

# Combination Product Sets

The full range of combination product sets can be related to Pascal's Triangle, fig 1.

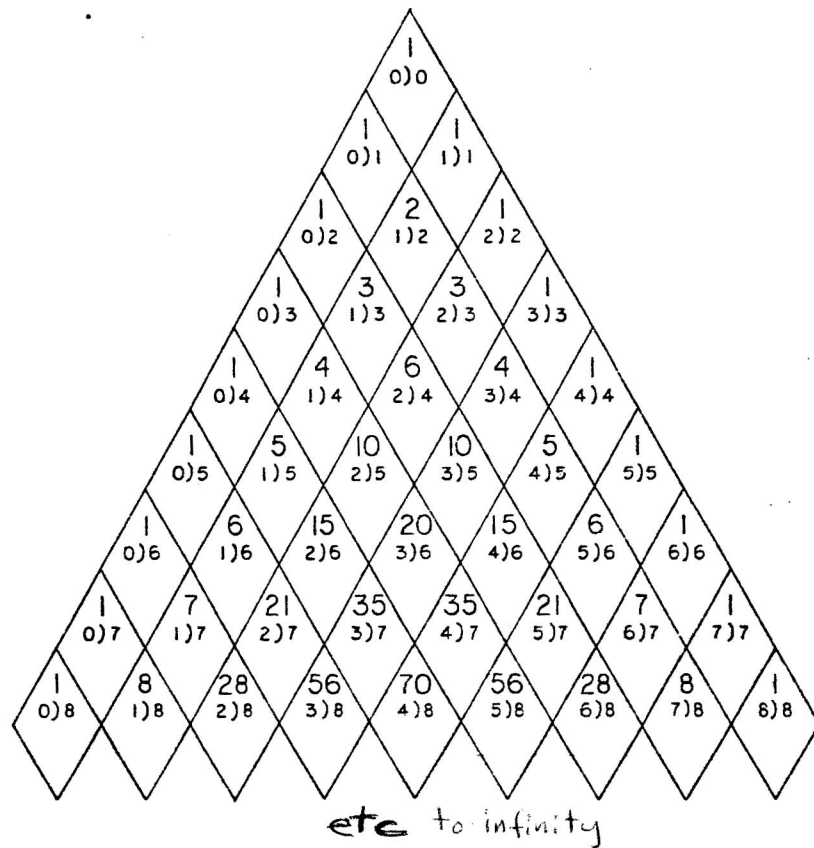


Fig 1

Examples: 2)4 [the combinations of



illustrate

The set of combinations of 2-out-of-4 elements has 6 members. The elements of each member are multiplied. The set of their products is the "combination product set"

The combination set 2-out-of-4 elements A, B, C, D is A,B; A,C; A,D; B,C; B,D; C,D. The combination product set is  $A \times B, A \times C, A \times D, B \times C, B \times D, C \times D$

# The Hexony

Consider the first 4 functions of the Harmonic Series; 1 3 5 7. The six possible combinations of 2 taken from these 4 are 1 3, 1 5, 1 7, 3 5, 3 7, 5 7. Multiplying the elements of each dyad yields a novel set of 6 tones, thus:

|     |                 |   |        |             |                     |
|-----|-----------------|---|--------|-------------|---------------------|
|     |                 |   |        |             | 44<br><del>88</del> |
|     |                 |   |        |             | <del>132</del>      |
|     |                 |   |        |             | <del>220</del>      |
|     |                 |   |        |             | <del>308</del>      |
|     |                 |   |        |             | <del>660</del>      |
|     |                 |   |        |             | <del>924</del>      |
|     |                 |   |        |             | <del>1320</del>     |
|     |                 |   |        |             | <del>1540</del>     |
| (1) | duplex function | = | result | Pitch, base |                     |
|     |                 |   |        |             | <del>132</del>      |
|     |                 |   |        |             | <del>220</del>      |
|     |                 |   |        |             | <del>308</del>      |
|     |                 |   |        |             | <del>660</del>      |
|     |                 |   |        |             | <del>924</del>      |
|     |                 |   |        |             | <del>1320</del>     |
|     |                 |   |        |             | <del>1540</del>     |

Notating in open position first, for clarity

Tetrad:                                  Hexony:

1      3      5      7      13      15      17      35      21      35

(15)    (21)    (35)

Now, in closed position, for convenience;

Tetrad:                                  Hexony:

1      3      5      7      13      15      17      35      21      35

(4)

|   |                       |   |   |   |                        |
|---|-----------------------|---|---|---|------------------------|
|   | $\binom{4}{0}$ Monary | $\binom{4}{1}$ Tetrany  | $\binom{4}{2}$ Hexany   | $\binom{4}{3}$ Tetrany                                      | $\binom{4}{4}$ Monary  |
|   | 1                     | 4   | 6   | 4   | 1                      |
|   |                       |   |   |   |                        |
| harmonic generation:  | $\emptyset$           | 1 3 5 7   | 1.3 1.5 1.7 3.5 3.7 5.7   | 1.3.5 1.3.7 1.5.7 3.5.7                                     | 1.3.5.7                |
| Congruent Subharmonic generation ( $\times \frac{1}{1.3.5.7}$ ) | $\overline{1.3.5.7}$  | $\overline{3.5.7}$ $\overline{1.5.7}$ $\overline{1.3.7}$ $\overline{1.3.5}$ | $\overline{5.7}$ $\overline{3.7}$ $\overline{3.5}$ $\overline{1.7}$ $\overline{1.5}$ $\overline{1.3}$ | $\overline{7}$ $\overline{5}$ $\overline{3}$ $\overline{1}$ | $\overline{\emptyset}$ |

(5)

|  |                  |         |                            |                               |         |
|--|------------------|---------|----------------------------|-------------------------------|---------|
|  | Kenoad<br>Zeroad | Monads  | Dyads                      | Triads                        | Tetrad  |
|  | 1                | 4       | 6                          | 4                             | 1       |
|  |                  |         |                            |                               |         |
|  | $\emptyset$      | 1 3 5 7 | 3 5 7 3 7 7<br>1 1 1 5 3 5 | 3 7 7 7<br>5 3 5 3<br>1 1 1 5 | 7 3 5 1 |

(6)

