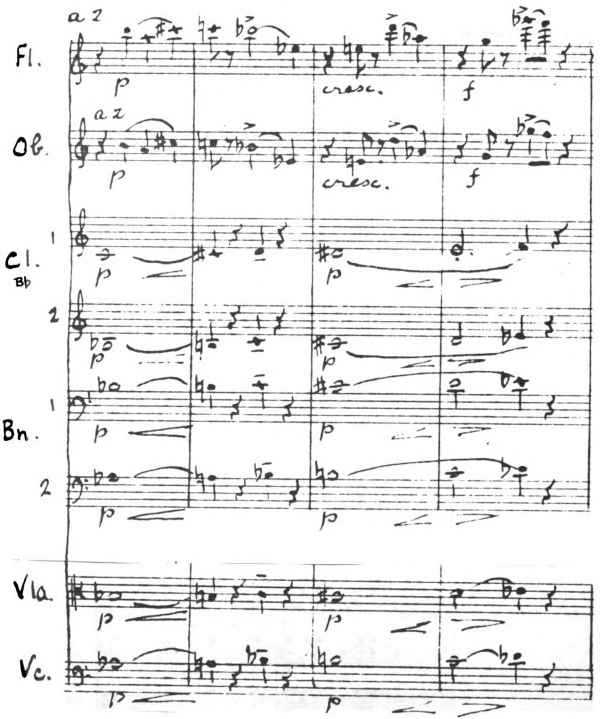
Doubling. The effects of doubling were disucssed in connection with the harmonic structures used in these works. Doubling is also, of course, a matter of orchestration not to be dismissed as merely a means of increasing dynamics. Although the technique is indeed used to produce massive blocks of sound, it is also responsible for some very subtle orchestral effects. Table 9 on page 261 reveals the extent of this technique in each work, and Table 10 on page 262 indicates the instrumental combinations involved in doubling.

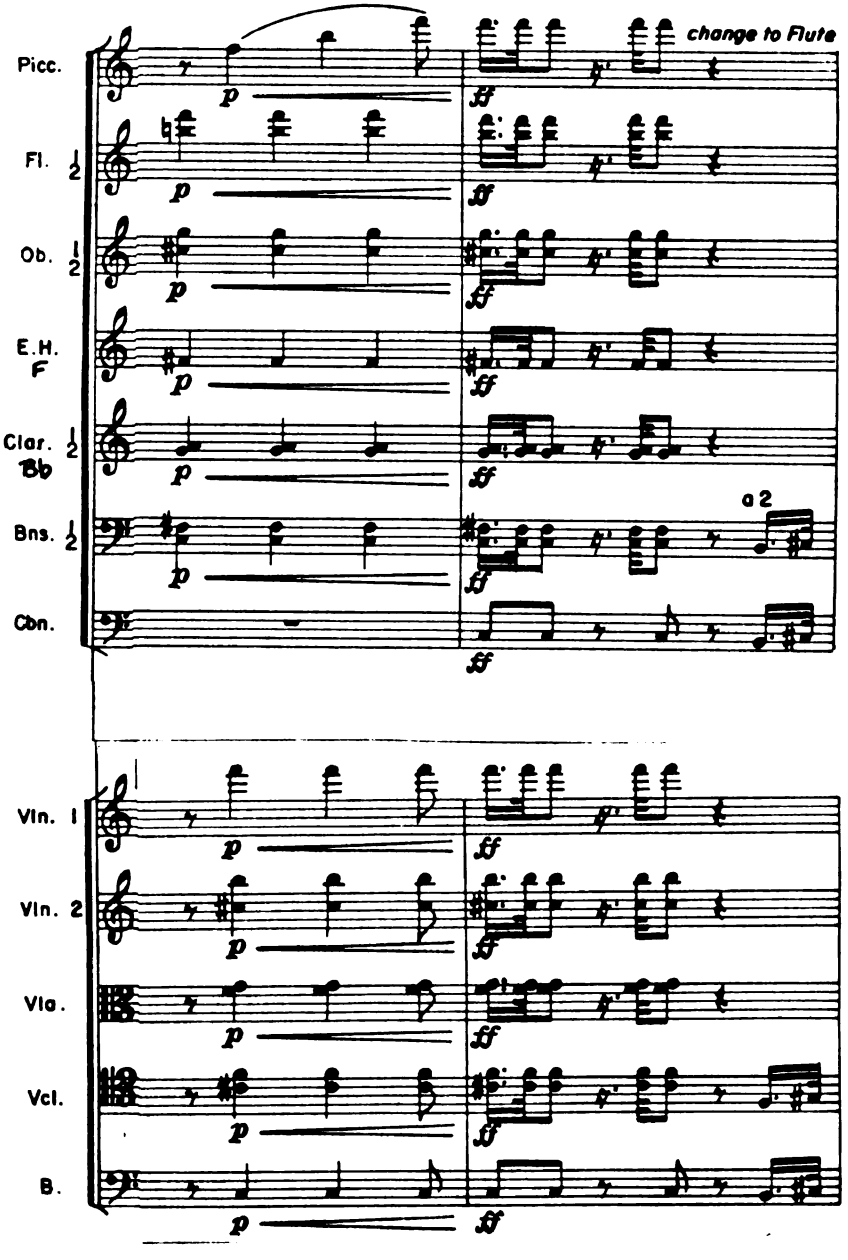
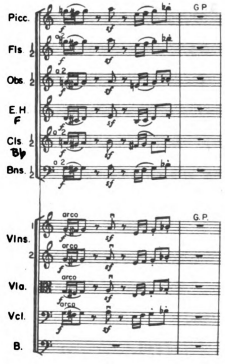
Almost all of Music for Orchestra involves doubling of some type, and the orchestration of the other works is dominated by this technique. The examples in the following discussion illustrate situations common to several works, and some of the doublings which are unique in particular works.

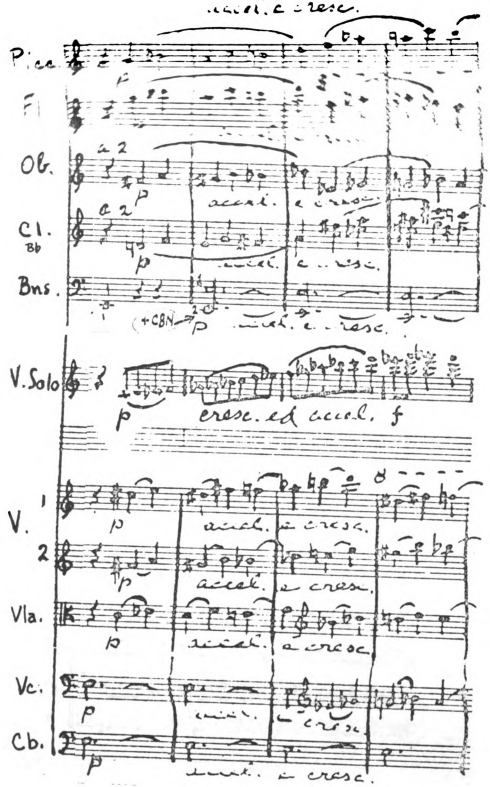
The most common doublings involve the strings. The following groups are used in all five works: Tutti strings; violin, viola, and cello; viola and cello; and cello and double bass. These are doublings at the octave and unison in most cases, and because of the homogeneous nature of the string timbres, the effect is simply one of increased dynamics and a more dense texture. The doublings involving woodwinds and brasses, however, are widely varied among the works and provide some of the more interesting timbre contrasts.

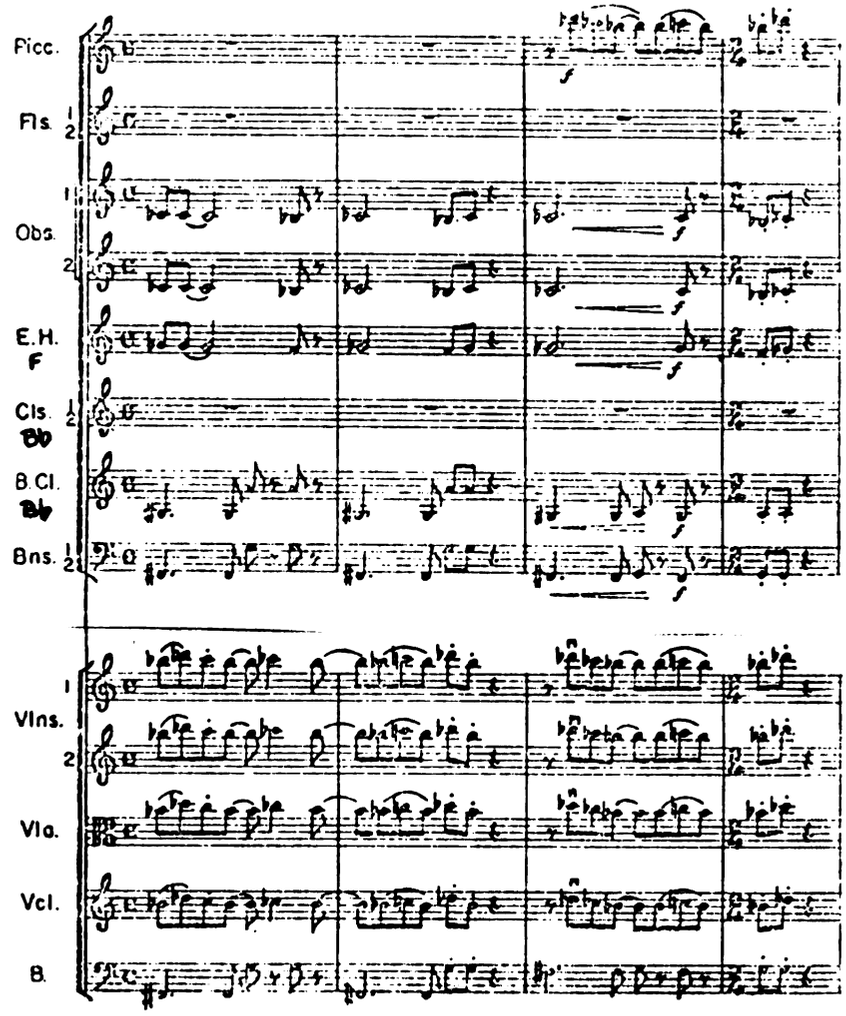
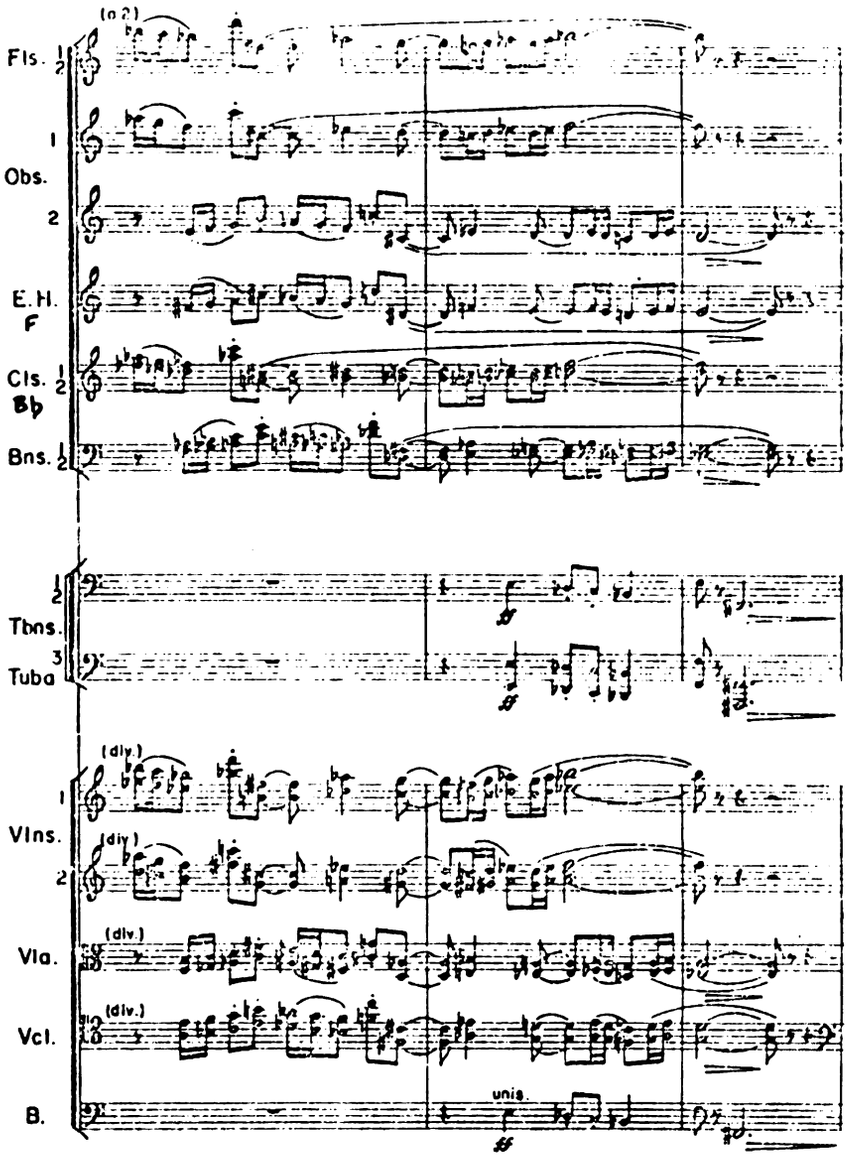
Three of these works, Symphony No. 4, Music for Orchestra and Variations for Piano, employ four of the same