Tetrad

Triads

Dyads

Monads

Kenod  
Nullad  
Zeroad

1  
5  
3  
7

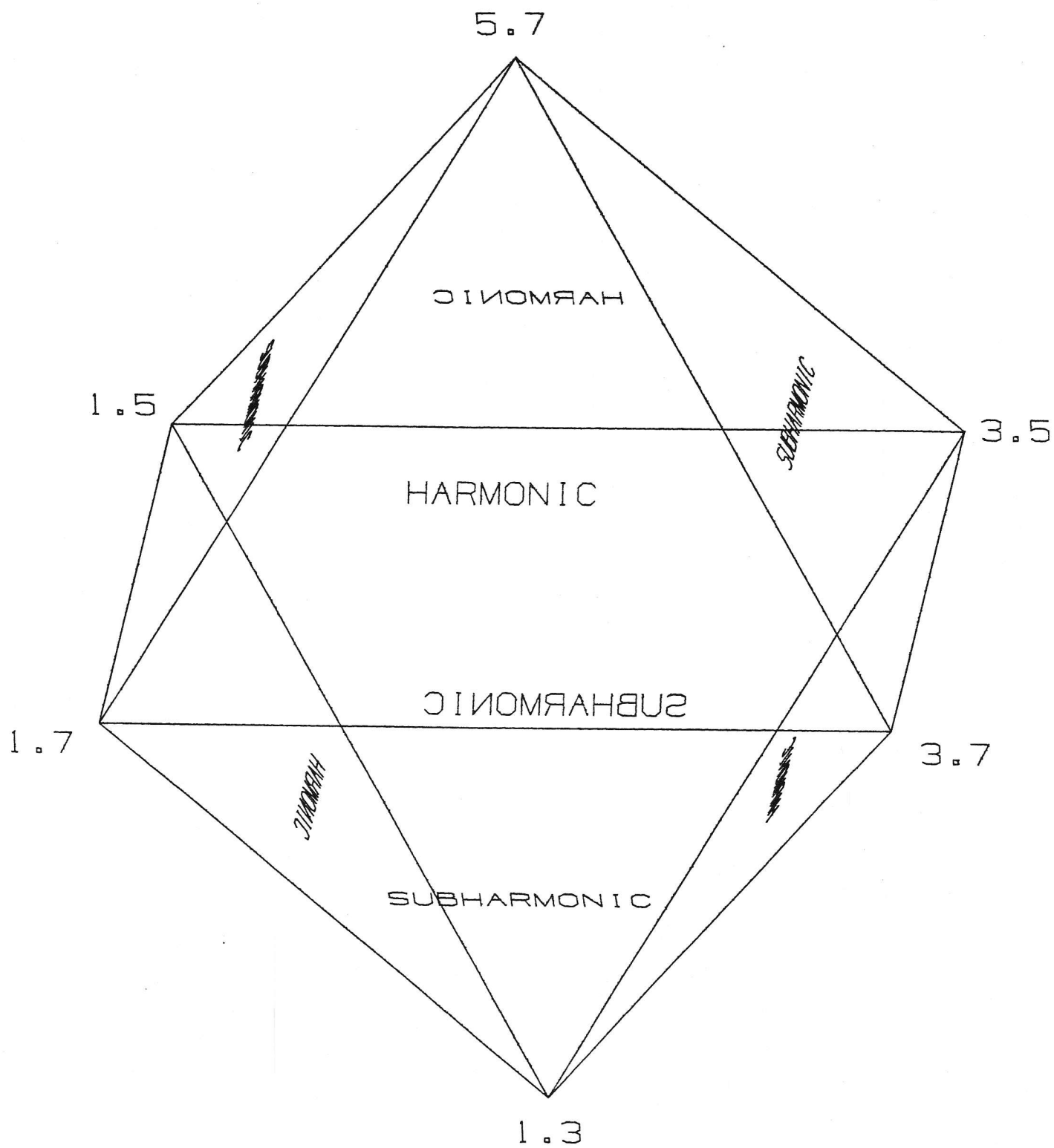
5 7  
3 5  
7 7

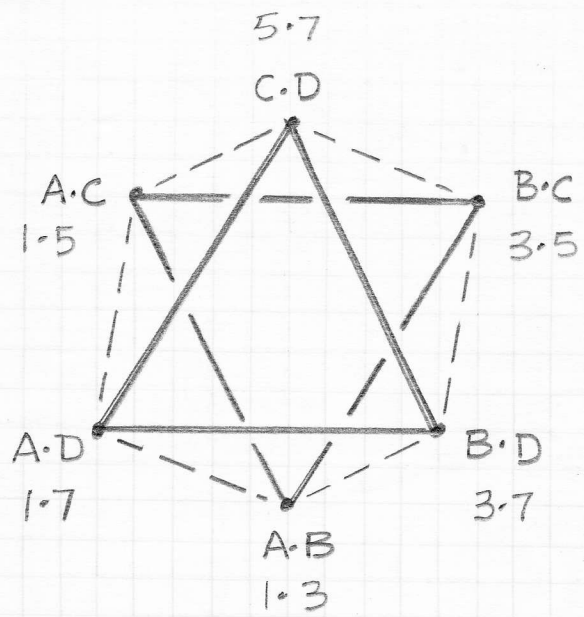
5 7  
3 7  
3 5  
7 7  
7 5  
3 3

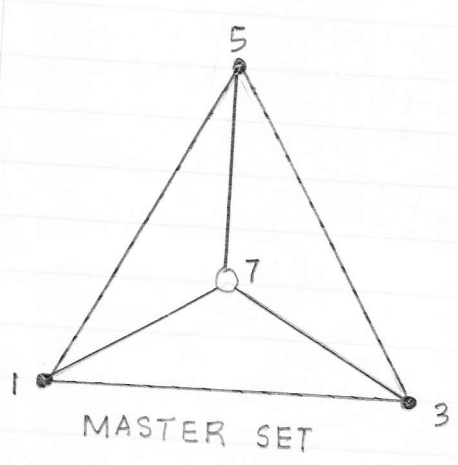
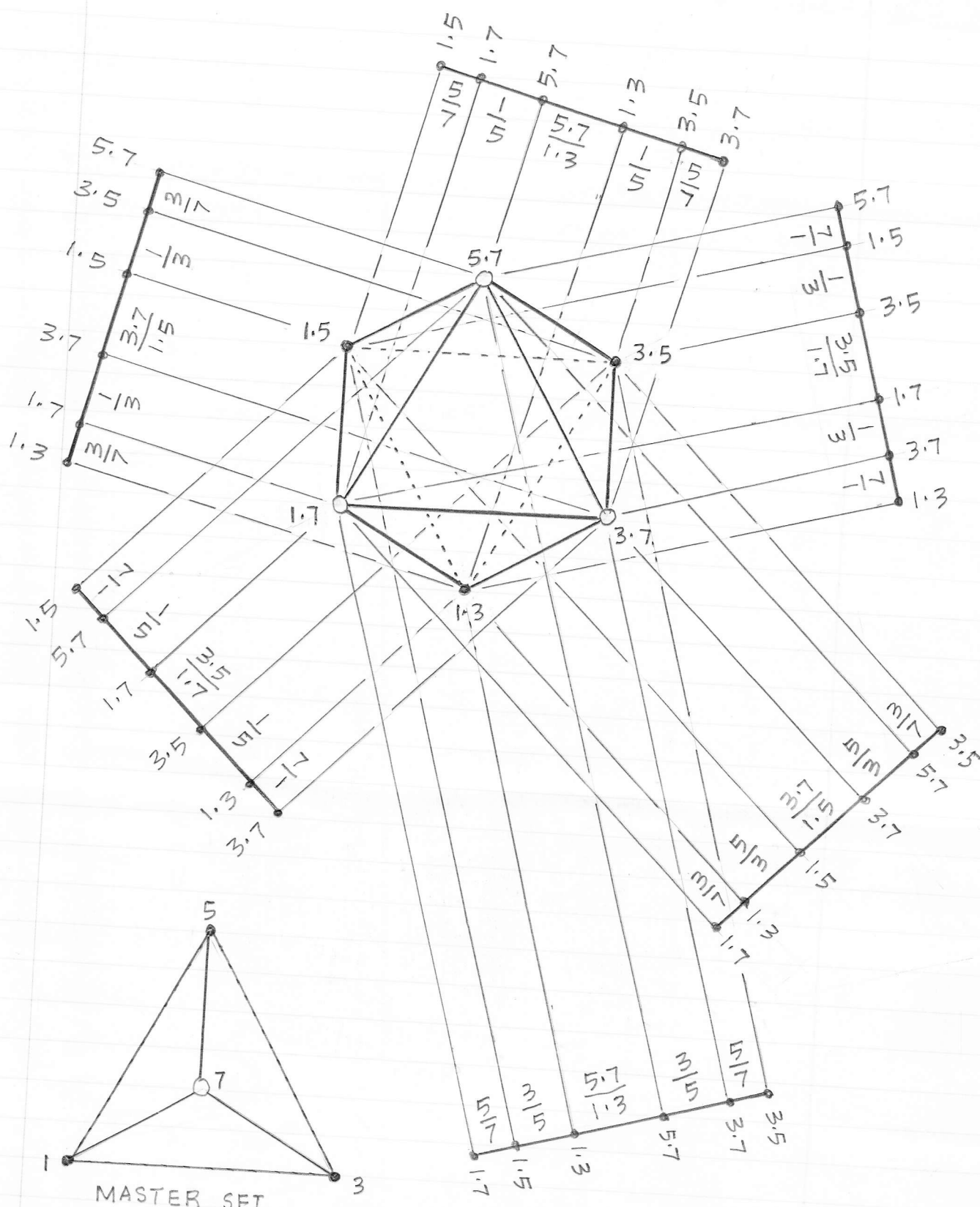
7 5  
3 7  
3 5  
7 7

7 5  
3 7  
3 5  
7 7

∅

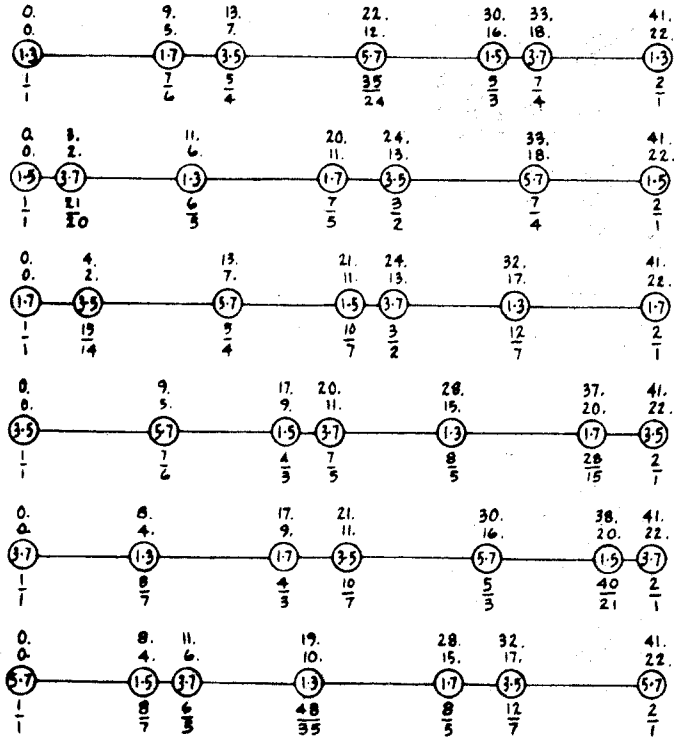
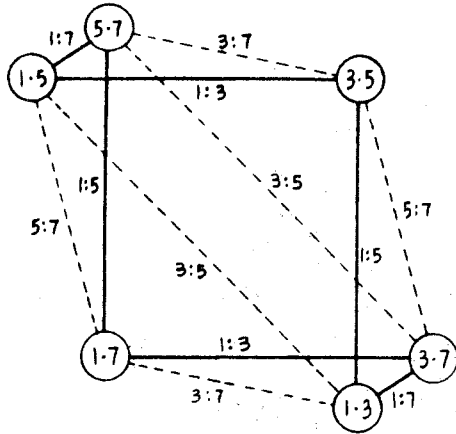






# HEXANY

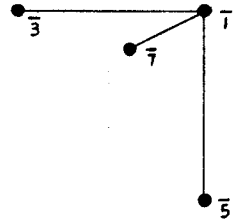
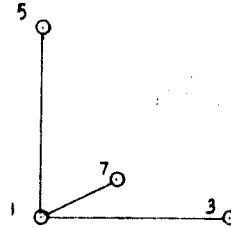
1-3-5-7  
 1 3  
 1 5  
 1 7  
 3 5  
 3 7  
 5 7



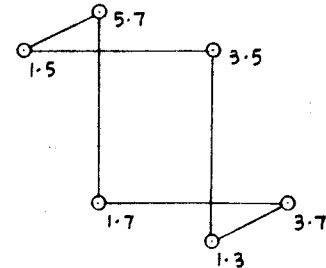
Issued by Erv Wilson 27 Nov 67

# The 1-3-5-7 Hexany & its 8 Facets

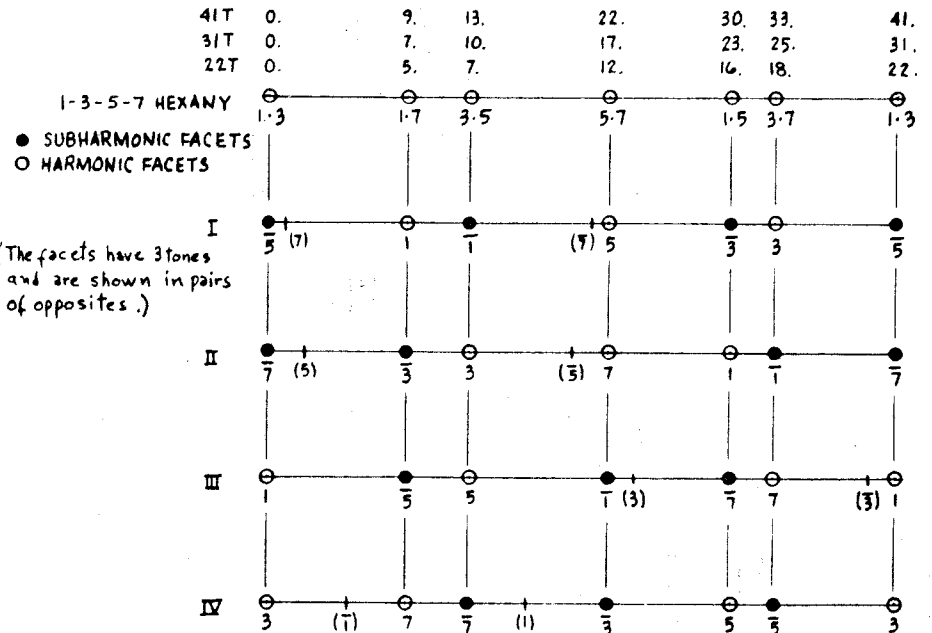
HARMONIC TETRAD 1 3 5 7



SUBHARMONIC TETRAD 1 3 5 7



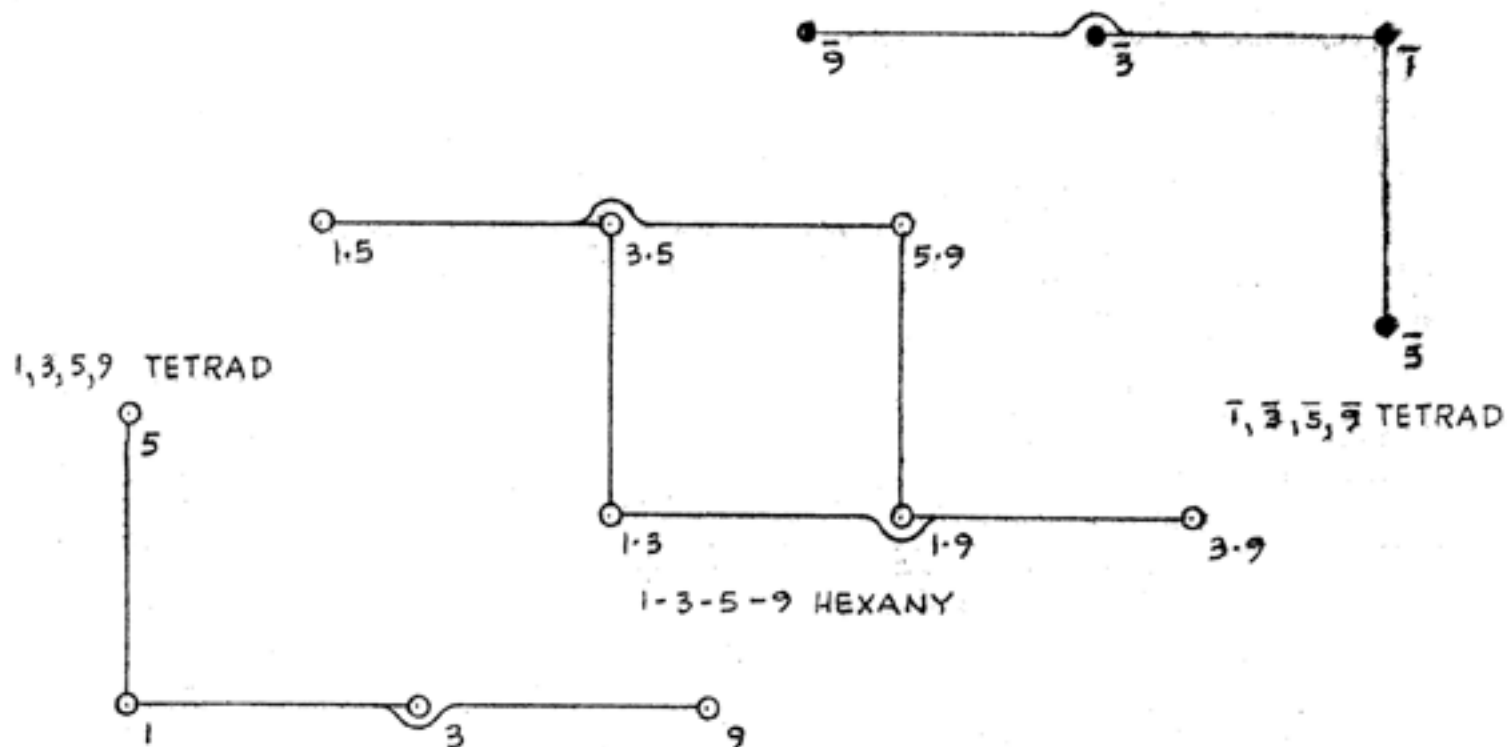
1-3-5-7 HEXANY



Issued by Erv Wilson 17 Jul 67

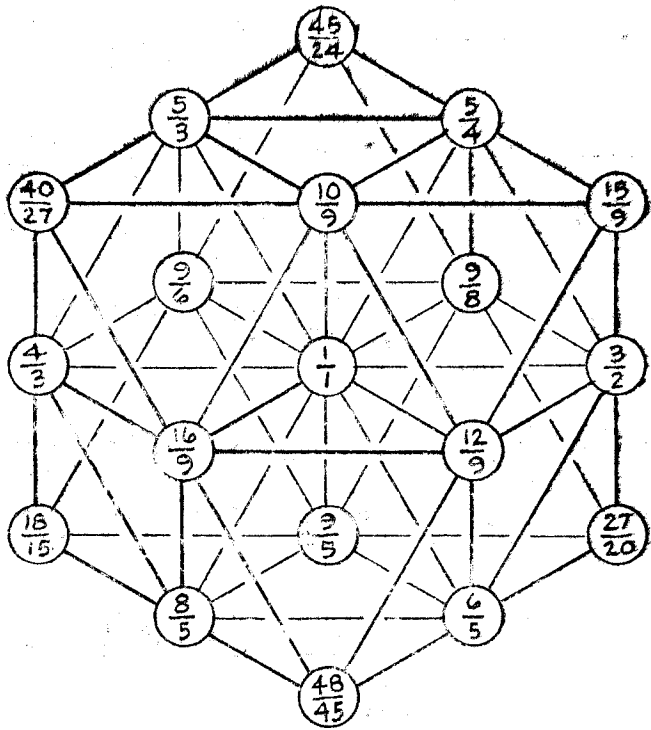
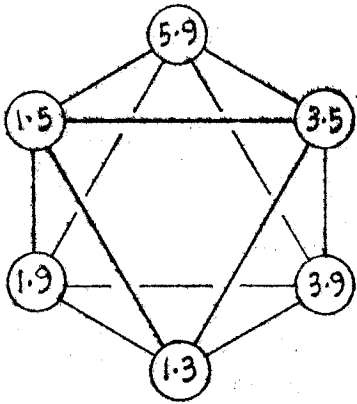


# The 1-3-5-9 Hexany & Facets



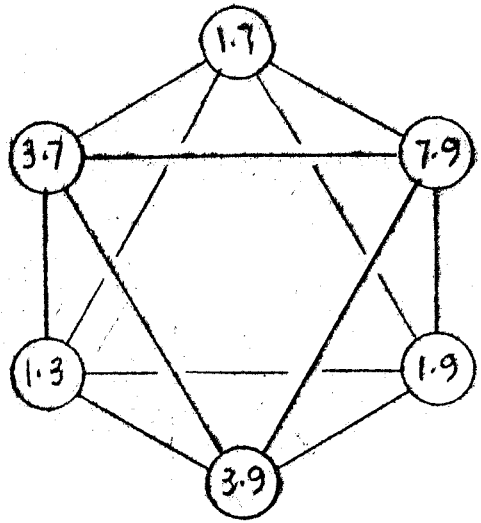
|                | 0.      | 7.      | 13.     | 24.       | 30.     | 37.     | 41.   |
|----------------|---------|---------|---------|-----------|---------|---------|-------|
| 41T            | 0.      | 7.      | 13.     | 24.       | 30.     | 37.     | 41.   |
| 31T            | 0.      | 5.      | 10.     | 18.       | 23.     | 28.     | 31.   |
| 22T            | 0.      | 4.      | 7.      | 13.       | 16.     | 20.     | 22.   |
| 1-3-5-9 HEXANY | ⊖ 1-3   | ⊖ 3-9   | ⊖ 3-5   | ⊖ 1-9     | ⊖ 1-5   | ⊖ 5-9   | ⊖ 1-3 |
| 1,3,5 FACETS   | ● 3     | ⊖ (3) 3 | ● 1     | ⊖ 1       | ● 3 (9) | ⊖ 5     | ● 3   |
| 1,3,9 FACETS   | ● 9 (5) | ● 1     | ⊖ 3     | ● 5       | ⊖ 1     | ⊖ (3) 9 | ● 9   |
| 1,9,5 FACETS   | ⊖ 1     | ⊖ 9     | ⊖ 5 (3) | ● 5 (3)   | ● 9     | ⊖ 1     | ⊖ 1   |
| 3,9,5 FACETS   | ⊖ 3     | ● 5     | ● 9     | ⊖ (1) (1) | ⊖ 9     | ⊖ 5     | ⊖ 3   |
|                |         |         |         |           |         |         |       |

(COMMON-TONE AGGREGATE)



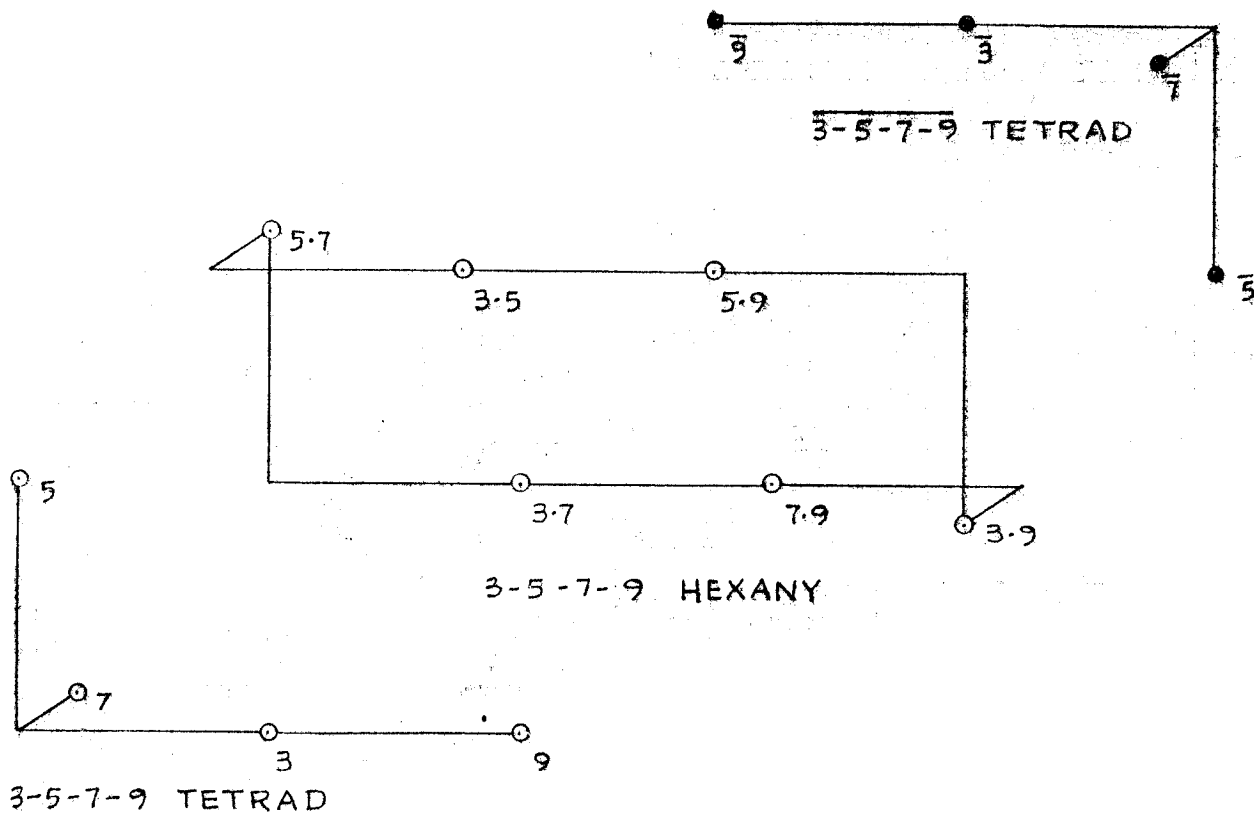
|               |                                 |                               |                              |                             |                              |                                |               |
|---------------|---------------------------------|-------------------------------|------------------------------|-----------------------------|------------------------------|--------------------------------|---------------|
| 0.<br>0.      | 7.<br>4.                        | 13.<br>7.                     |                              | 24.<br>13.                  | 30.<br>16.                   | 37.<br>20.                     | 41.<br>22.    |
| (1.3)         | (3.9)                           | (3.5)                         |                              | (1.9)                       | (1.5)                        | (5.9)                          | (1.3)         |
| $\frac{1}{1}$ | $\frac{9}{8}$                   | $\frac{5}{4}$                 |                              | $\frac{9}{6} (\frac{3}{2})$ | $\frac{5}{3}$                | $\frac{45}{24} (\frac{15}{8})$ | $\frac{2}{1}$ |
| 0.<br>0.      | 7.<br>4.                        | 11.<br>6.                     | 18.<br>10.                   | 24.<br>13.                  |                              | 35.<br>19.                     | 41.<br>22.    |
| (1.5)         | (5.9)                           | (1.3)                         | (3.9)                        | (3.5)                       |                              | (1.9)                          | (1.5)         |
| $\frac{1}{1}$ | $\frac{9}{8}$                   | $\frac{6}{5}$                 | $\frac{27}{20}$              | $\frac{3}{2}$               |                              | $\frac{9}{5}$                  | $\frac{2}{1}$ |
| 0.<br>0.      | 6.<br>3.                        | 13.<br>7.                     | 17.<br>9.                    | 24.<br>13.                  | 30.<br>16.                   |                                | 41.<br>22.    |
| (1.9)         | (1.5)                           | (5.9)                         | (1.3)                        | (3.9)                       | (3.5)                        |                                | (1.9)         |
| $\frac{1}{1}$ | $\frac{10}{9}$                  | $\frac{5}{4}$                 | $\frac{12}{9} (\frac{4}{3})$ | $\frac{3}{2}$               | $\frac{15}{9} (\frac{5}{3})$ |                                | $\frac{2}{1}$ |
| 0.<br>0.      |                                 | 11.<br>6.                     | 17.<br>9.                    | 24.<br>13.                  | 28.<br>15.                   | 35.<br>19.                     | 41.<br>22.    |
| (3.5)         |                                 | (1.9)                         | (1.5)                        | (5.9)                       | (1.3)                        | (3.9)                          | (3.5)         |
| $\frac{1}{1}$ |                                 | $\frac{18}{15} (\frac{6}{5})$ | $\frac{4}{3}$                | $\frac{9}{6} (\frac{3}{2})$ | $\frac{8}{5}$                | $\frac{9}{5}$                  | $\frac{2}{1}$ |
| 0.<br>0.      | 6.<br>3.                        |                               | 17.<br>9.                    | 23.<br>12.                  | 30.<br>16.                   | 34.<br>18.                     | 41.<br>22.    |
| (3.9)         | (3.5)                           |                               | (1.9)                        | (1.5)                       | (5.9)                        | (1.3)                          | (3.9)         |
| $\frac{1}{1}$ | $\frac{10}{9}$                  |                               | $\frac{4}{3}$                | $\frac{40}{27}$             | $\frac{5}{3}$                | $\frac{16}{9}$                 | $\frac{2}{1}$ |
| 0.<br>0.      | 4.<br>2.                        | 11.<br>6.                     | 17.<br>9.                    |                             | 28.<br>15.                   | 34.<br>18.                     | 41.<br>22.    |
| (5.9)         | (1.3)                           | (3.9)                         | (3.5)                        |                             | (1.9)                        | (1.5)                          | (5.9)         |
| $\frac{1}{1}$ | $\frac{48}{45} (\frac{16}{15})$ | $\frac{5}{6}$                 | $\frac{12}{9} (\frac{4}{3})$ |                             | $\frac{8}{5}$                | $\frac{16}{9}$                 | $\frac{2}{1}$ |