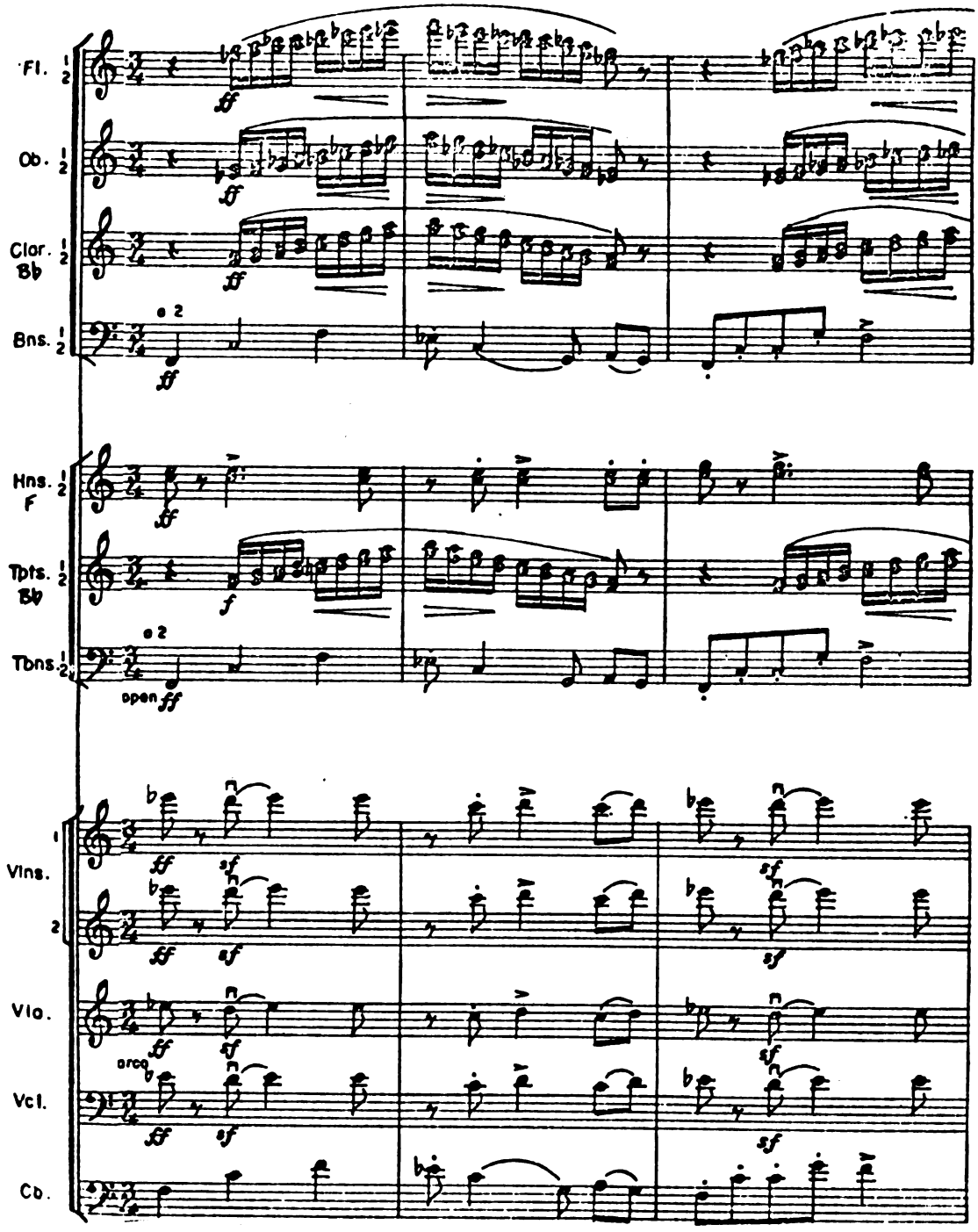
groups of woodwinds and strings in similar situations in each case. Flutes, oboes and clarinets doubled with violins, violas and cellos in octaves and unisons are usually used in contrapuntal passages for full orchestra. Bassoons and double basses are also frequently doubled in octaves, often on sustained notes. In the lighter textures, bassoons and violas are often used in unison for an independent line in a contrapuntal passage. These same three works contain doublings involving clarinets, bassoons and various groups of strings, combinations which are frequently employed in melodic doubling.

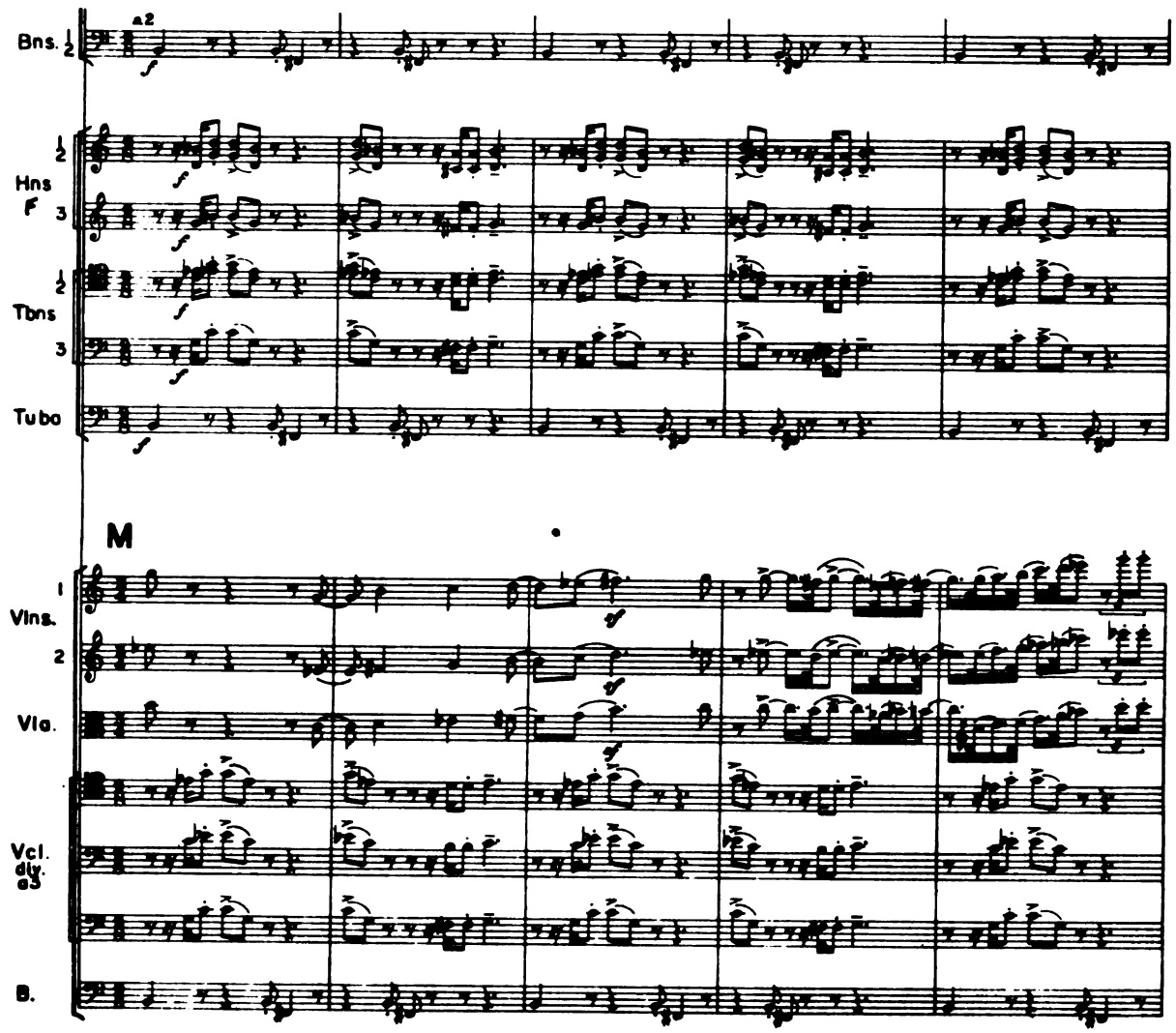
Ex. 241. Variations for Piano, meas. 450-53.

The similarity in instrumentation between the symphony and Music for Orchestra is reflected also in the doubling combinations. The woodwind and string doublings in Examples 242 and 243 produce the same percussive effect in each work. The intervals of doubling in Example 243 are octaves and unisons, while in Example 242 the doubling produces a succession of repeated modified quartal structures.

Ex. 242. Music for Orchestra, meas. 35-36.

Ex. 243. Symphony No. 4, Mvt. I, meas. 262-63.

Variations for Violin is the work which proportionately employs the most doubling between woodwinds and strings. The most frequent combination used, piccolo, flutes, oboes, clarinets and strings, seen in Example 244, happens to be unique to this work.

Ex. 244. Variations for Violin, meas. 391-94.

The greatest variety of string and woodwind doublings is found in Symphony No. 4. Examples 245 and 246 are representative of the many combinations used only in this work. Measure 106 in the first movement of the symphony is a rare case of the piccolo appearing without a flute doubling, and in measures 286-88 from the same movement, an oboe, English horn and two bassoons with the violas and cellos form a parallel stream of chords in a contrapuntal texture.

Ex. 245. Symphony No. 4, Mvt. I, meas. 104-07.

Ex. 246. Symphony No. 4, Mvt. I, meas. 286-88.

Doublings involving strings, woodwinds and brasses are used in each of the works, but only in Dance Rhythms is this combination a frequent part of the orchestration. A common doubling of this sort involves bassoons, double basses and trombones as seen in Example 247, or bassoons, double basses and a tuba as in Example 248. These doublings are usually in unison or octaves, producing a strong bass line.

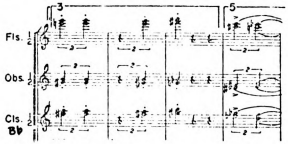
Ex. 247. Dance Rhythms, meas. 120-22.

Ex. 248. Symphony No. 4, Mvt. II, meas. 106-10.

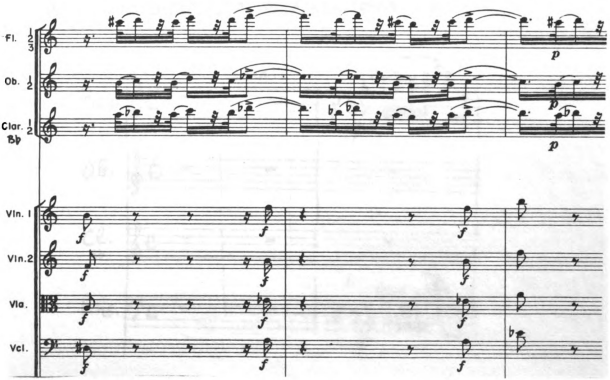


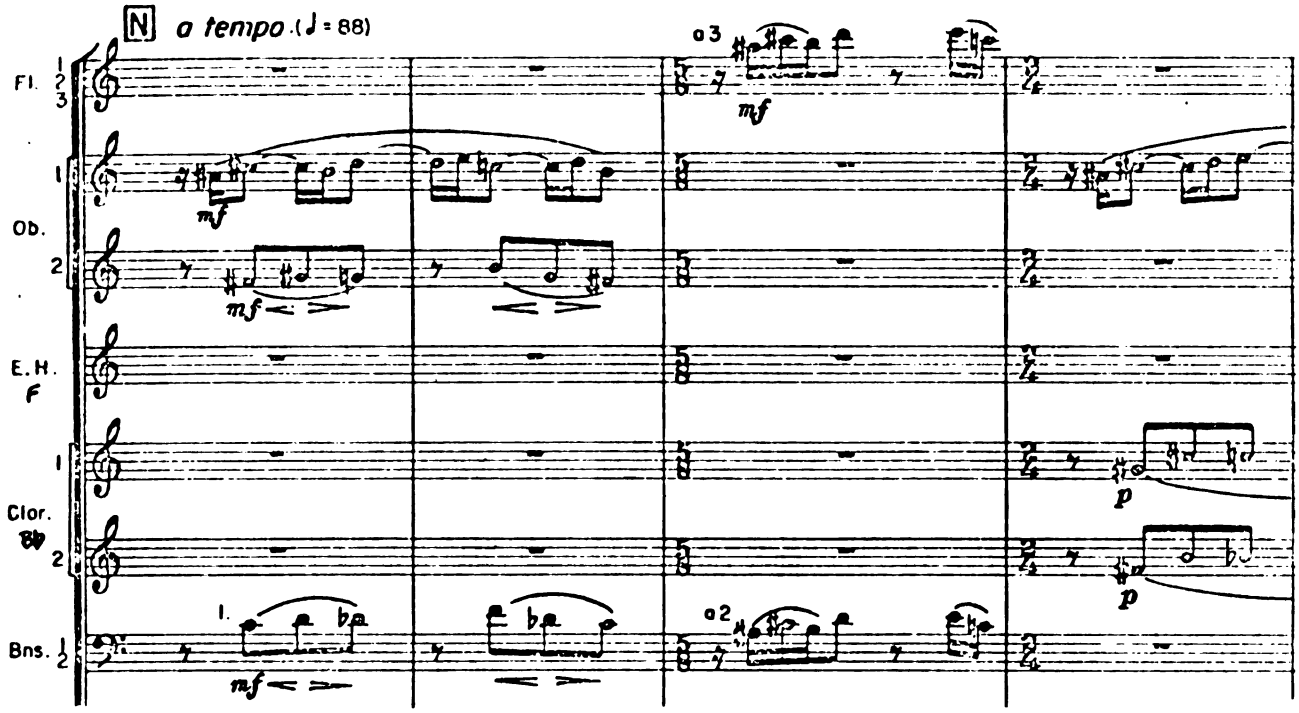
Woodwind Doublings. The woodwind doublings are of interest not only because they are frequent in all of the works, but because they are often used to create the parallelism which is so much a part of Riegger's style. Two groups of woodwinds appear in all of the works. These are flutes, oboes, clarinets; and clarinets and bassoons. Other frequent doublings include flutes and oboes; flutes, oboes, clarinets and bassoons; and oboes and clarinets.