1.3.7.9 Hexany



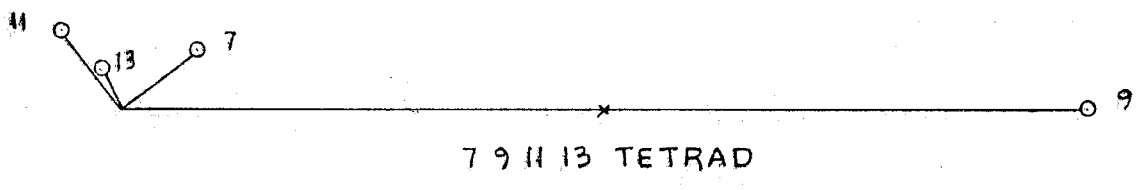
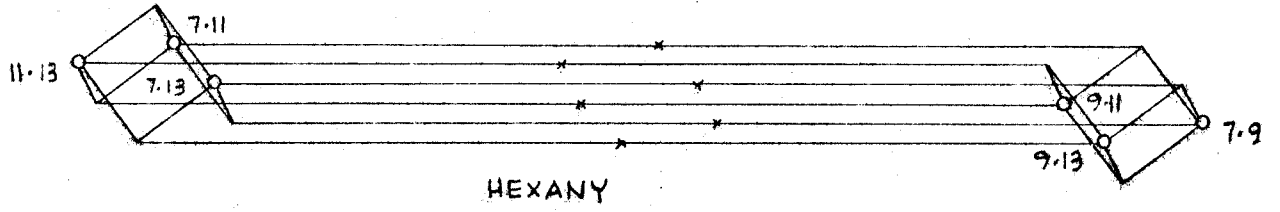
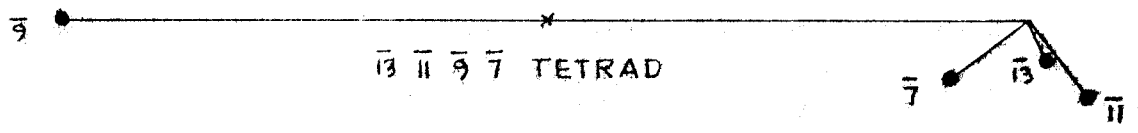
|               |                 |                |                 |                |                 |               |
|---------------|-----------------|----------------|-----------------|----------------|-----------------|---------------|
| 0.<br>0.      | 7.<br>4.        | 9.<br>5.       | 16.<br>9.       | 24.<br>13.     | 33.<br>18.      | 41.<br>22.    |
| (1.3)         | (3.9)           | (1.7)          | (7.9)           | (1.9)          | (3.7)           | (1.3)         |
| $\frac{1}{1}$ | $\frac{9}{8}$   | $\frac{7}{6}$  | $\frac{21}{16}$ | $\frac{9}{6}$  | $\frac{7}{4}$   | $\frac{2}{1}$ |
| 0.<br>0.      | 7.<br>4.        | 15.<br>8.      | 24.<br>13.      | 32.<br>17.     | 39.<br>21.      | 41.<br>22.    |
| (1.7)         | (7.9)           | (1.9)          | (3.7)           | (1.3)          | (3.9)           | (1.7)         |
| $\frac{1}{1}$ | $\frac{9}{8}$   | $\frac{9}{7}$  | $\frac{3}{2}$   | $\frac{12}{7}$ | $\frac{54}{28}$ | $\frac{2}{1}$ |
| 0.<br>0.      | 9.<br>5.        | 17.<br>9.      | 24.<br>13.      | 26.<br>14.     | 33.<br>18.      | 41.<br>22.    |
| (1.9)         | (3.7)           | (1.3)          | (3.9)           | (1.7)          | (7.9)           | (1.9)         |
| $\frac{1}{1}$ | $\frac{21}{18}$ | $\frac{12}{9}$ | $\frac{3}{2}$   | $\frac{14}{9}$ | $\frac{7}{4}$   | $\frac{2}{1}$ |
| 0.<br>0.      | 8.<br>4.        | 15.<br>8.      | 17.<br>9.       | 24.<br>13.     | 32.<br>17.      | 41.<br>22.    |
| (3.7)         | (1.3)           | (3.9)          | (1.7)           | (7.9)          | (1.9)           | (3.7)         |
| $\frac{1}{1}$ | $\frac{8}{7}$   | $\frac{9}{7}$  | $\frac{4}{3}$   | $\frac{9}{6}$  | $\frac{36}{21}$ | $\frac{2}{1}$ |
| 0.<br>0.      | 2.<br>1.        | 9.<br>5.       | 17.<br>9.       | 26.<br>14.     | 34.<br>18.      | 41.<br>22.    |
| (3.9)         | (1.7)           | (7.9)          | (1.9)           | (3.7)          | (1.3)           | (3.9)         |
| $\frac{1}{1}$ | $\frac{7}{6}$   | $\frac{4}{3}$  | $\frac{14}{9}$  | $\frac{16}{9}$ | $\frac{2}{1}$   | $\frac{2}{1}$ |
| 0.<br>0.      | 8.<br>4.        | 17.<br>9.      | 25.<br>13.      | 32.<br>17.     | 34.<br>18.      | 41.<br>22.    |
| (7.9)         | (1.9)           | (3.7)          | (1.3)           | (3.9)          | (1.7)           | (7.9)         |
| $\frac{1}{1}$ | $\frac{8}{7}$   | $\frac{12}{9}$ | $\frac{32}{21}$ | $\frac{12}{7}$ | $\frac{16}{9}$  | $\frac{2}{1}$ |

# 3-5-7-9 HEXANY & FACETS



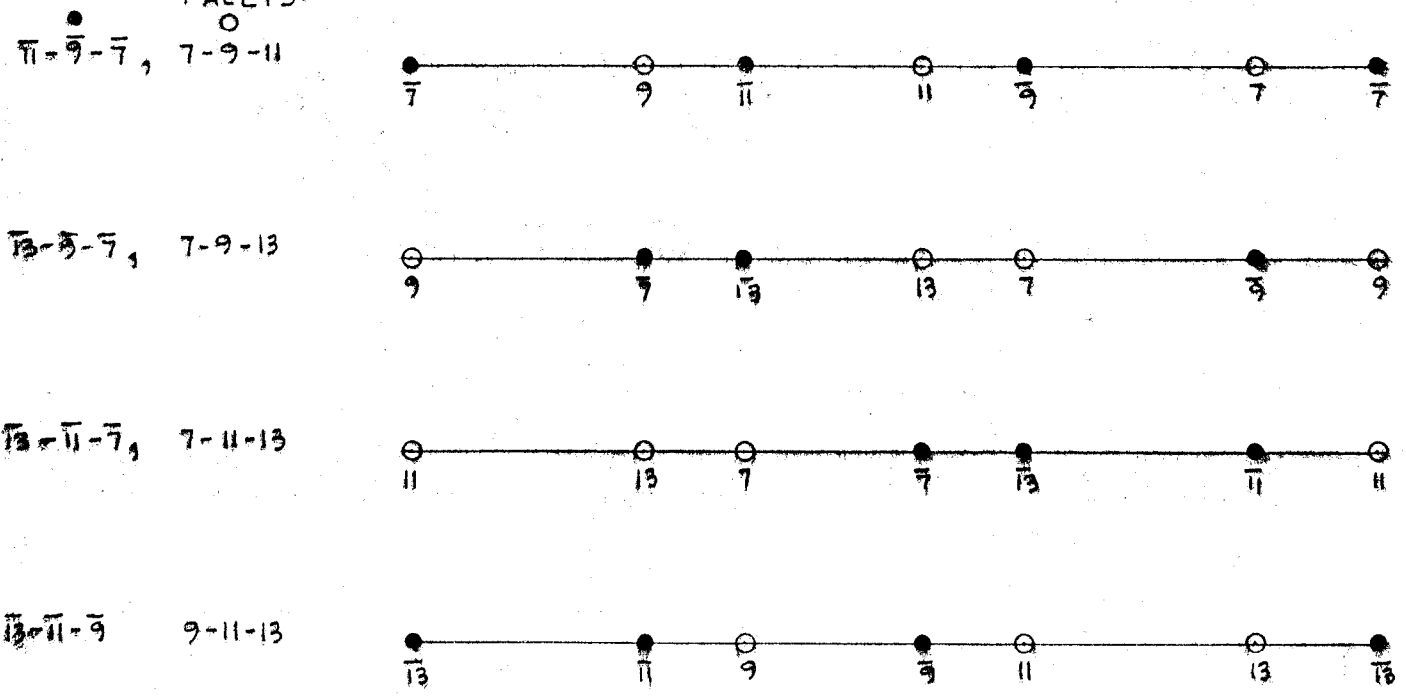
|                |     |     |     |     |     |     |     |     |
|----------------|-----|-----|-----|-----|-----|-----|-----|-----|
|                | 41  | 0.  | 6.  | 9.  | 15. | 26. | 30. | 41. |
|                | 31  | 0.  | 5.  | 7.  | 12. | 20. | 23. | 31. |
|                | 22  | 0.  | 3.  | 5.  | 8.  | 14. | 16. | 22. |
| 3-5-7-9 HEXANY | ⊖   | ⊖   | ⊖   | ⊖   | ⊖   | ⊖   | ⊖   | ⊖   |
|                | 3-9 | 3-5 | 7-9 | 5-7 | 3-7 | 5-9 | 3-9 |     |
| 3-5-7 FACETS   | ⊖   | ●   | ⊖   | ●   | ⊖   | ⊖   | ⊖   | I   |
|                | 3   | 7   | 7   | 3   | 5   | 5   | 3   |     |
| 3-5-9 FACETS   | ●   | ●   | ⊖   | ⊖   | ⊖   | ●   | ⊖   | II  |
|                | 5   | 9   | 9   | 5   | 3   | 3   | 5   |     |
| 3-7-9 FACETS   | ●   | ⊖   | ●   | ⊖   | ●   | ⊖   | ●   | III |
|                | 7   | 3   | 3   | 7   | 9   | 9   | 7   |     |
| 5-7-9 FACETS   | ⊖   | ⊖   | ●   | ●   | ⊖   | ●   | ⊖   | IV  |
|                | 9   | 5   | 5   | 9   | 7   | 7   | 9   |     |

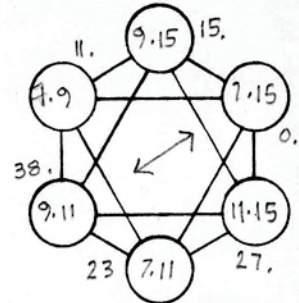
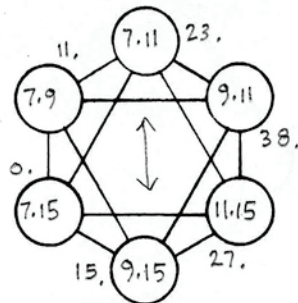
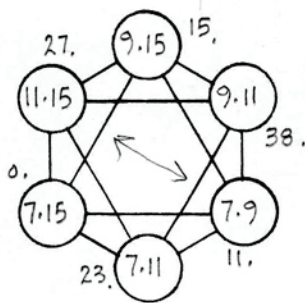
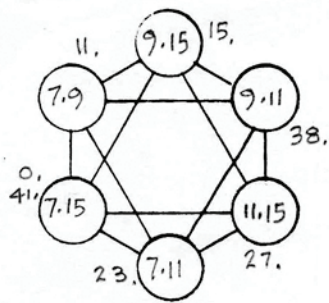
# 7-9-11-13 Hexany



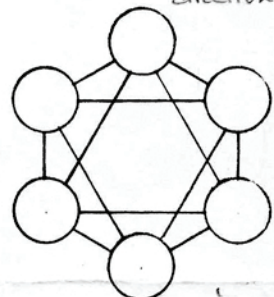
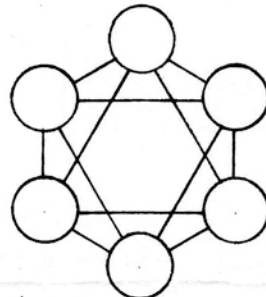
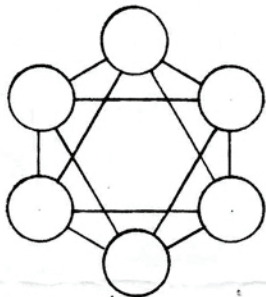
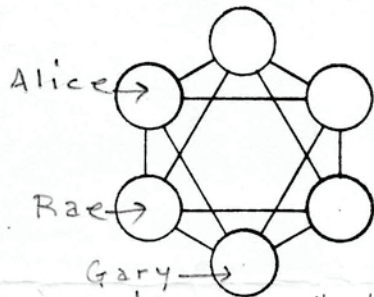
|         |      |      |     |       |      |      |      |
|---------|------|------|-----|-------|------|------|------|
| 4IT     | 0.   | 10.  | 14. | 22.   | 26.  | 36   | 41.  |
| 3IT     | 0.   | 8.   | 11. | 17.   | 20.  | 28.  | 31.  |
| 22T     | 0.   | 6.   | 8.  | 12.   | 14.  | 20.  | 22.  |
| HEXANY: | ⊖    | ⊖    | ⊖   | ⊖     | ⊖    | ⊖    | ⊖    |
|         | 9-11 | 9-13 | 7-9 | 11-13 | 7-11 | 7-13 | 9-11 |

## FACETS:

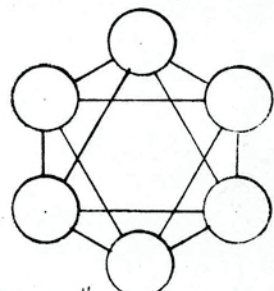
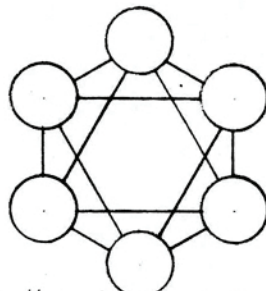
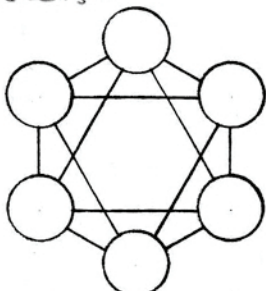
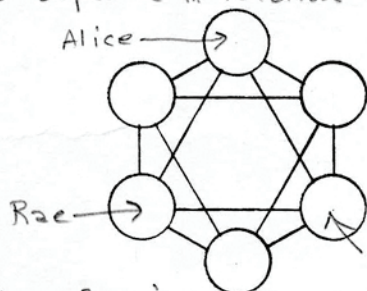




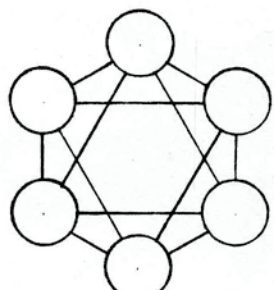
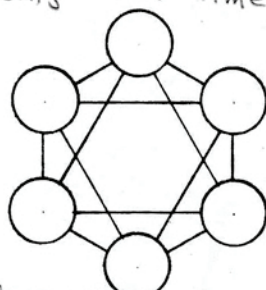
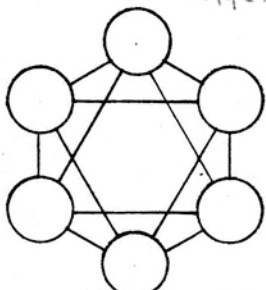
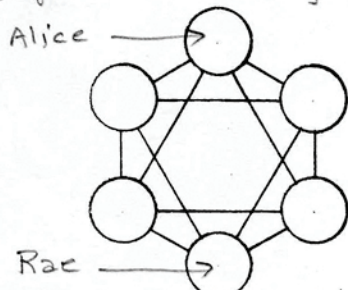
These are the 4 hexagrams of the 7 9 11 15 hexany. They are sung in clockwise or counterclockwise direction.



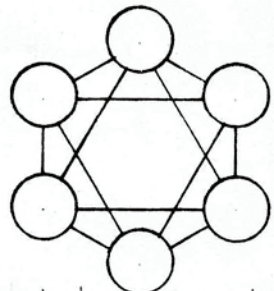
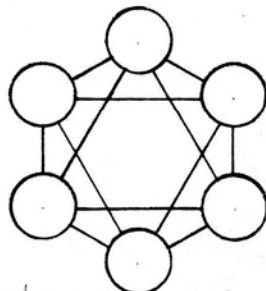
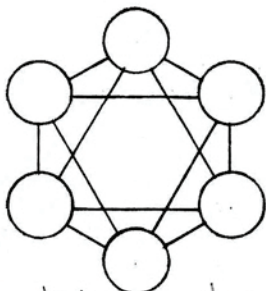
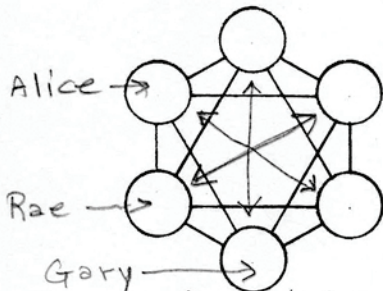
We call it "follow-the-leader" when 3 voices sing around the hexagram as shown. This gives a sequence in rotation of 6 facets.



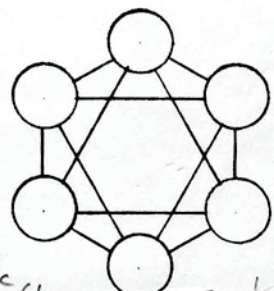
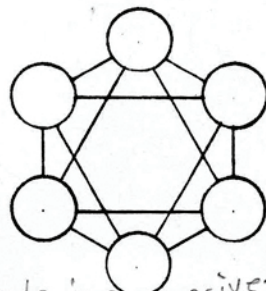
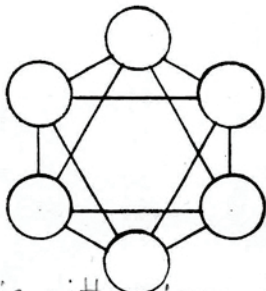
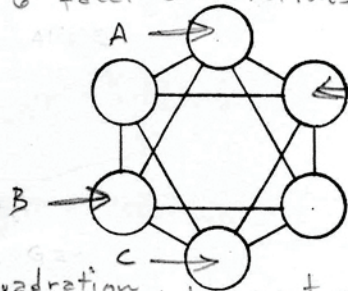
When 3 voices sing around the hexagram in this pattern we call it a "Trine". This gives 2 alternating facets, but with different voicing each time.



2 voices - this would be an opposition. We haven't tried this yet.



3 voices singing back & forth, but at different rates, between the tones indicated will produce all 6 facet combinations

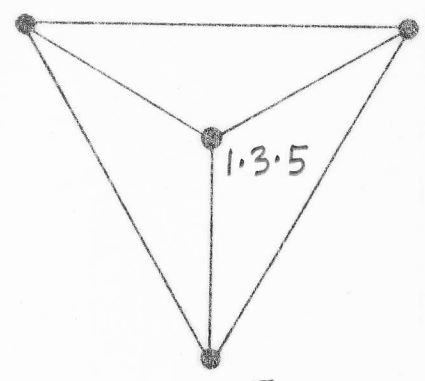


A quadration, I haven't used this with voices. on marimba in percussive-melodic figures its good. Wilson 68

1.3.5.7



1.5.7



3.5.7

1.3.5

1.3.7

5.7

1.5

1.7

3.5

3.7

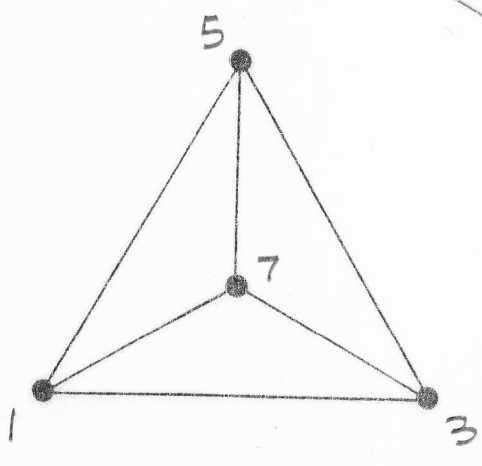
1.3

5

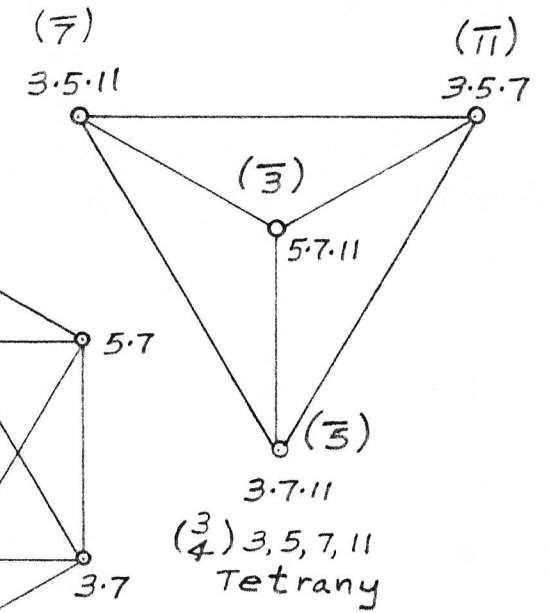
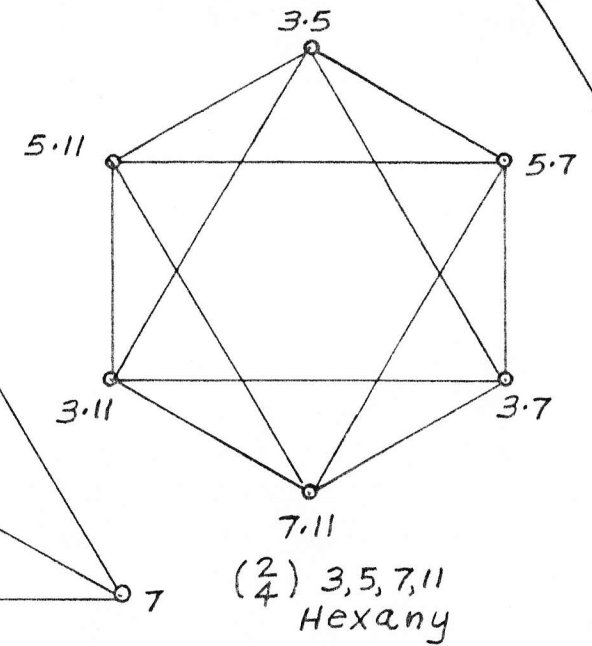
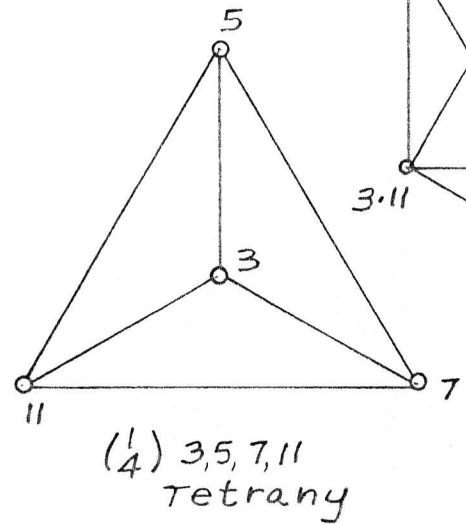
7

1

3



$\diamond$   
 $\emptyset$   
 $\binom{0}{4} 3, 5, 7, 11$   
 Monany



$\diamond$   
 $3 \cdot 5 \cdot 7 \cdot 11$   
 $\binom{4}{4} 3, 5, 7, 11$   
 Monany



| 308    | 440    | 280   |  | 480   | 336   | 264    | pitches                           |
|--------|--------|-------|--|-------|-------|--------|-----------------------------------|
| (7·11) | (5·11) | (5·7) |  | (3·5) | (3·7) | (3·11) | Factorads                         |
| 5      | 7      | 11    |  |       |       |        | - subharmonic triad               |
|        |        |       |  | 5     | 7     | 11     | - harmonic triad                  |
|        | 11     | 7     |  | 3     |       |        | ] resultant<br>harmonic triads    |
| 11     |        | 5     |  |       | 3     |        |                                   |
| 7      | 5      |       |  |       |       | 3      |                                   |
|        |        | 3     |  | 7     | 5     |        | ] resultant<br>subharmonic triads |
|        | 3      |       |  | 11    |       | 5      |                                   |
| 3      |        |       |  |       | 11    | 7      |                                   |

1, 3, 5, n Hexany on Tridic Lattice, Modulus 7

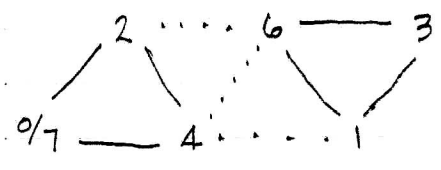
① of 12

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19JUL98-E.W.

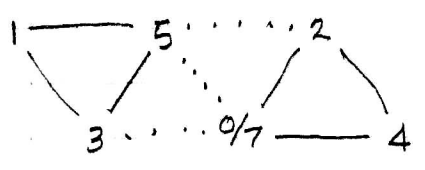
|     |   |   |   |     |   |   |     |   |
|-----|---|---|---|-----|---|---|-----|---|
| 0/7 | 4 | 1 | 5 | 2   | 6 | 3 | 0/7 |   |
| 5   | 2 | 6 | 3 | 0/7 | 4 | 1 | 5   | 2 |
| 0/7 | 4 | 1 | 5 | 2   | 6 | 3 | 0/7 |   |
| 5   | 2 | 6 | 3 | 0/7 | 4 | 1 | 5   | 2 |
| 0/7 | 4 | 1 | 5 | 2   | 6 | 3 | 0/7 |   |
| 5   | 2 | 6 | 3 | 0/7 | 4 | 1 | 5   | 2 |
| 0/7 | 4 | 1 | 5 | 2   | 6 | 3 | 0/7 |   |
| 5   | 2 | 6 | 3 | 0/7 | 4 | 1 | 5   | 2 |

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P. 2



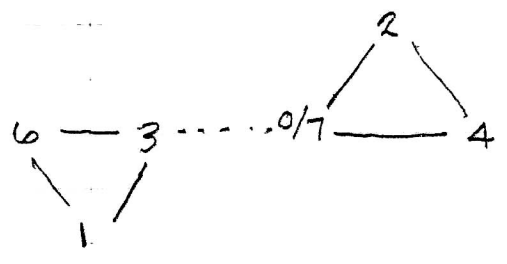
$$6, \quad 0, \quad 1, \quad 2, \quad 3, \quad 4, \quad 6,$$

$$\frac{16}{15} \quad \frac{9}{8} \quad \frac{10}{9} \quad \frac{9}{8} \quad \frac{16}{15} \quad \left(\frac{5}{4}\right)$$



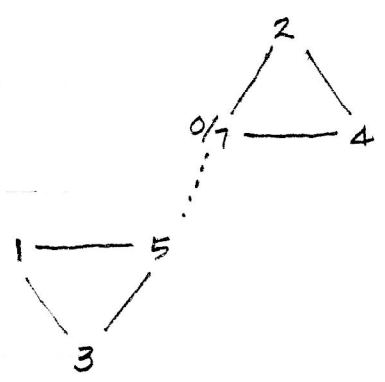
$$0, \quad 1, \quad 2, \quad 3, \quad 4, \quad 5, \quad 0,$$

$$\frac{10}{9} \quad \frac{9}{8} \quad \frac{16}{15} \quad \frac{9}{8} \quad \frac{10}{9} \quad \left(\frac{6}{5}\right)$$



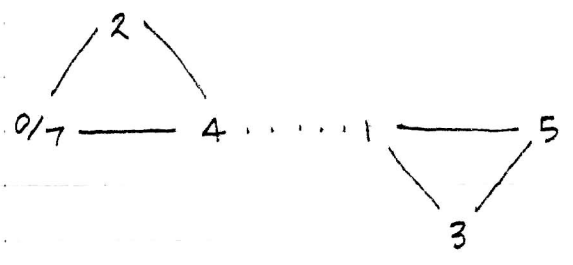
$$6, \quad 0, \quad 1, \quad 2, \quad 3, \quad 4, \quad 6,$$

$$\frac{9}{8} \quad \frac{16}{15} \quad \frac{75}{64} \quad \frac{16}{15} \quad \frac{9}{8} \quad \left(\frac{32}{27}\right)$$



$$0, \quad 1, \quad 2, \quad 3, \quad 4, \quad 5, \quad 0,$$

$$\frac{16}{15} \quad \frac{75}{64} \quad \frac{128}{125} \quad \frac{75}{64} \quad \frac{16}{15} \quad \left(\frac{5}{4}\right)$$