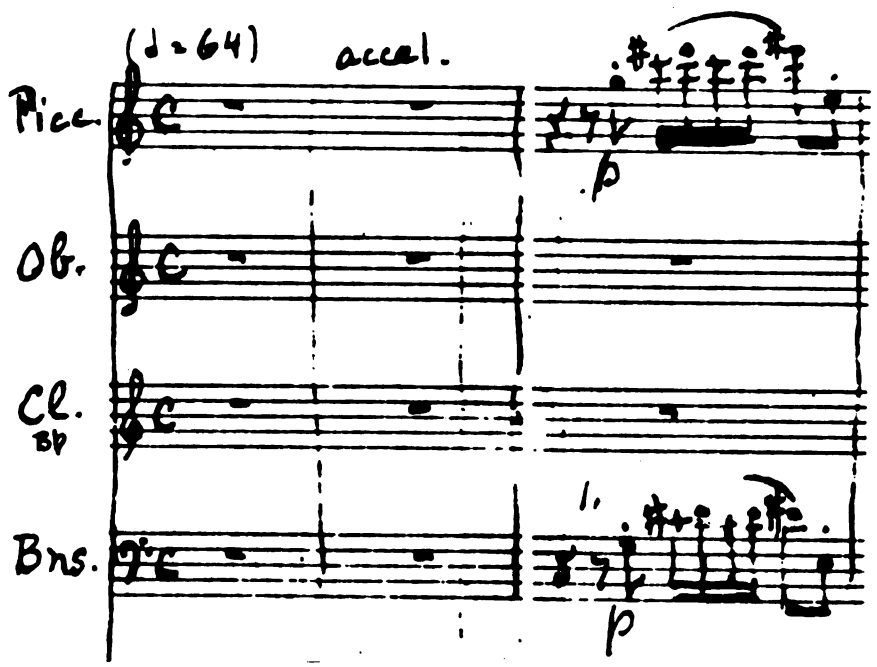
The following examples are representative of the great

many woodwind doublings used in these works. These combinations are used in various textures, but are especially important to contrapuntal sections. In Symphony No. 4, woodwind doublings are used alone in the texture.

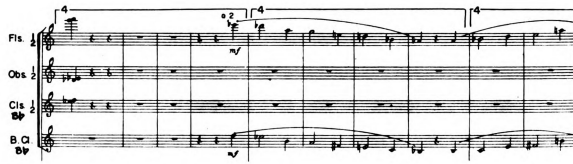
Ex. 249. Symphony No. 4, Mvt. III, meas. 225-28.

The same woodwind combination of flutes, oboes and clarinets is used with a string accompaniment in Example 250. Parallel string chords provide the second voice in this passage.

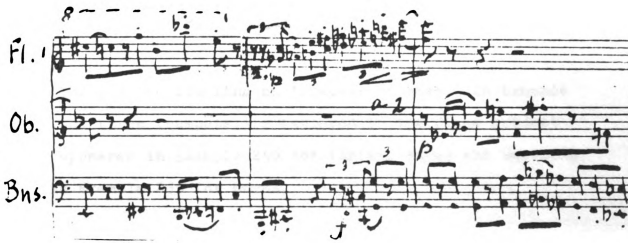
Ex. 250. Music for Orchestra, meas. 46-48.

One of Riegger's favorite orchestral effects is that which results from the doubling of a bassoon with a piccolo or flute.

Ex. 251. Music for Orchestra, meas. 118-21.

Ex. 252. Variations for Piano, meas. 79.

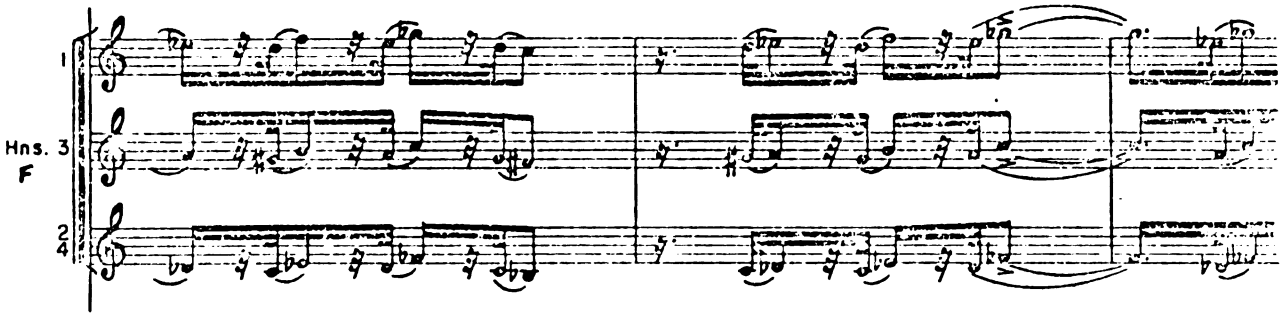


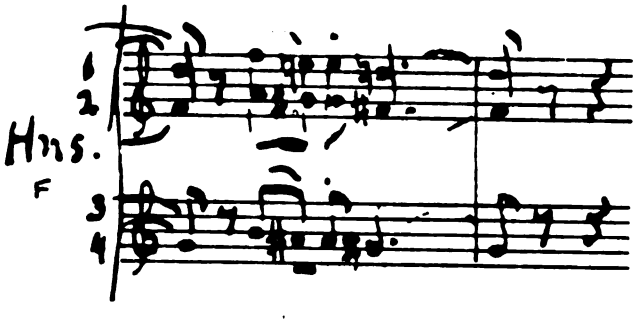
This was also seen in Example 237 in a passage from the symphony. A similar effect is achieved with flutes and bass clarinet in Example 253.

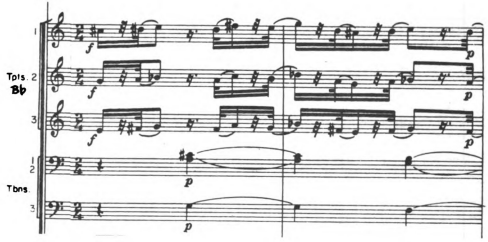
Ex. 253. Symphony No. 4, Mvt. III, meas. 295-301.

Pairs of like woodwind instruments are frequently used for melodic doubling in Symphony No. 4, as seen in previous examples, but this pairing is not common in the other four works. One rare case is found in measure 386 of Variations for Violin, where for a brief passage, two flutes are doubled at a tritone.

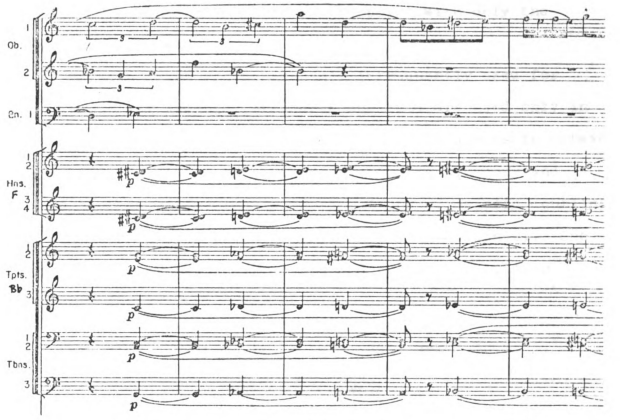
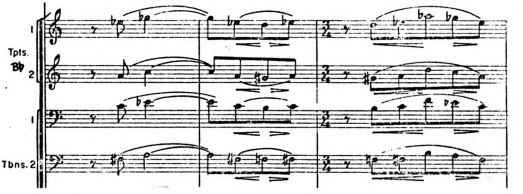
Ex. 254. Variations for Piano, meas. 385-87.

Brass Doublings. As was the case with woodwind instruments, two or more like brass instruments are often doubled. Horns are used in this manner in all five of the works. The doubling is usually in unison or octaves, but some instances of melodic doubling are found.

Ex. 255. Music for Orchestra, meas. 52-54.

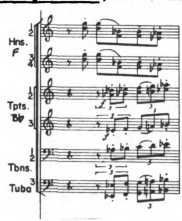


Ex. 256. Variations for Piano, meas. 410.

The melodic doubling of trumpets is rare. In Example 257, the three trumpets are employed in the fugue subject that appeared in Example 250 for flutes, oboes and bassoons, and in Example 255 for horns.

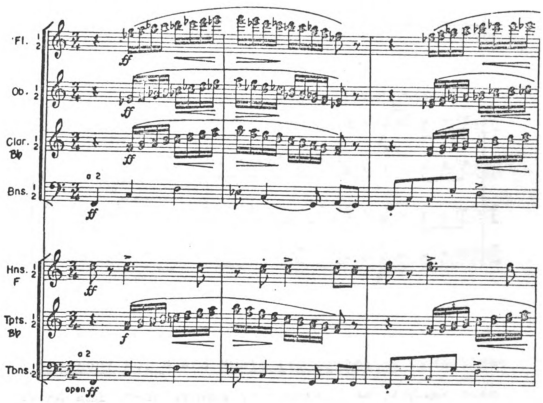
Ex. 257. Music for Orchestra, meas. 195-96.

The most common brass combinations are horns, trumpets, trombones; trumpets and trombones; and horns and trumpets. Again, the doubling is usually in unison or at the octave, with only a few exceptions. Examples 258 and 259 are two cases of these groups used in situations of melodic doubling.

Ex. 258. Music for Orchestra, meas. 172-76.

Ex. 259. Music for Orchestra, meas. 128-30.

Example 258 is rather unusual for the fact that the brasses accompany a solo oboe, and in Example 259, the doubling of trumpets and trombones is in counterpoint with only the third trombone.

Certain brass groups are only infrequently used for doubling. For example, trombones and tuba are used only in Symphony No. 4 and Variations for Piano, and always in octaves. Horns and trombones are doubled only in the symphony and Dance Rhythms, occasionally in situations of melodic doubling as was seen in some of the examples from the symphony. One brass group, trumpets, trombones and tuba, is unique to Symphony No. 4.