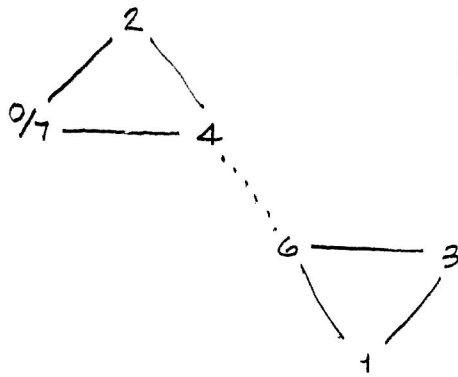


$$0, \quad 1, \quad 2, \quad 3, \quad 4, \quad 5, \quad 0,$$

$$\frac{9}{8} \quad \frac{10}{9} \quad \frac{27}{25} \quad \frac{10}{9} \quad \frac{9}{8} \quad \left(\frac{32}{27}\right)$$

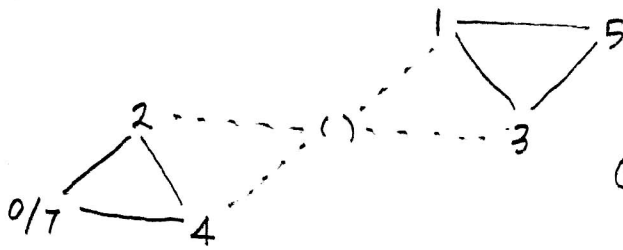
3

19 JUL 98 - E.W.  
P. 3



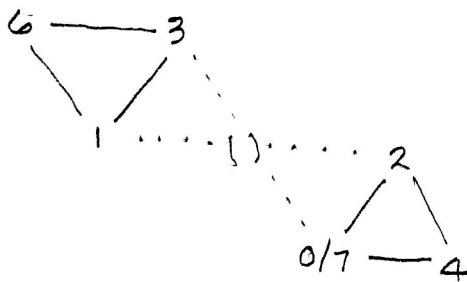
6. 0. 1. 2. 3. 4. 6.

$$\frac{10}{9} \quad \frac{27}{25} \quad \frac{125}{108} \quad \frac{27}{25} \quad \frac{10}{9} \quad \left(\frac{6}{5}\right)$$



0 1. 2. 3. 4. 5. 0

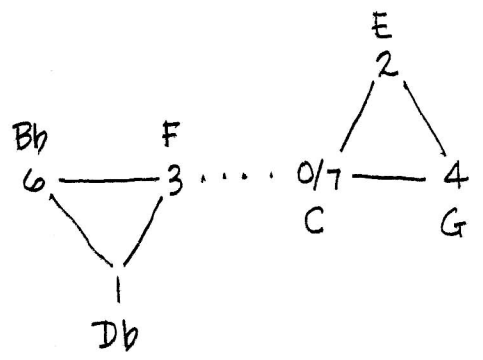
$$\frac{75}{64} \quad \frac{16}{15} \quad \frac{9}{8} \quad \frac{16}{15} \quad \frac{75}{64} \quad \left(\frac{256}{225}\right)$$



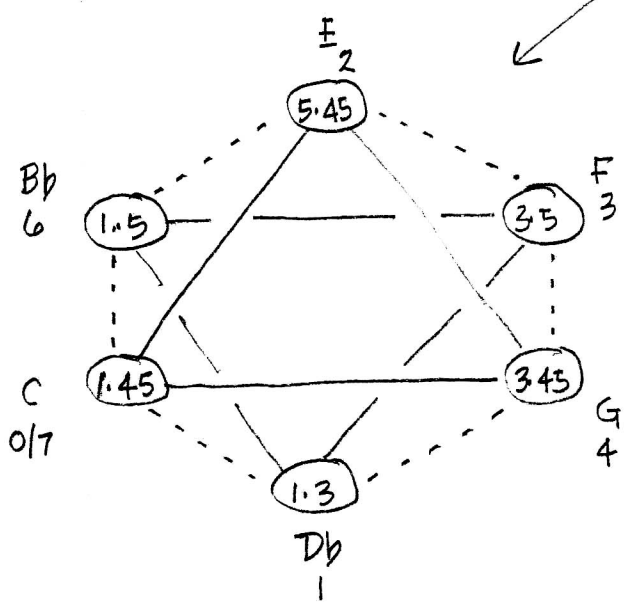
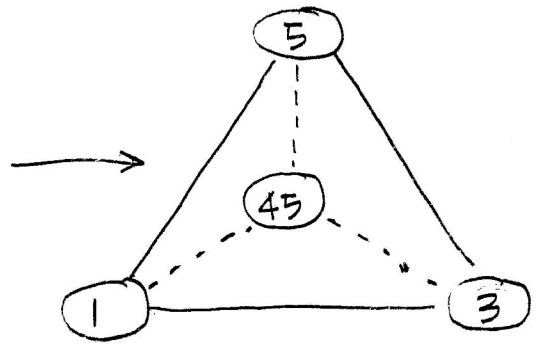
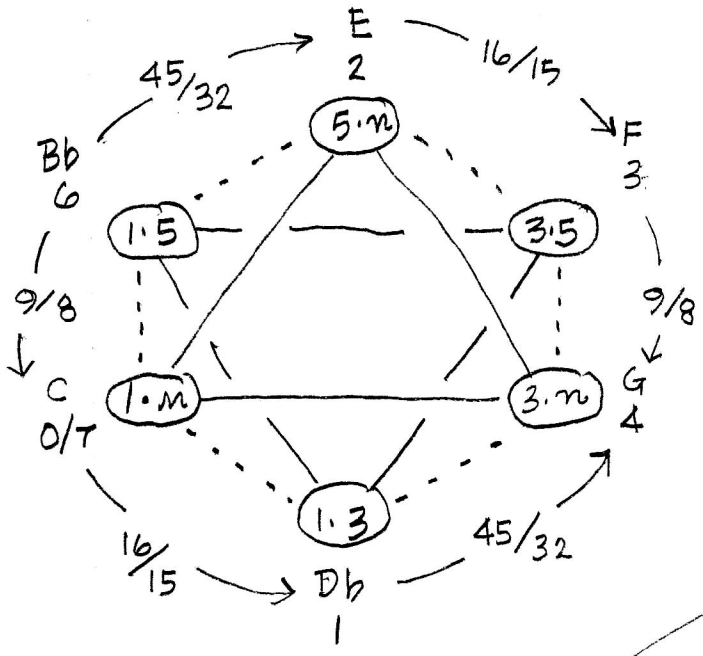
6. 0. 1. 2. 3. 4. 6.

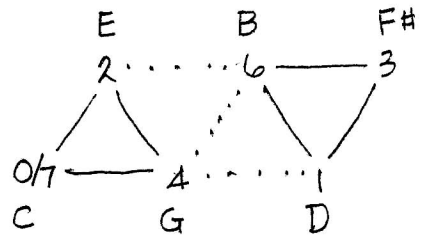
$$\frac{27}{25} \quad \frac{10}{9} \quad \frac{9}{8} \quad \frac{10}{9} \quad \frac{27}{25} \quad \left(\frac{100}{81}\right)$$

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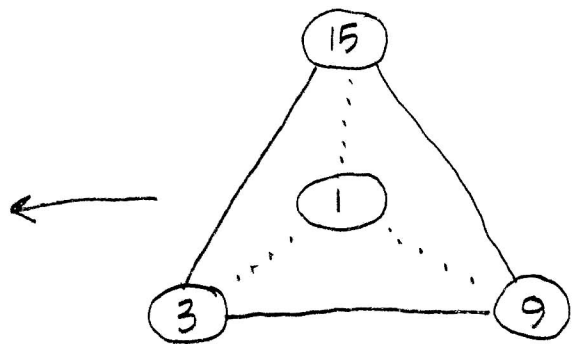
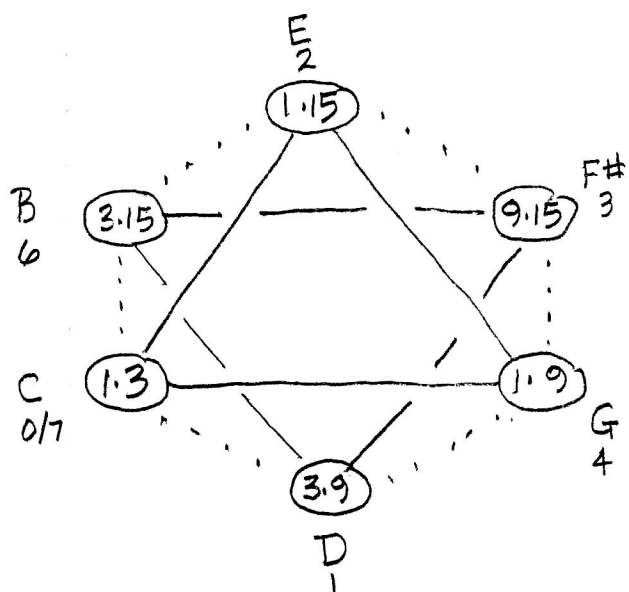
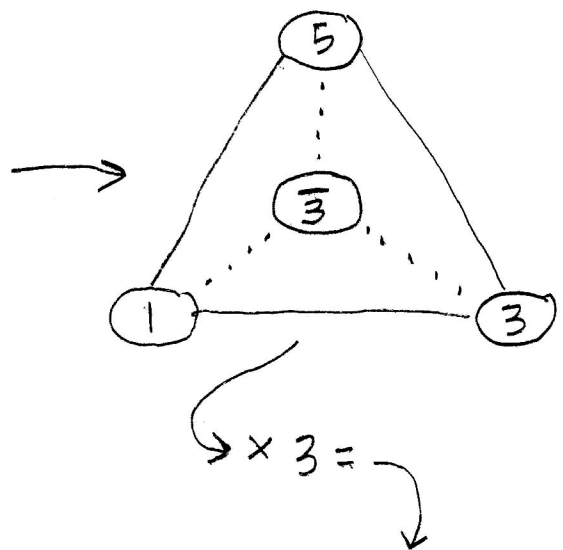
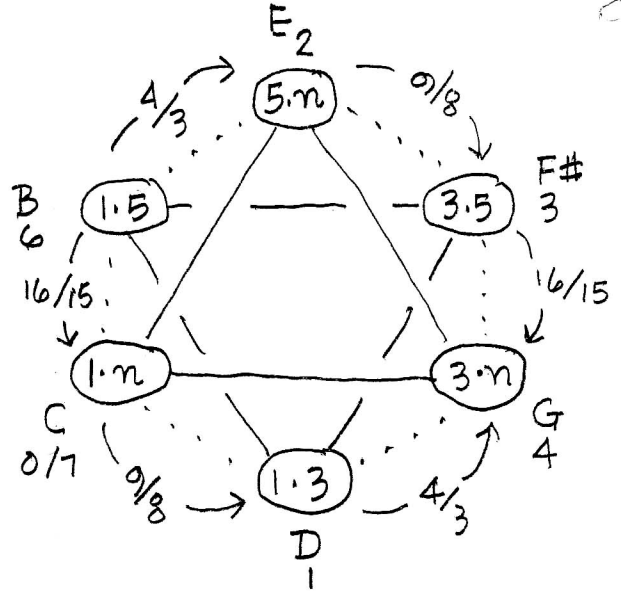


|               |                 |                 |                 |               |   |                              |
|---------------|-----------------|-----------------|-----------------|---------------|---|------------------------------|
| Bb            | C               | Db              | E               | F             | G | Bb                           |
| 6             | 0/7             | 1               | 2               | 3             | 4 | 6                            |
| $\frac{9}{8}$ | $\frac{16}{15}$ | $\frac{75}{64}$ | $\frac{16}{15}$ | $\frac{9}{8}$ |   | $\left(\frac{32}{27}\right)$ |



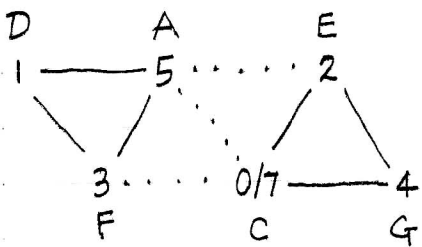


|                 |               |                |               |                 |                 |   |
|-----------------|---------------|----------------|---------------|-----------------|-----------------|---|
| B               | C             | D              | E             | F#              | G               | B |
| 6               | 0/7           | 1              | 2             | 3               | 4               | 6 |
| $\frac{16}{15}$ | $\frac{9}{8}$ | $\frac{10}{9}$ | $\frac{9}{8}$ | $\frac{16}{15}$ | $(\frac{5}{4})$ |   |
| c               | e             | a              | b             | c               | d               |   |

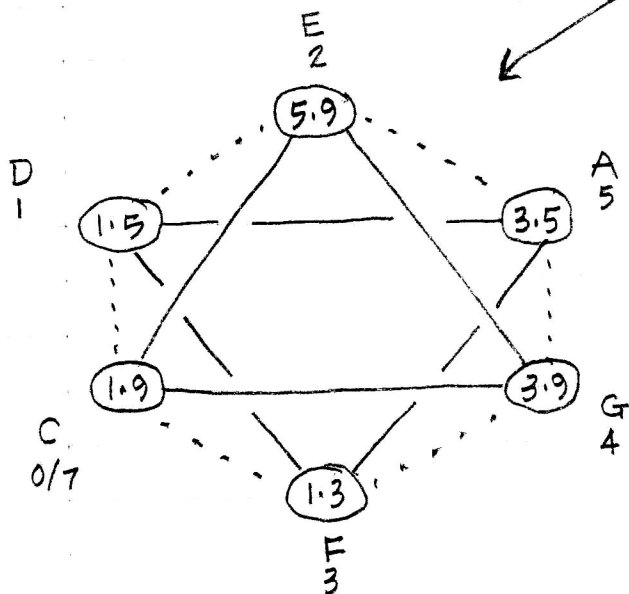
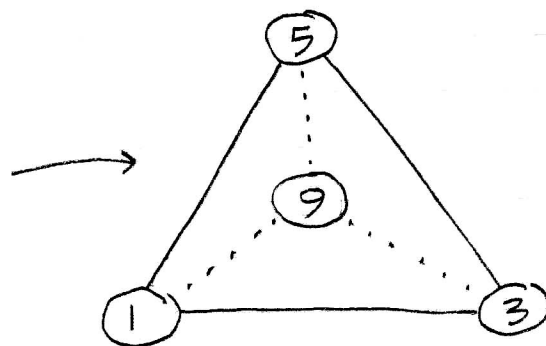
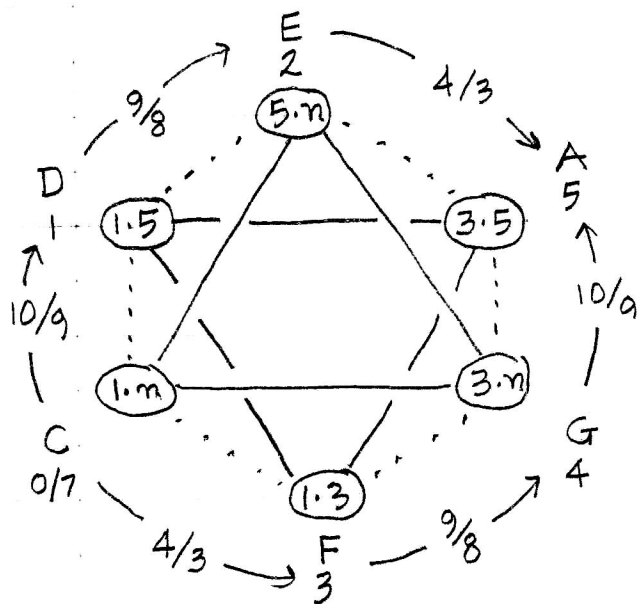


6

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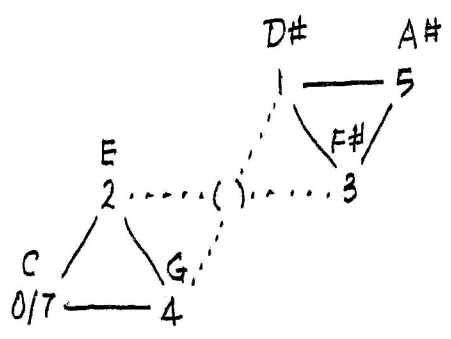


| C              | D             | E               | F             | G              | A               |     |
|----------------|---------------|-----------------|---------------|----------------|-----------------|-----|
| 0/7            | 1             | 2               | 3             | 4              | 5               | 0/7 |
| $\frac{10}{9}$ | $\frac{9}{8}$ | $\frac{16}{15}$ | $\frac{9}{8}$ | $\frac{10}{9}$ | $(\frac{6}{5})$ |     |

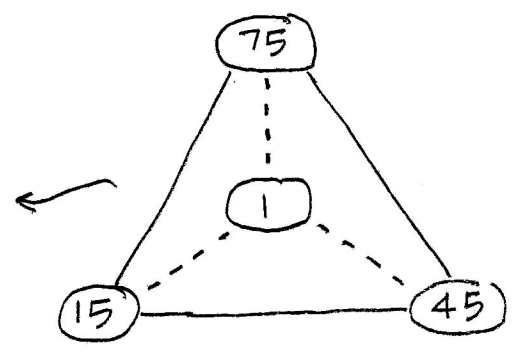
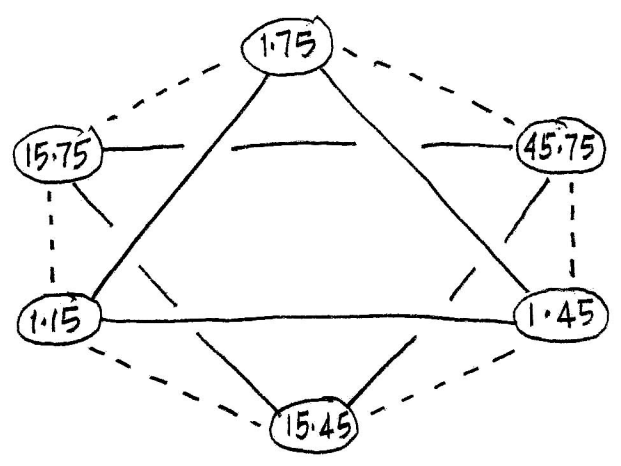
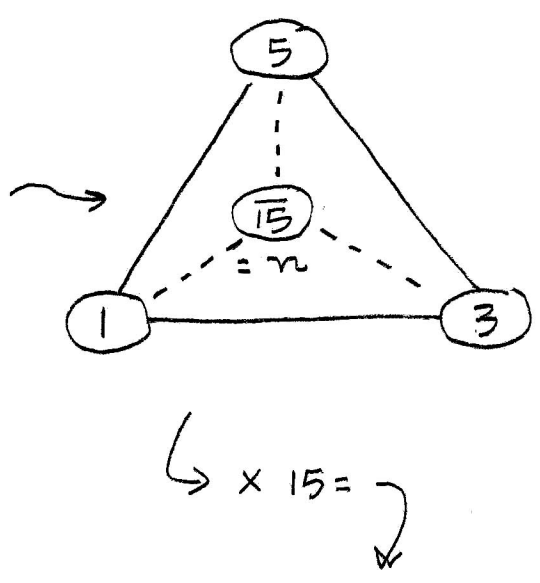
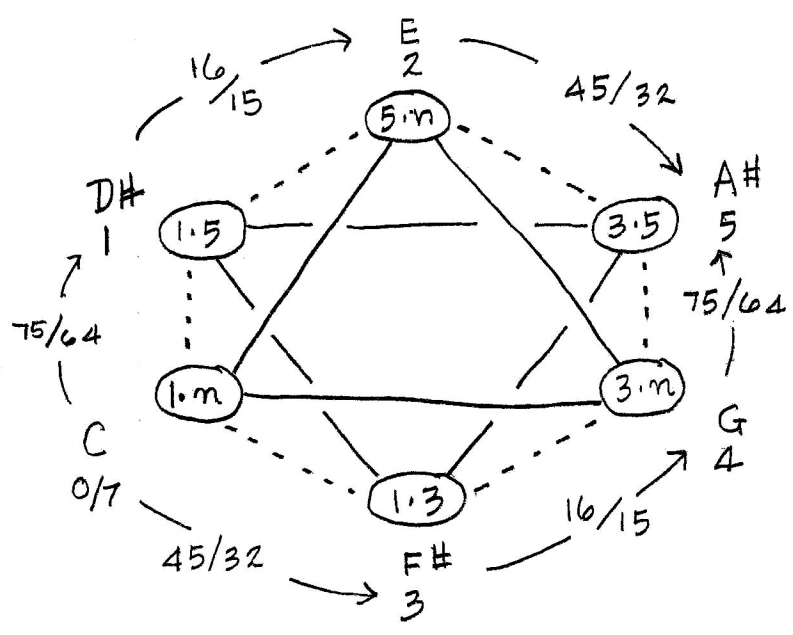


7

22 JUL 98 - E.W.



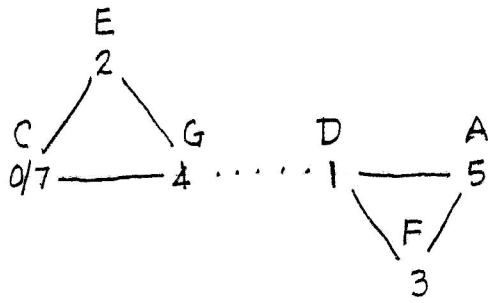
| C               | D#              | E             | F#              | G               | A#                  | C   |
|-----------------|-----------------|---------------|-----------------|-----------------|---------------------|-----|
| 0/7             | 1               | 2             | 3               | 4               | 5                   | 0/7 |
| $\frac{75}{64}$ | $\frac{16}{15}$ | $\frac{9}{8}$ | $\frac{16}{15}$ | $\frac{75}{64}$ | $(\frac{256}{225})$ |     |



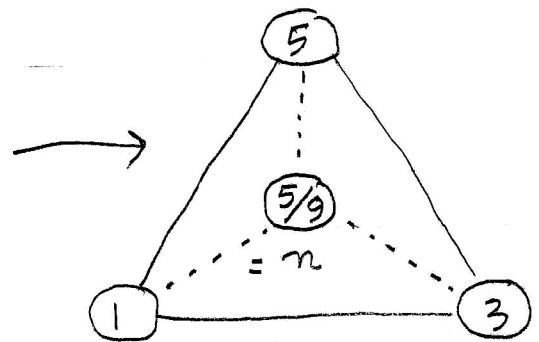
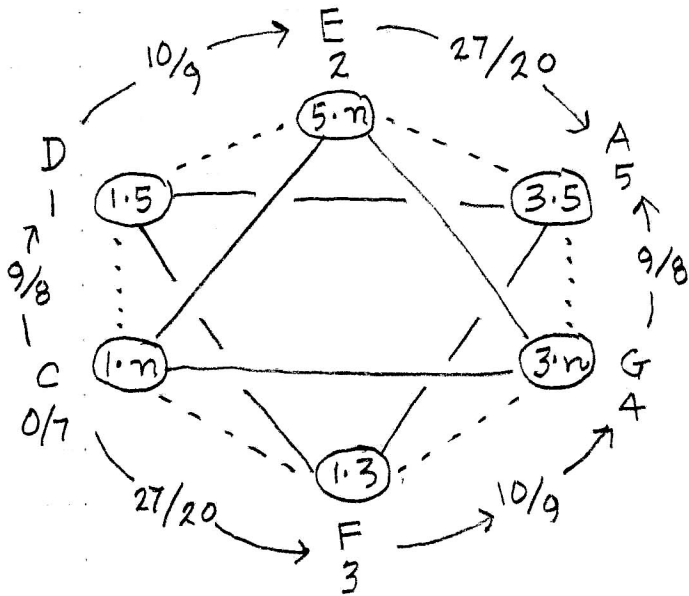


8

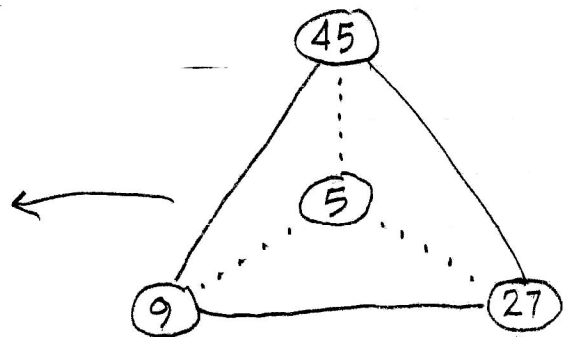
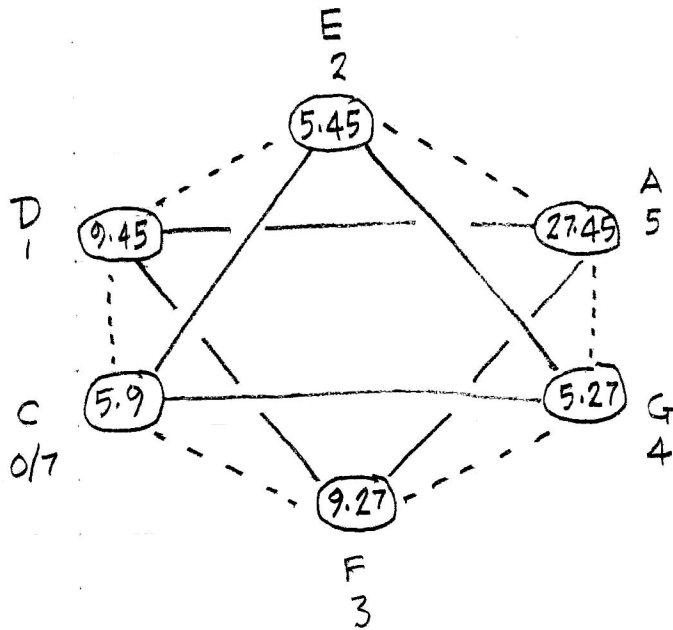
22 JUL 98 - E.W.