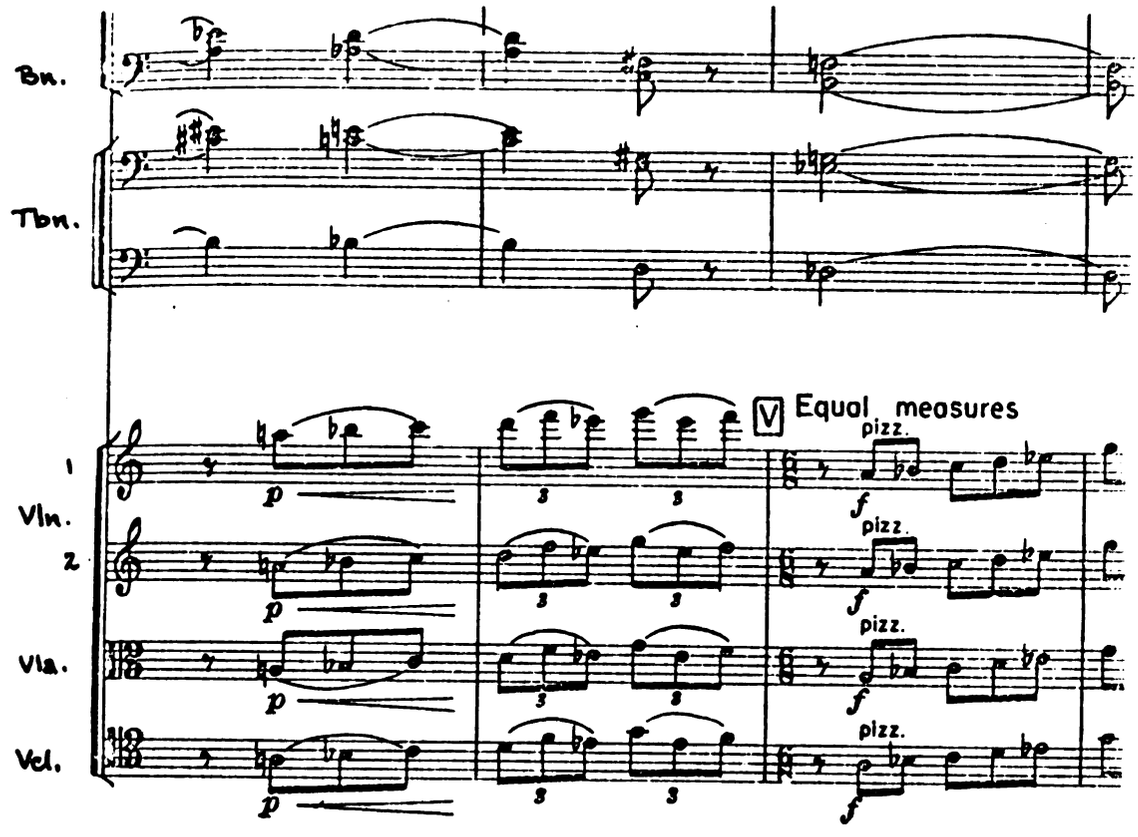
Ex. 260. Symphony No. 4, Mvt. III, meas. 50.

Woodwind and Brass Doublings. The most frequent doubling of woodwinds and brasses involves one or more trumpets with woodwinds. Each of the works has examples of this doubling, Symphony No. 4 containing 12 different combinations of woodwinds doubled with trumpets. In some cases, specific combinations appear in two works. Clarinets and trumpets are doubled in both the symphony and Dance Rhythms.

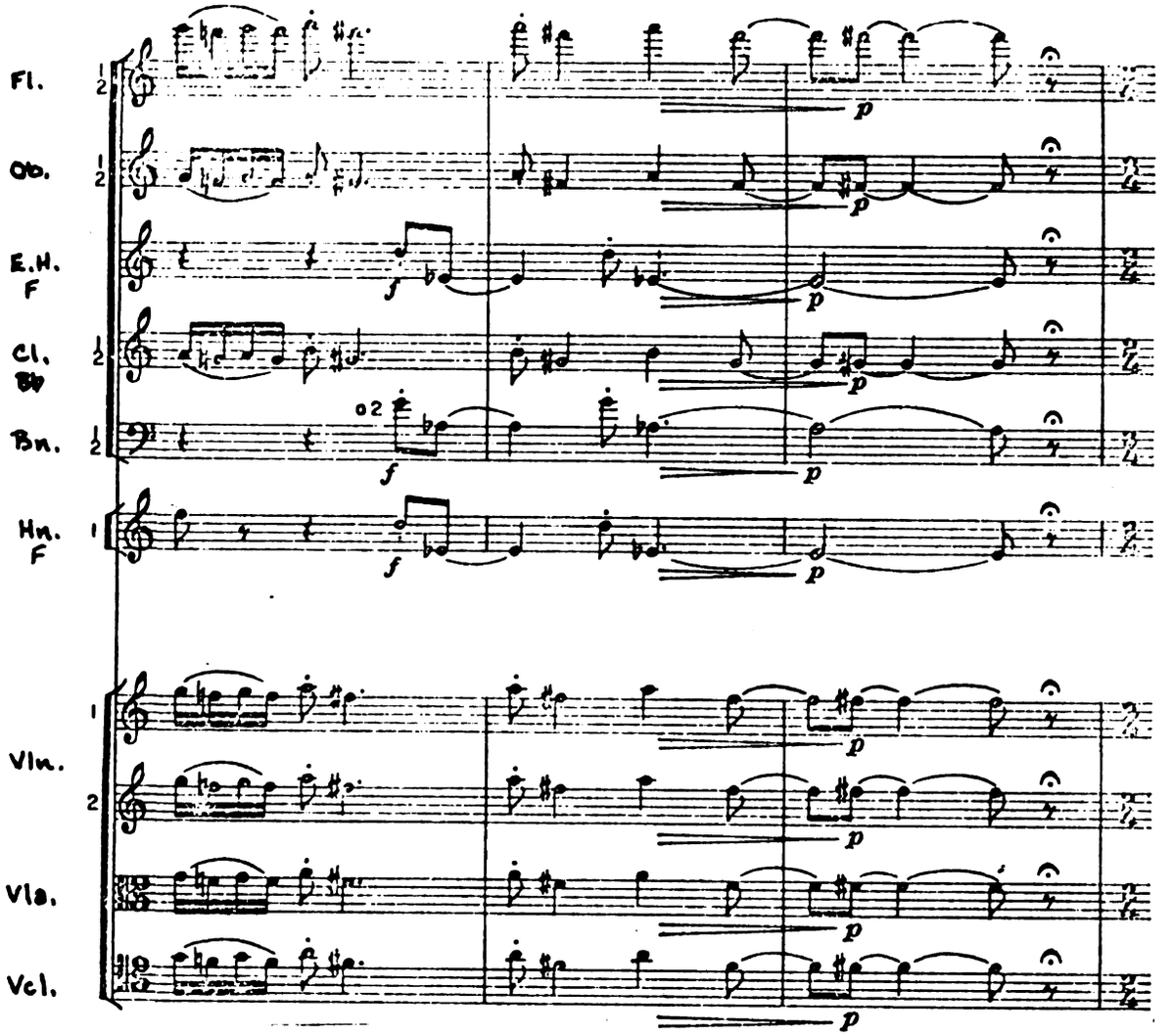
and oboe and trumpet doublings are used in Dance Rhythms and Music for Orchestra. A doubling of flutes, oboes and clarinets with trumpets can be found in Dance Rhythms and Variations for Violin. These are usually unison doublings, or doublings in unison and at the octave, or occasionally melodic doublings.

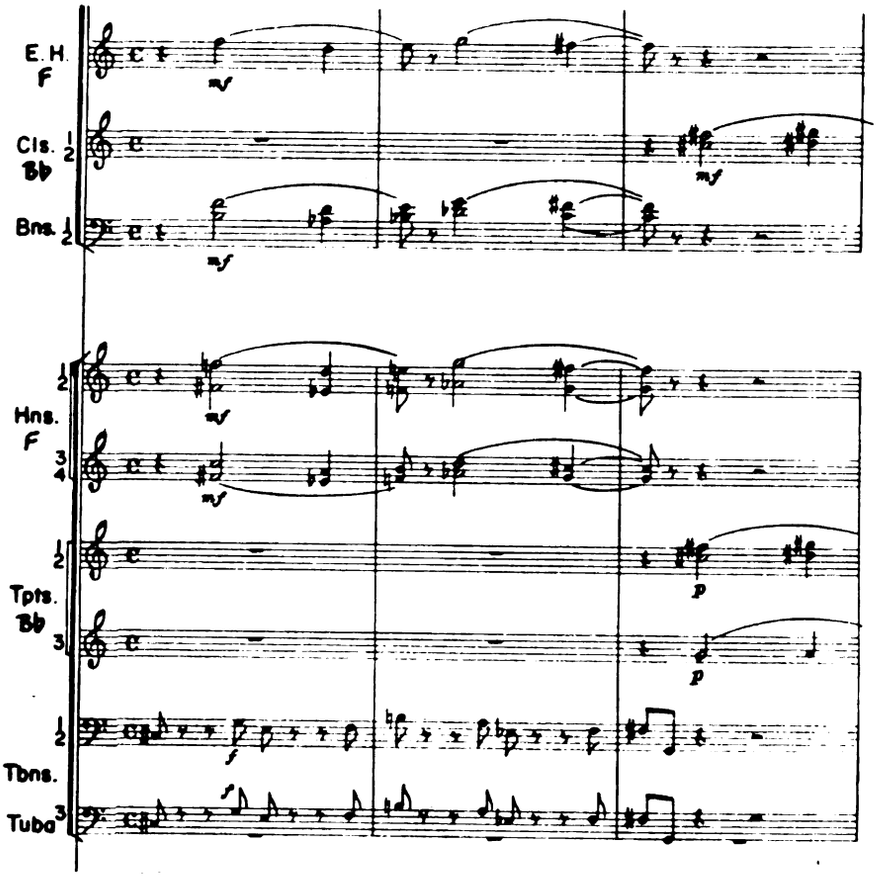
Ex. 261. Dance Rhythms, meas. 120-22.

Other frequent doublings found in all works except the violin variations include horns and woodwinds, trombones and woodwinds, and trumpets and trombones with woodwinds.

One particular combination, bassoons and trombones, is employed in three of the works. In Dance Rhythms and Variations for Piano these instruments are doubled in

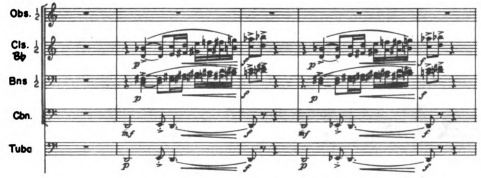
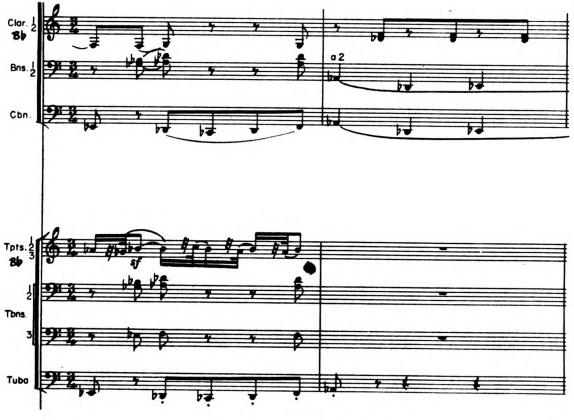
unison, but in Example 262 from Music for Orchestra the doubling produces a passage of parallel clusters.

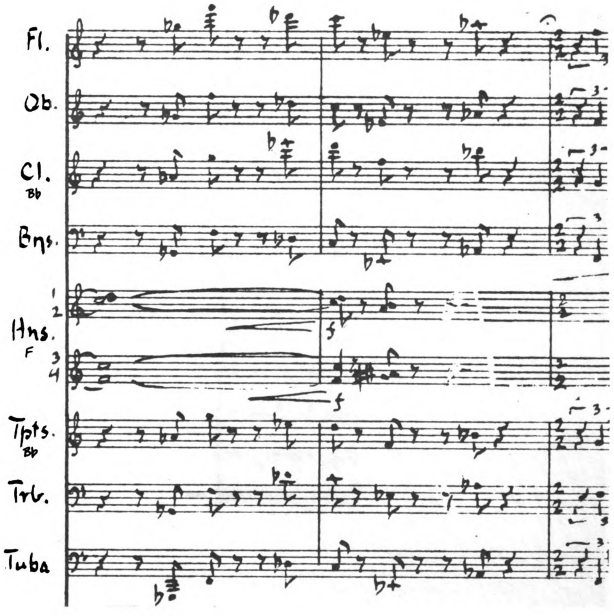
Ex. 262. Music for Orchestra, meas. 204-06.

Symphony No. 4 and Music for Orchestra have three woodwind and brass groups in common. An English horn and bassoons doubled in unison with a horn, provide one contrapuntal line in the two-part texture of Example 263.

Ex. 263. Music for Orchestra, meas. 17-19.

Melodic doubling involving the same group appears in Symphony No. 4.

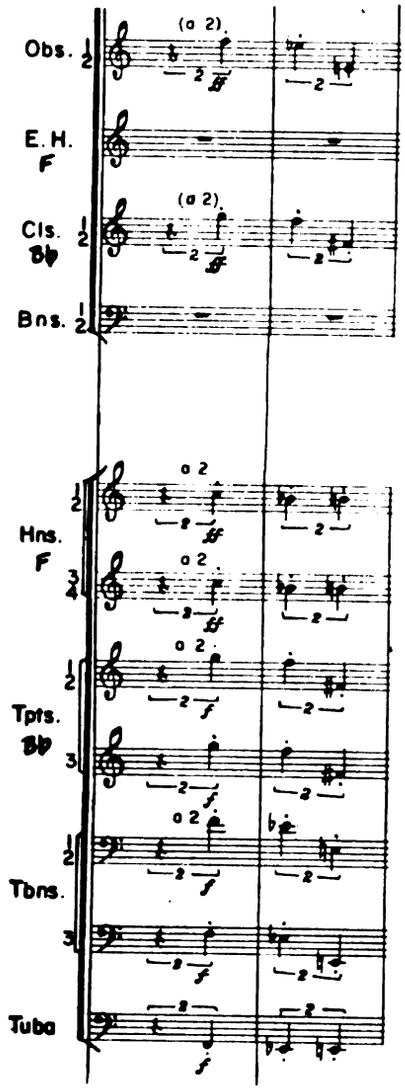
Ex. 264. Symphony No. 4, Mvt. III, meas. 764-66.

Bassoons and a contrabassoon doubled in unison with trombones and a tuba, comprise another combination appearing in both of these works. In Symphony No. 4, this group is used mainly for sustained notes, but in Music for Orchestra these instruments are scored for the same material given to the trumpets in Example 257.

Contrabassoon and tuba doublings are used in brief passages in each work.

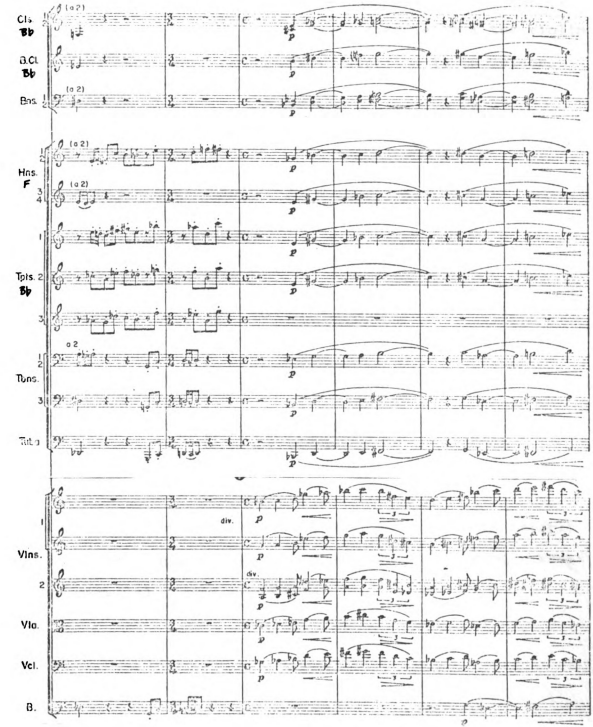
Ex. 265. Symphony No. 4, Mvt. II, meas. 31-35.

Ex. 266. Music for Orchestra, meas. 219-20.

Variations for Piano and the symphony each employ specific doublings of woodwinds and brasses which appear in none of the other works. Flutes, oboes, clarinets and bassoons are doubled in octaves with trumpets, trombones and tuba in the piano variations.

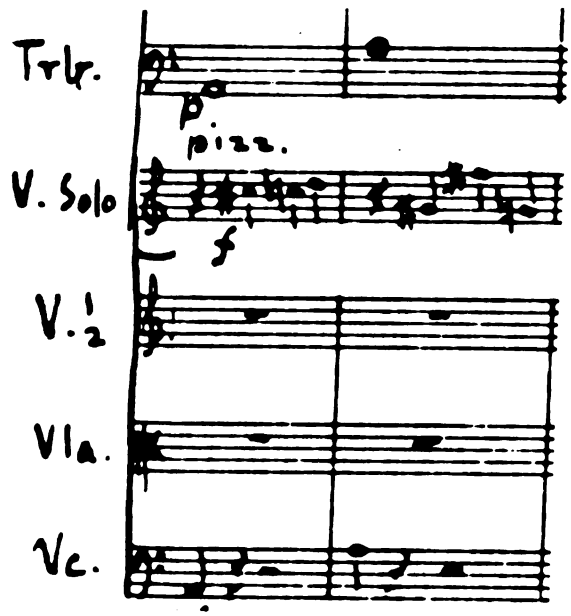
Ex. 267. Variations for Piano, meas. 424-26.

The density of the orchestration is even greater in Symphony No. 4 where six different combinations of woodwinds are doubled with the tutti brass section. In Example 268, the doubling is in octaves and appears alone in the texture.

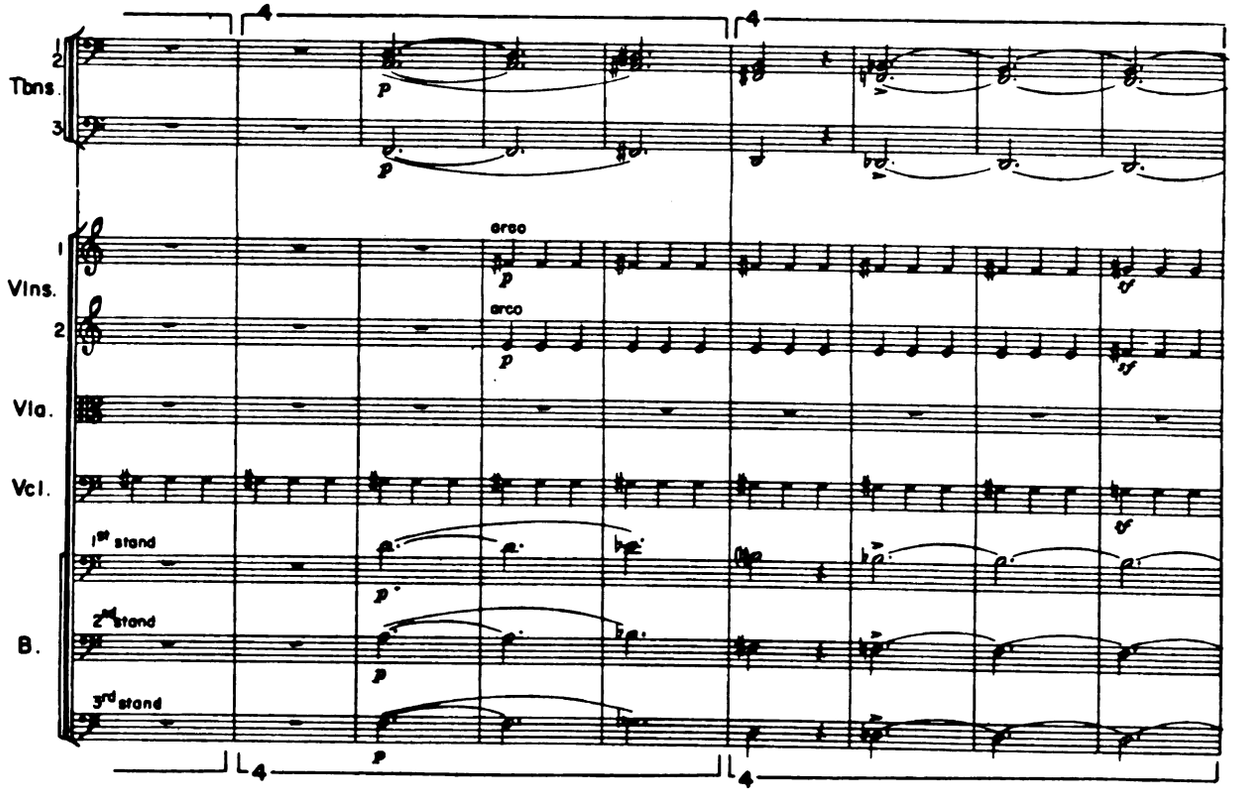
Ex. 268. Symphony No. 4, Mvt. III, meas. 650-51.



The heavily scored passage of Example 269 makes use of two parallel streams of chords in counterpoint.

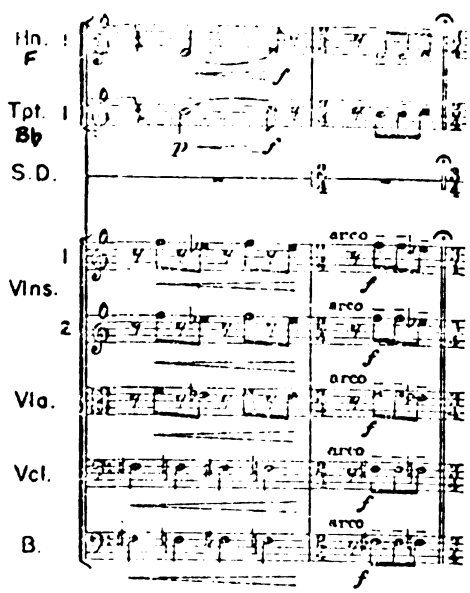
Ex. 269. Symphony No. 4, Mvt. I, meas. 115-20.

Brass and String Doublings. The doubling of string and brass instruments occurs in each work, most often in unison, but infrequently and usually in very brief passages. Symphony No. 4 and Variations for Violin have two doublings in common; trombones and strings, and horns, trombones and strings. In the brief example from the violin variations, the trombone and cello doubling is in unison.

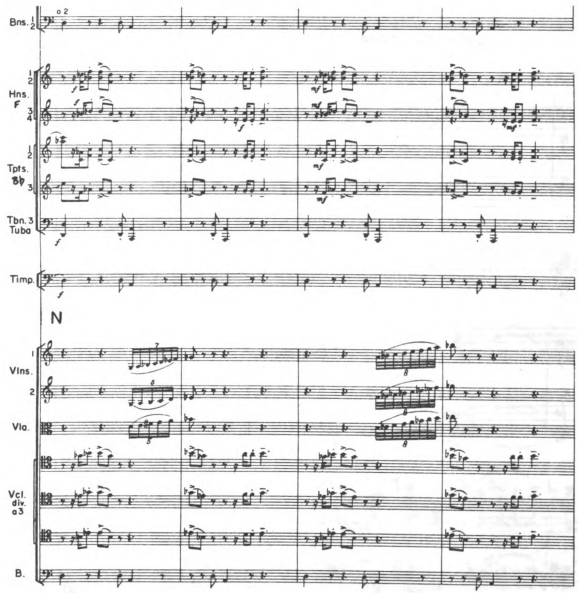
Ex. 270. Variations for Violin, meas. 17-18.

A somewhat more substantial passage is seen in Example 271 from the symphony, where the trombones and double basses form a parallel stream of chords.

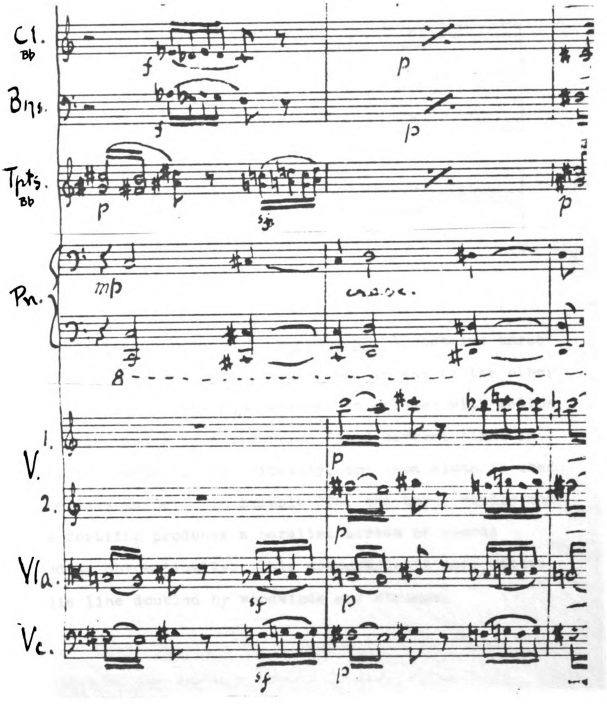
Ex. 271. Symphony No. 4, Mvt. III, meas. 247-55.

The other doubling common to these two works is that of horns and trombones with strings. This doubling was seen in Variations for Violin in Example 124, and appears in the symphony in a contrapuntal passage with a double bass, bassoon and tuba doubling in Example 248.

Horns, trumpets and strings are doubled for very short passages, as well as in more extended passages in Symphony No. 4.

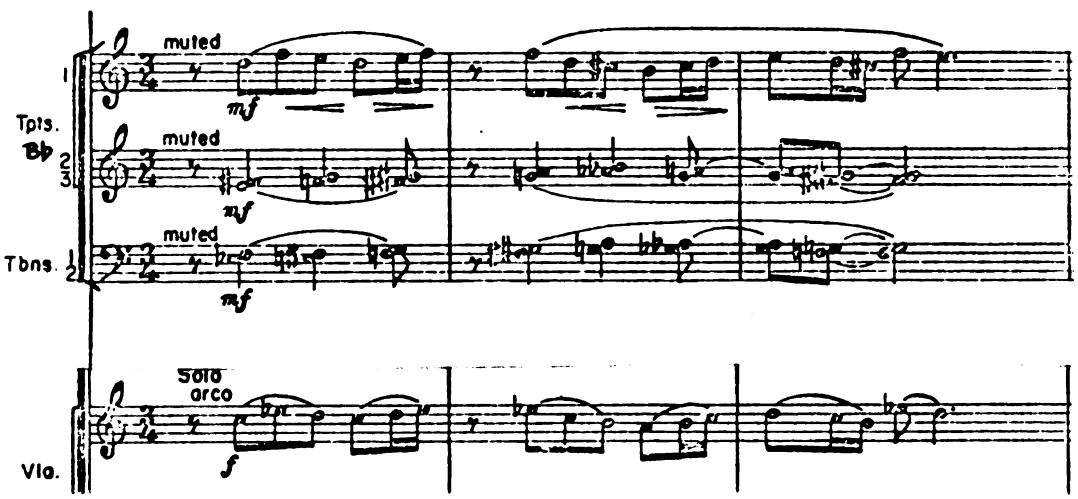
Ex. 272. Symphony No. 4, Mvt. II, meas. 58-59.



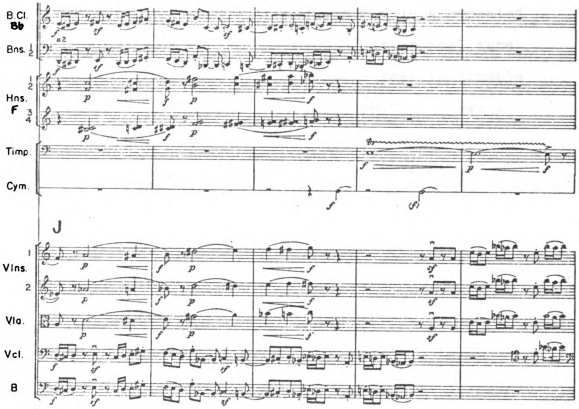
Ex. 273. Symphony No. 4, Mvt. II, meas. 115-18.

The orchestration of the piano variations includes a number of instances in which trumpets are doubled with various combinations of strings. The only other example

Ex. 274. Variations for Piano, meas. 269-70.

of this particular doubling is found in Music for Orchestra, a single trumpet and viola in unison.

Ex. 275. Music for Orchestra, meas. 64-66.



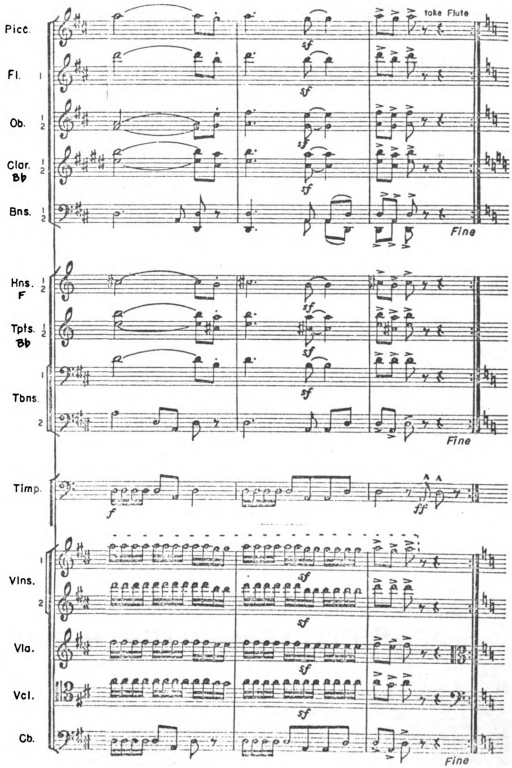
The first movement of Symphony No. 4 contains three of these doublings which are not used in any of the other works. Trombones and tuba doubled in octaves with cellos and double basses is a situation found several times in the first movement. Occasionally, the tuba alone is used in the same manner. In Example 276, the horn, violin and viola doubling produces a parallel stream of chords ascending chromatically. This accompanies a more active melodic line doubled by woodwinds and strings.

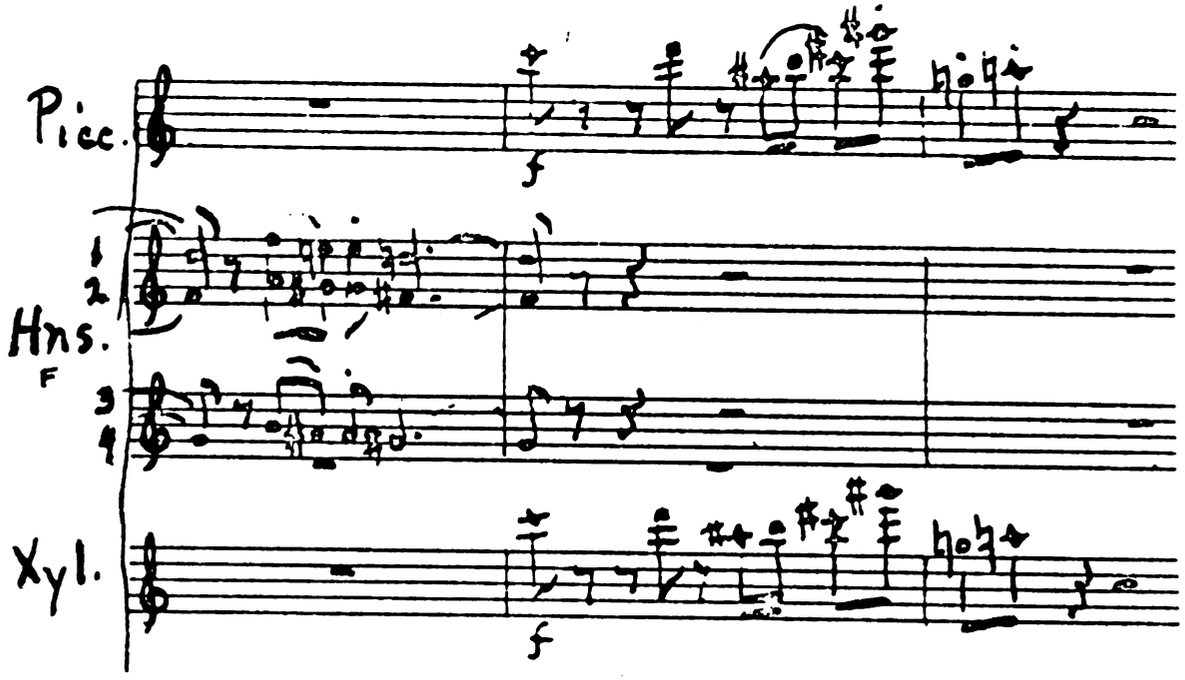
Ex. 276. Symphony No. 4, Mvt. I, meas. 75-79.

A chromatic line, ascending or descending, has been seen in previous examples as a frequent accompaniment in these Riegger works.

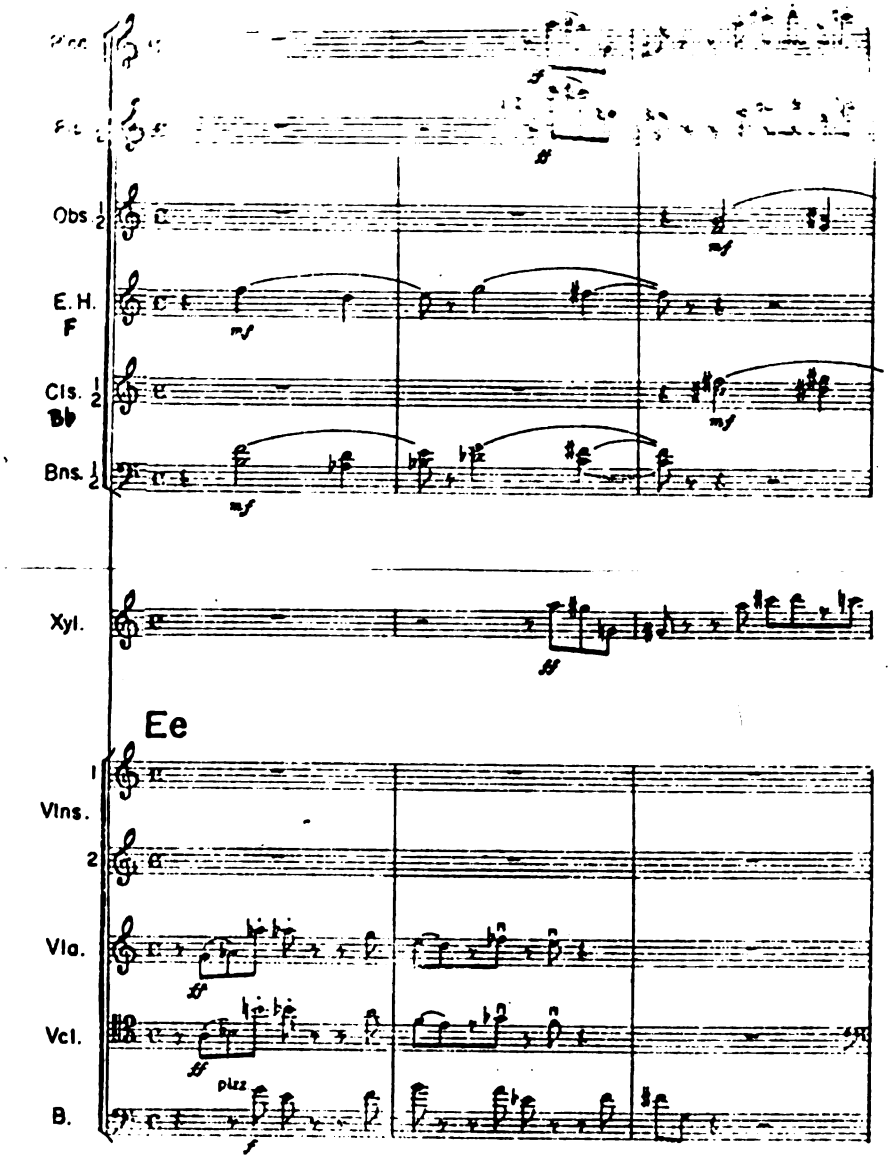
Other Combinations Used for Doubling. All of the doubling combinations discussed so far appeared in all five works. The following are examples of combinations which have a very limited useage.

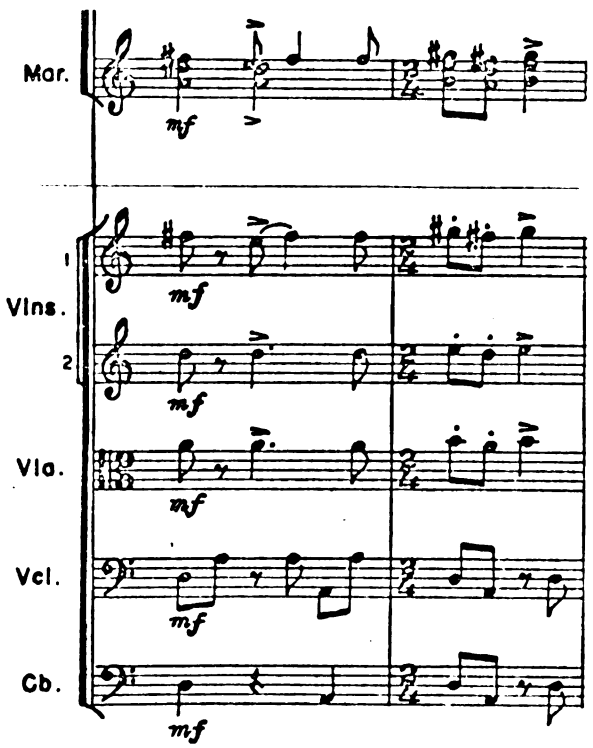
Doublings involving at least one member of each orchestral family, including percussion, occur in all works except Variations for Violin. These are, however, reserved mainly for very brief passages, usually percussive tutti chords. Since Symphony No. 4 and Dance Rhythms are orchestrated for the most massive orchestral effects,

string, woodwind, brass and percussion doublings are occasionally used in more extended passages. A repeated rhythmic motive was doubled by bassoon, trombones, tuba, timpani and double basses in the passage seen in Example 273. The following example from Dance Rhythms shows a similar treatment of this same doubling in a thicker orchestral passage which brings the work to a close.

Ex. 277. Dance Rhythms, meas. 91-93.

A rare woodwind and percussion doubling is seen in Example 278 with the piccolo and xylophone doubled in unison.

Ex. 278. Variations for Piano, meas. 410-12.

A unison piccolo, flute and xylophone doubling imitates the viola and cello in inversion in Example 279.

Ex. 279. Symphony No. 4, Mvt. III, meas. 764-66.

One further example of a doubling unusual to these works is seen in Example 280. The marimba is doubled with the violins and violas.

Ex. 280. Dance Rhythms, meas. 112-13.

SUMMARY

Form. The formal organization of these Riegger works is based on traditional two and three-part forms and fugal procedures. The structure of Dance Rhythms is reminiscent of the third movement of a Classic symphony, complete with a trio and a da capo bringing back the entire first section. The fugal procedures in Music for Orchestra are, of course, somewhat altered from the traditional fugue. Melodic doubling and various timbres and registers, without the element of key contrast, are responsible for making each subject entry distinctive.

Variations for Piano and Variations for Violin are formally organized on two levels. The variation procedure itself is of formal significance, and in addition to this, each variation contains the elements of unity and contrast provided by binary form. Only Variation XII of the piano variations is different in that it contains a completely developed fugue.

The first movement of the symphony is strongly influenced by traditional sonata allegro form. Movement II is a large three-part form, the third part being a return of the first. The last movement is a two-part form preceded by an introduction and followed by a coda.

Serial Techniques. Music for Orchestra, Variations for Piano and Variations for Violin are constructed with 12-tone rows. Riegger used atonal rows that do not outline

melodic patterns which might imply traditional harmonic formations. He avoided these formations by ordering his series so that major and minor seconds are the most frequent intervals, thereby eliminating tertial chords. The tone rows are employed in a horizontal manner almost exclusively. Instances of chords comprised of vertical row segments are extremely rare.

The appearance of the row in Variations for Violin is usually in successive complete statements, most frequently of the original and inverted versions. The same version is used against itself in canonic passages, and occasionally two or more different versions are employed simultaneously. Some segmentation of the row takes place; that is, consecutive segments of the row are stated by different instruments. Also, the horizontal-vertical method of deployment appears, but these last two methods are only rarely used. All of these serial techniques are used with very few octave displacements or transpositions of the row.

The row in Variations for Piano again appears most frequently in complete statements of the original and inverted versions. Unique in this work, however, is the fact that octave displacements are frequently used. The deployment is similar to that in the violin variations, in that the same version is used for different lines in counterpoint, and two different versions are sometimes used simultaneously. Transpositions of any of the four basic versions of the row are again only rarely used.

Riegger's techniques in Music for Orchestra differ in several respects from the other two works. In this case, he worked with row fragments as well as complete statements, and transpositions are commonplace. Parallelisms involving as many as seven different transpositions of the same row or fragment are a prominent feature of the work. Octave displacement of the row members is rare, occurring in the few passages in which the row is deployed by the horizontal-vertical method.

Symphony No. 4 is an atonal work, but it is not constructed with strict serial procedures. Areas of "free tonality" can be found; that is, areas in which a tonal center is established by means other than functional harmony.[24]

Rhythm. The element of rhythm is a vital factor in Riegger's music. His use of tempo to produce unity and variety, varies with each of these works. Dance Rhythms is set at 120 beats per minute and procedes at that rate during its entire course. Sudden tempo changes occur in Music for Orchestra, but only within a range of 60 to 100 beats per minute.

The symphony makes use of tempo as a contrasting element over the entire work as well as within the separate movements. The tempo of Movement I is 112 beats per minute with only a few variations, but tempo variation is a notable feature of

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24. Leon Dallin, Techniques of Twentieth Century Composition (Dubuque, Iowa: Wm. C. Brown Co., 1964), p. 45.

the second movement. The third movement has the widest tempo range, 60 to 120 beats per minute.

In each case, the tempo factor in the two sets of variations is exploited in much the same manner. Each variation is set at a different tempo from the one which precedes it, and for the most part, there is little deviation within the sections. The difference between the two works is in the tempo extremes. Variations for Violin has a range of 88 beats per minute, from 56 to 144, while the tempo in Variations for Piano varies from 60 to 240 beats per minute. This 180 beat tempo range is the greatest of all the works.

Changing meters is a common Riegger technique. Most changes occur between simple meters, and in some instances a measure to measure alternation is used. The meter is changed for each variation in Variations for Violin and Variations for Piano. Each section in the violin variations is usually in one meter, and only one section is in compound time. The individual sections in the piano variations, however, frequently contain changing meters.

The symphony, Music for Orchestra, and the piano variations each contain sections in which simple and compound time occur simultaneously. Borrowed divisions of the beat are occasionally used against the normal division in these same three works. In all five works, an energetic, driving rhythm interrupted by frequent syncopations is a vital element to the music.

Harmonic Structures. Table 1 on page 247 lists the percentage of occurrence for each structure used. The structures used in areas of parallelism are disscussed separately. It is quickly seen that two-note structures are an important element in Riegger's harmony. Consonant intervals are the most frequent in the symphony, Music for Orchestra, and Dance Rhythms, but in Symphony No. 4 dissonant intervals appear most often in accented positions within the meter. Dissonant intervals have a higher frequency in the two sets of variations, where their use is, again, most often at points of metric stress. The relatively high percentage of triads in Dance Rhythms is as would be expected in a tonally organized work. The remaining structures are employed as occasional punctuating chords, or are used in sustained passages supporting a rhythmically active melodic line.

An important factor in each of these works, and a factor which dominates the harmony in Music for Orchestra, the piano variations, and the symphony, is parallelism (see Tables 2 and 3). Parallelism was first used by Debussy to expand the concept of tonality, to increase the coloristic value of harmony and reduce it functional effect.[25] When used with the 12-tone technique, parallel chords or "multiple parallelisms" serve to preserve a more conventional harmonic feeling.[26]

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25. Ibid., pp. 98-99.

26. Brindle, op. cit., pp. 83-84.

As shown in Table 2, Symphony No. 4 contains a particularly rich variety of parallelisms. Quartal structures and tone clusters seem to have been Riegger's favorites to use with this technique, with streams of parallel intervals being important to Music for Orchestra and the two sets of variations.

Cadences. Apel's definition of a cadence as a "melodic or harmonic formula which occurs at the end of a composition, section, or phrase, conveying the impression of a momentary or permanent conclusion,"[27] will serve as a definition for the cadences in these Riegger works if one adds the element of rhythm to the factors involved. The cadences in Dance Rhythms exhibit traditional harmonic formulas and voice leading. The remaining works, not being tonally organized, involve other means of achieving satisfying cadential effects on various beats or parts of the beat within the meter.

The interruption of the rhythmic drive is especially important at cadences. This is accomplished in a variety of ways, including tempo changes, meter changes, the introduction of rests, and the lengthening or shortening of note values.

Other techniques of producing a cadential effect are also used. A change in the orchestral texture, in conjunction with the other techniques, is often employed at a cadence. This may involve a full orchestral chord at the end of a solo phrase, or several solo notes at the end of an orchestral passage.

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27. Apel, op. cit., p. 108.

Occasionally the music simply stops without any definite melodic, harmonic, or rhythmic preparation. These "non-cadential endings"[28] are frequently found in percussive passages.

It is important to view all cadences within the context in which they are used. They are believable endings to musical ideas only in connection with the entire musical passage they bring to a close.[29]

Textures. Music for Orchestra, Variations for Piano and Variations for Violin are contrapuntally conceived, and Symphony No. 4 and Dance Rhythms are primarily homophonic. Monophonic textures, solo passages, were used sparingly by Riegger. Table 4 on page 250 shows the percentage of each work in which these textures are used.

A few passages can be found in free counterpoint within these works, but for the most part, Riegger used imitative devices. These include motivic imitation, canonic imitation, fugato sections, and completely developed fugues in Music for Orchestra and the piano variations.

Riegger's homophonic writing encompasses a variety of traditional accompaniment patterns adapted, of course, to his non-traditional harmonic practices. Animated chords, ostinato patterns, and even the Alberti Bass technique are all used. The most common accompaniments include pedal tones and chords,

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28. Dallin, op. cit., p. 134.

29. Ibid., p. 128.

sustained and repeated, and chorale-like textures. In some cases, the accompaniment is very sparse, exposing the melodic line to the point where it assumes a soloistic character.

Symphony No. 4 contains the greatest variety of solo passages, although this texture comprises higher percentages of other works. In Music for Orchestra and the piano and violin variations, solos are scored most often for woodwind instruments as are most of the more exposed passages. The solo parts in Variations for Piano and Variations for Violin are idiomatic and technically demanding, adding the element of virtuosity to the performance of these works.

The melodic motion of the individual lines in all of these textures varies with each work (see Table 5, page 251). Dance Rhythms and Music for Orchestra contain the most conjunct voice leading and the most lyrical melodic lines. In Variations for Piano, Riegger used a much more disjunct melodic style. Sustained notes are an important melodic feature in the symphony and the violin variations.

Orchestration. The instrumentation of these works is traditional. Table 6 on page 254 indicates the frequency of use of the instruments in each case. The cellos are the instruments which appear most, although in Variations for Piano the use of strings is fairly balanced. Of the woodwinds, the clarinets are the most frequently used in Symphony No. 4 and Dance Rhythms, and flutes are especially important in Music for Orchestra. The use of woodwinds is proportionately balanced in the two sets of variations, as is the case with

the brasses in all of the works. In terms of frequency of use, the percussion family is significant only in Dance Rhythms.

The pitch ranges, as shown on page 255, Table 7, are not extreme in any of the five works. The widest oboe and trombone ranges are found in Variations for Piano, and the range for the contrabassoon is the same in both Music for Orchestra and the symphony. At three octaves and a major sixth, the Solo in Variations for Violin is scored for the widest range of any instrument in all the works. The widest ranges for all of the remaining instruments, as well as most of the extreme high and low pitches, appear in Symphony No. 4. Riegger used string harmonics only in the violin variations where they appear in the first violin, cello and solo violin parts.

Each work features different instrumental combinations. A tutti orchestral texture is frequent in Dance Rhythms, and combinations including percussion instruments are also important. Much of Variations for Piano is scored for piano with strings, and in the violin variations, the most frequent combinations involve the Solo with strings, and the Solo with strings and woodwinds. Symphony No. 4 and Music for Orchestra are both predominantly scored for combinations of strings and woodwinds, and strings, woodwinds and brasses. The last of these is especially important to Music for Orchestra. Table 8 indicates the frequency with which each combination is used.

Doubling. The two tables concerned with doubling, Tables 9 and 10, indicate the extent to which the technique was used and the instrumental combinations involved. The orchestral doublings common to all of these works are strings, woodwinds, brasses; and strings and brasses. String doublings are the most frequent of all, and the woodwind combinations of flutes, oboes and clarinets; and clarinets and bassoons are found in each work. Other frequent doublings include woodwind and string combinations; string, woodwind and brass combinations in Dance Rhythms; brass doublings of like instruments, especially horns; and woodwind and brass combinations, often trumpets and woodwinds.

CONCLUSIONS

The following conclusions concerning Wallingford Riegger's later orchestral style have been drawn from the analysis of the five works selected.

Form

1. The formal organization of Riegger's music is based upon traditional two and three-part forms and fugal procedures.

2. The 12-tone row, when it is employed, is a significant factor in melodic unity.

Rhythm

1. Tempo changes tend to occur suddenly, and usually between major sections of the music.

2. Syncopation is a vital element in the composer's rhythmic designs.

3. The technique of changing meters is frequently employed, usually involving alternating simple time signatures.

4. Borrowed divisions of the beat are often used, and occasionally simple and compound time signatures are used simultaneously.

Harmonic Structures

1. Intervals are important to Riegger's harmony.

   a. Consonant intervals have the highest frequency.

   b. Dissonant intervals are most often metrically and melodically accented.

2. Tertian chords, from triads to thirteenth chords, are used.

a. Triads with seventh and ninth chords have the highest frequency.

b. These structures often appear as chords of omission and addition.

3. The non-tertian structures include quartal, quintal, and cluster chords.

4. Parallelism is an important element in the construction of this music, especially the multiple parallelisms resulting in streams of chords.

a. The parallel tertian chords used with a 12-tone technique create a conventional harmonic feeling.

b. Quartal structures and tone clusters are most frequently used with this technique.

Cadences

1. Traditional cadential formulas are used, often employing modified dominant and tonic chords.

2. The non-traditional cadences are dependent upon other than harmonic means for their effectiveness.

a. Rhythm is a vital element in these cadences.

b. A change in orchestration and dynamics frequently aids in making these non-traditional cadences effective.

Textures

1. Contrapuntal textures employing imitative devices are used with the highest frequency in these works.

2. The homophonic textures include traditional accompaniment patterns adapted to non-traditional harmonic practices.

3. Solo passages are most frequently scored for woodwinds.

4. The melodic motion in this style is predominantly conjunct.

   a. Chromatic motion is especially frequent.

   b. Sustained notes are often an important factor in the part of any individual instrument.

Orchestration

1. The instrumentation of these works is traditional.

   a. The normal complement of strings, paired woodwinds, four horns, three trumpets and trombones, and a tuba comprise the standard orchestra for these works.

   b. The English horn, bass clarinet and contra-bassoon are used occasionally.

   c. The percussion family of instruments is used only incidentally.

2. The ranges of the individual instruments are not extreme, and often the highest and lowest possible pitches are not exploited.

3. Strings are usually included in the orchestral texture, and woodwinds are also important.

a. The brasses are frequently used in combination with strings and woodwinds, rarely appearing alone.

b. Percussion instruments are only infrequently part of the instrumental combinations.

4. A high percentage of the orchestration involves doubling.

a. String doublings occur with the highest frequency.

b. Doublings of flutes, oboes and clarinets; and clarinets and bassoons are common to all of these works.

TABLE 1. A tabulation of harmonic structures, excluding those used in parallel streams.*

	MO	VP	DR	S4	VV
Intervals, Consonant	41%	40%	43%	34%	31%
Dissonant	32	52	18	29	39
Triads	3	1	23	10	4
7th Chords	2	1	9	8	9
9th Chords	3	1	5	12	8
11th Chords	2	less than 1	1	1	1
13th Chords	1		less than 1	less than 1	
Quartal Chords	7	1		4	3
Quintal Chords	less than 1			less than 1	1
Tone Clusters	8	3		1	4

*The following abbreviated titles will be used throughout the tables:

MO. . . . Music for Orchestra
VP. . . . Variations for Piano
DR. . . . Dance Rhythms
S4. . . . Symphony No. 4
VV. . . . Variations for Violin

TABLE 2. Harmonic structures used in parallel streams.*

	MO	VP	DR	S4	VV
Intervals	13	34	7		14
Triads	6		4	44	3
7th Chords	5		5	12	8
9th Chords	8			19	2
11th Chords	4	2		11	2
13th Chords	2				
Quartal Chords	17	10		82	14
Quintal Chords	1			6	3
Tone Clusters	19	24		32	22

*The figures indicate the number of instances in which each structure was used in a parallel stream of chords.

TABLE 3. The percentage of each work containing parallelism.

Music for Orchestra	83%
Variations for Piano and Orchestra	48%
Dance Rhythms	24%
Symphony No. 4	60%
Variations for Violin and Orchestra	34%

TABLE 4. Textures.

	Contrapuntal	Homophonic	Monophonic
Music for Orchestra	71%	27%	2%
Variations for Piano	59	27	13
Dance Rhythms	16	68	16
Symphony No. 4	42	51	7
Variations for Violin	46	46	8

TABLE 5a. Melodic motion--conjunct.

	MO	VP	DR	S4	VV
Piccolo	54%	61%	82%	39%	42%
Flutes	66	58	90	50	44
Oboes	63	71	94	53	40
English Horn	60			69	
Clarinets	70	72	89	59	51
Bass Clarinet				42	
Bassoons	61	65	54	59	49
Contrabassoon	49			29	14
Horns	77%	44%	76%	42%	63%
Trumpets	87	44	81	56	50
Trombones	83	32	43	40	46
Tuba	90	4		44	33
Violins	41%	47%	47%	45%	61%
Violas	38	37	66	45	66
Cellos	54	29	33	40	30
Double Basses	76	5	6	34	24

TABLE 5b. Melodic motion--disjunct.

	MO	VP	DR	S4	VV
Piccolo	32%	39%	18%	36%	39%
Flutes	17	33	10	30	30
Oboes	19	22	6	23	42
English Horn	18			14	
Clarinets	9	20	7	20	30
Bass Clarinet				43	
Bassoons	10	28	44	20	26
Contrabassoon	25			15	28
Horns	11%	23%	13%	24%	0%
Trumpets	7	42	19	21	0
Trombones	8	48	52	37	4
Tuba	0	64		37	33
Violins	51%	42%	53%	28%	17%
Violas	54	51	34	22	21
Cellos	38	56	67	24	30
Double Basses	5	68	92	31	24

TABLE 5c. Melodic motion--sustained notes

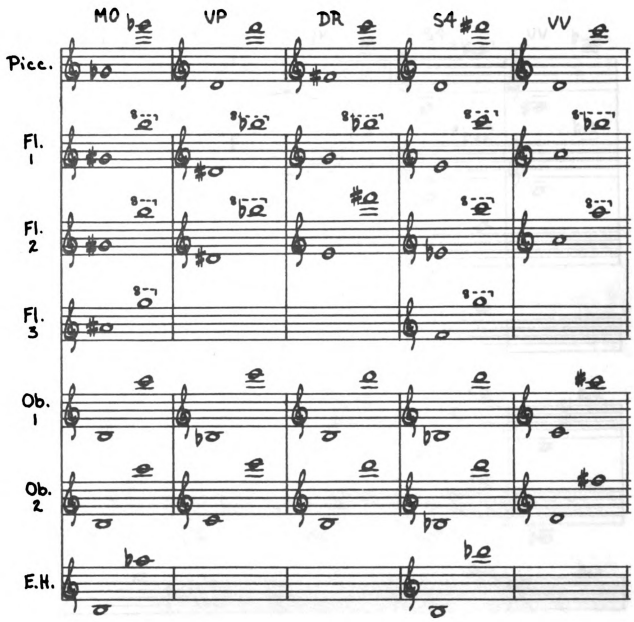
	MO	VP	DR	S4	VV
Piccolo	14%	0%	0%	25%	19%
Flutes	17	9	0	20	26
Oboes	18	7	0	24	18
English Horn	22			17	
Clarinets	21	7	4	21	19
Bass Clarinet				15	
Bassoons	29	7	2	21	25
Contrabassoon	25			56	58
Horns	12%	33%	11%	34%	37%
Trumpets	6	14	0	23	50
Trombones	9	20	5	23	50
Tuba	10	32		19	33
Violins	8%	11%	0%	27%	22%
Violas	8	12	0	33	13
Cellos	8	15	0	36	40
Double Basses	19	27	2	35	52

TABLE 6. Orchestration--use of instruments.*

	MO	VP	DR	S4	VV
Piccolo	13%	3%	12%	15%	10%
Flutes	53	24	43	43	22
Oboes	48	26	49	43	22
English Horn	25			21	
Clarinets	40	25	61	49	18
Bass Clarinet				10	
Bassoons	46	29	56	40	22
Contrabassoon	17			8	7
Horns	35%	11%	42%	27%	7%
Trumpets	39	15	39	22	10
Trombones	36	10	38	25	8
Tuba	14	8		11	4
Violins	71%	51%	72%	54%	19%
Violas	70	48	74	58	21
Cellos	78	45	99	67	28
Double Basses	32	17	58	38	15
Solo Violin					92%
Solo Piano		65			
Timpani	16%	4%	16%	8%	4%
Snare Drum	5	2	20	5	2
Cymbals	3	5	22	4	2
Bass Drum	2	4	16	3	2
Tam-Tam				1	
Harp			14		5
Xylophone		1		1	
Marimba			13		
Glockenspiel			7		

*The figures indicate the percentage of the entire work in which each instrument is used.

TABLE 7. Orchestration--Ranges.*



*The pitches appearing on this table indicate the written range for each instrument.

TABLE 7. Orchestration--Ranges (continued).

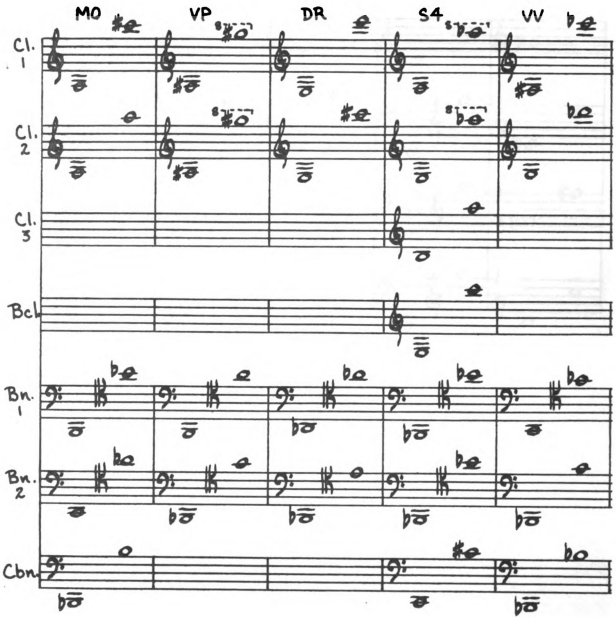



TABLE 7. Orchestration--Ranges (continued).

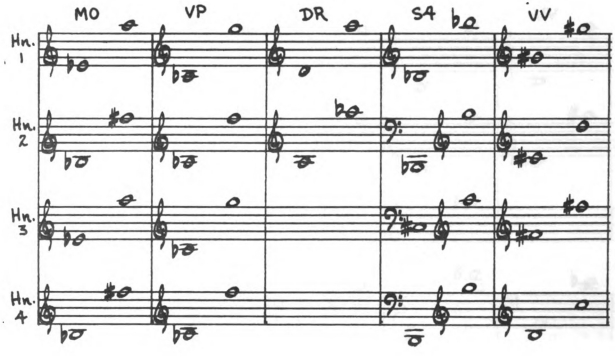



TABLE 7. Orchestration--Ranges (continued).

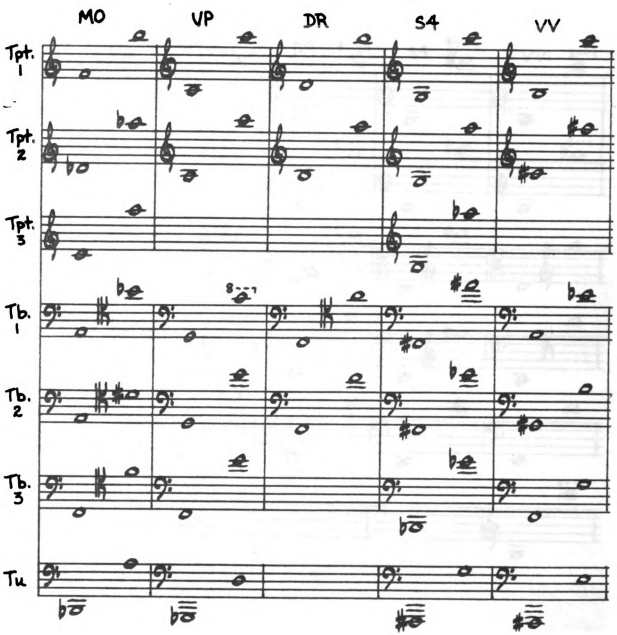



TABLE 7. Orchestration--Ranges (continued).

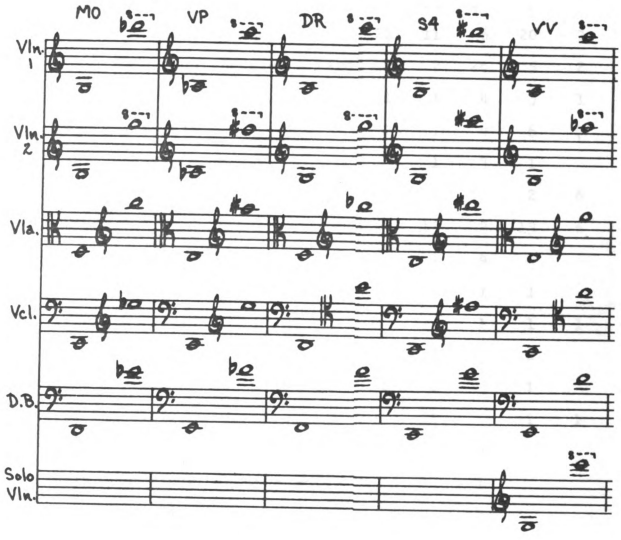



TABLE 8. Orchestration--Instrumental combinations.*

	MO	VP	DR	S4	VV
Strings	9%	37%	10%	17%	25%
Strings & Woodwinds	26	11	12	23	26
Strings, Woodwinds & Brasses	22	11	6	20	7
Strings, Woodwinds, Brasses & Perc.	12	2	26	5	2
Strings, Woodwinds & Perc.	1	1	4	3	1
Strings & Brasses	7	1	4	6	7
Strings, Brasses & Perc.		1	3	1	
Strings & Perc.	3	1	12	2	6
Woodwinds	3	13	2	13	6
Woodwinds & Brasses	13	1	4	4	
Woodwinds, Brasses & Perc.		1	1	1	
Woodwinds & Perc.			1	1	1
Brasses	2	3		2	
Brasses & Perc.	2	1		1	
Percussion		2		1	1
Strings, Woodwinds, Brasses & Harp			4		
Strings, Woodwinds, Perc. & Harp			1		
Strings, Perc. & Harp			3		
Woodwinds, Brasses & Harp			2		
Harp			5		
Strings & Harp					9
Strings, Woodwinds & Harp					1
Solo instrument		14			8

*The figures indicate the percentage of the work in which each combination is employed.

TABLE 9. Orchestration--The percentage of each work containing doubling.

Music for Orchestra	95%
Variations for Piano and Orchestra	76%
Dance Rhythms	89%
Symphony No. 4	86%
Variations for Violin and Orchestra	44%

TABLE 10. Orchestration--Instrumental combinations used for doubling.*

	MO	VP	DR	S4	VV
Strings	40%	36%	30%	33%	16%
Strings & Woodwinds	6	4	4	8	14
Strings, Woodwinds & Brasses	3	2	14	3	9
Strings, Woodwinds, Brasses & Perc.	2	1	4	2	
Strings, Woodwinds & Perc.				1	
Strings & Brasses	2	1	1	2	4
Strings, Brasses & Perc.				1	
Strings & Perc.			2	1	
Woodwinds	19	15	19	22	16
Woodwinds & Brasses	13	5	13	13	2
Woodwinds, Brasses & Perc.			1	1	
Woodwinds & Perc.		1		1	
Brasses	14	4	8	10	6
Brasses & Perc.	1			1	
Percussion			2	1	
Strings, Perc. & Harp			2		
Strings, Woodwinds & Harp					1
Strings & Harp					7
Solo Instrument		31			25

*The figures indicate the percentage of the total doubling in each work.

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