|               |                |                 |                |               |                   |     |
|---------------|----------------|-----------------|----------------|---------------|-------------------|-----|
| C             | D              | E               | F              | G             | A                 | C   |
| 0/7           | 1              | 2               | 3              | 4             | 5                 | 0/7 |
| $\frac{9}{8}$ | $\frac{10}{9}$ | $\frac{27}{25}$ | $\frac{10}{9}$ | $\frac{9}{8}$ | $(\frac{32}{27})$ |     |

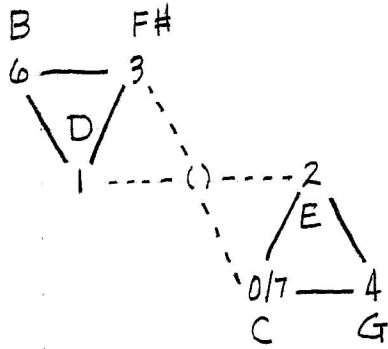


$\times 9 =$

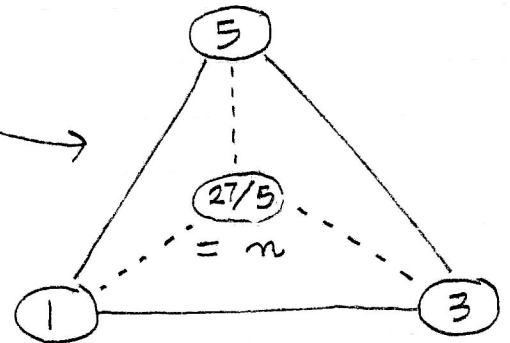
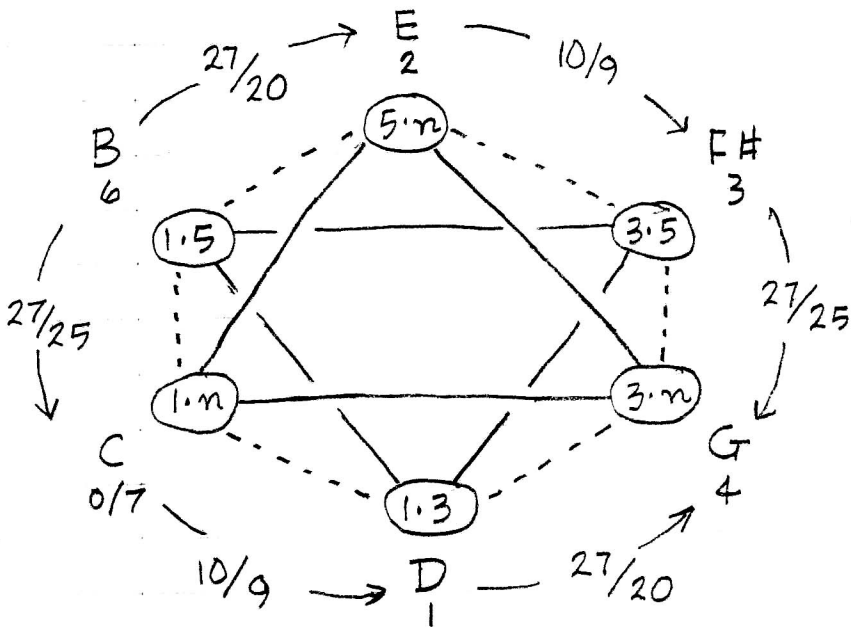


9

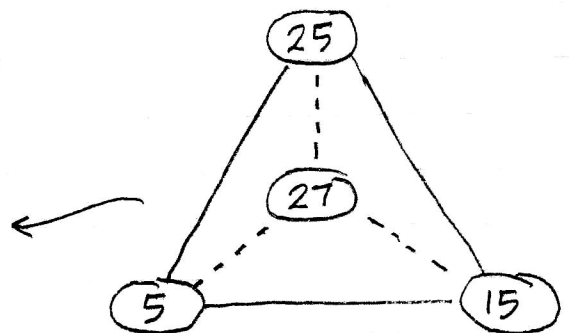
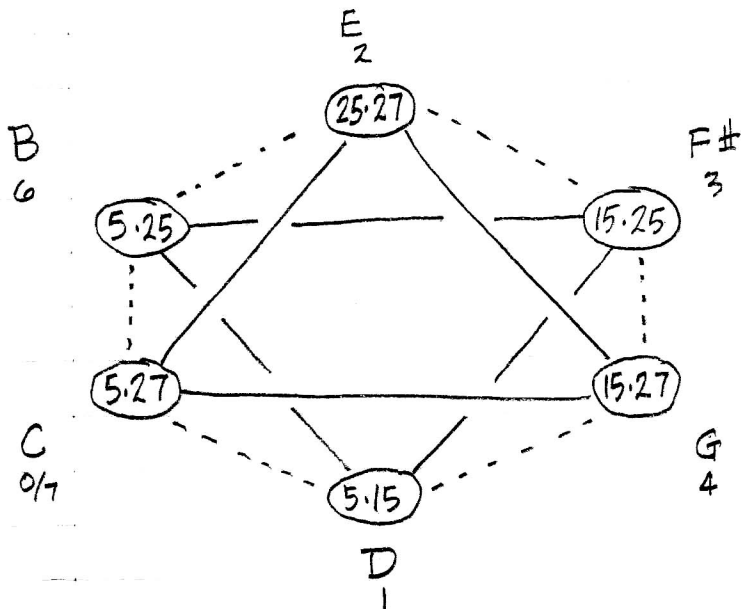
23 JUL 98



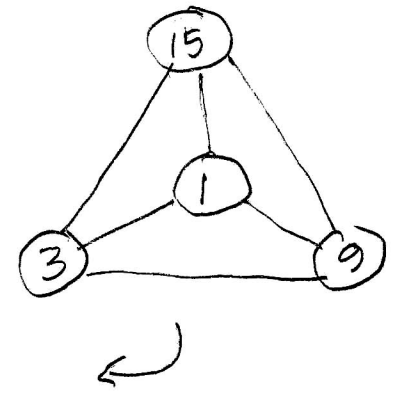
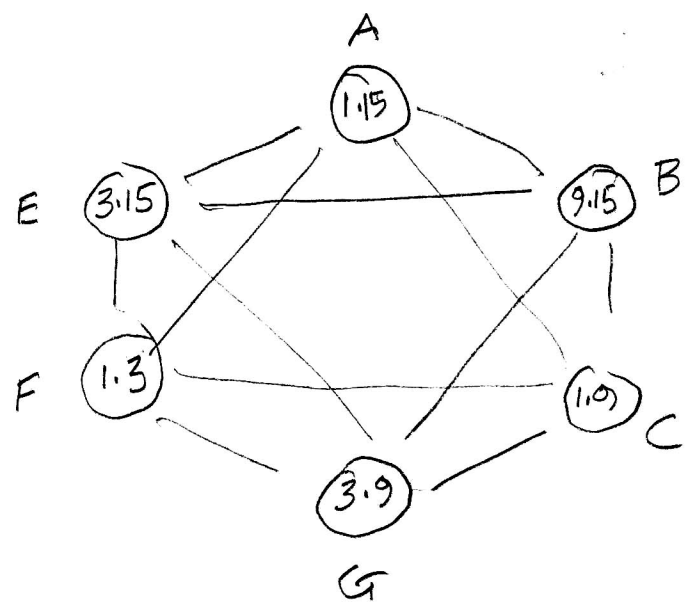
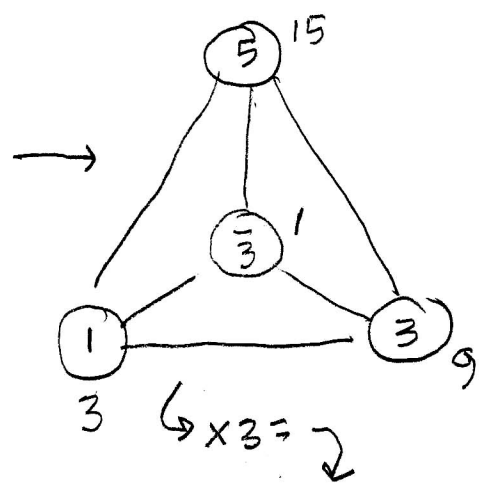
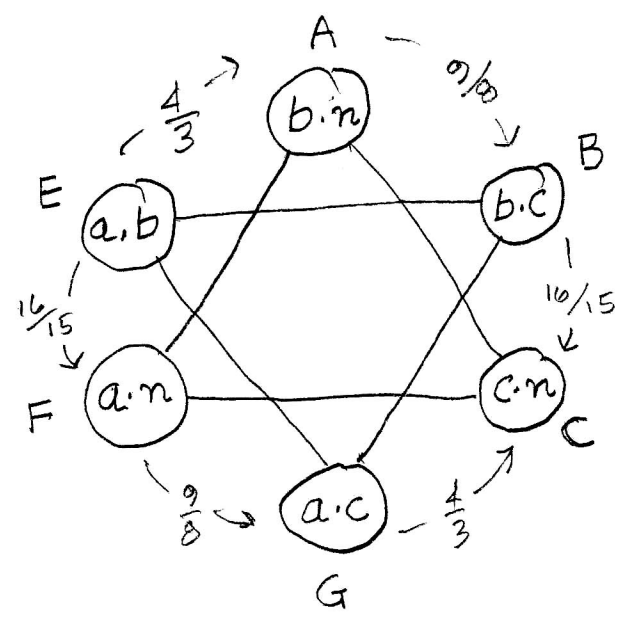
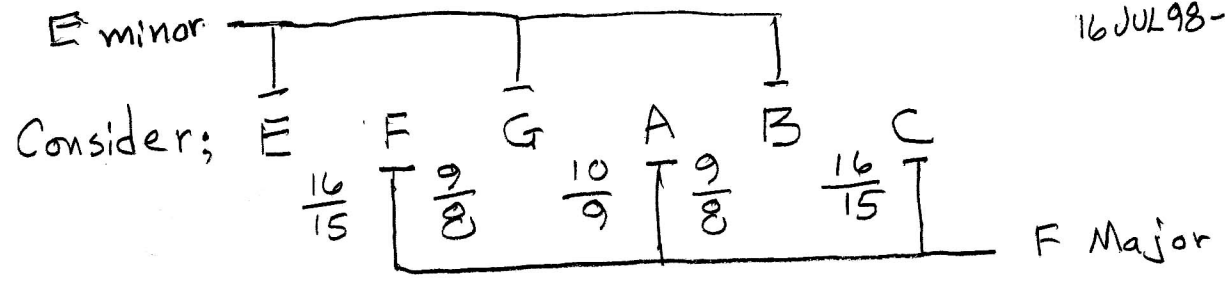
|                 |                |               |                |                 |                    |   |
|-----------------|----------------|---------------|----------------|-----------------|--------------------|---|
| B               | C              | D             | E              | F#              | G                  | B |
| 6               | 0/7            | 1             | 2              | 3               | 4                  | 6 |
| $\frac{27}{25}$ | $\frac{10}{9}$ | $\frac{9}{8}$ | $\frac{10}{9}$ | $\frac{27}{25}$ | $(\frac{100}{81})$ |   |



$\times 5 =$



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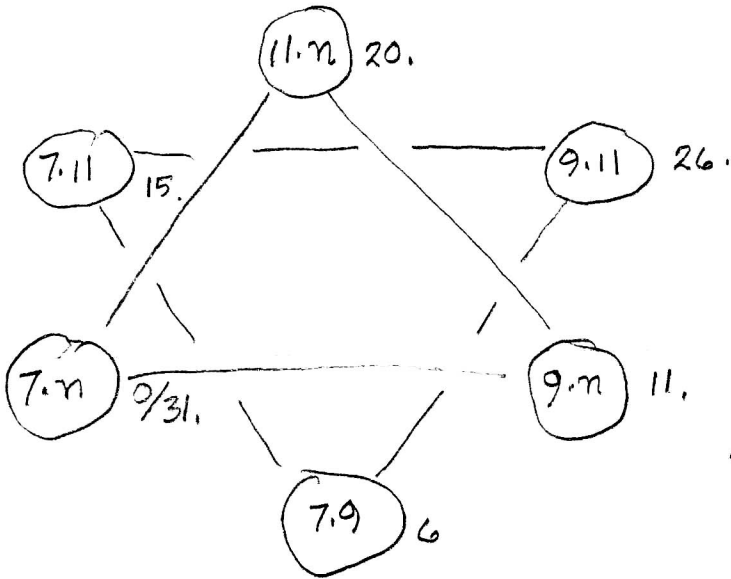
11

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Sheet 2

11, 8

7

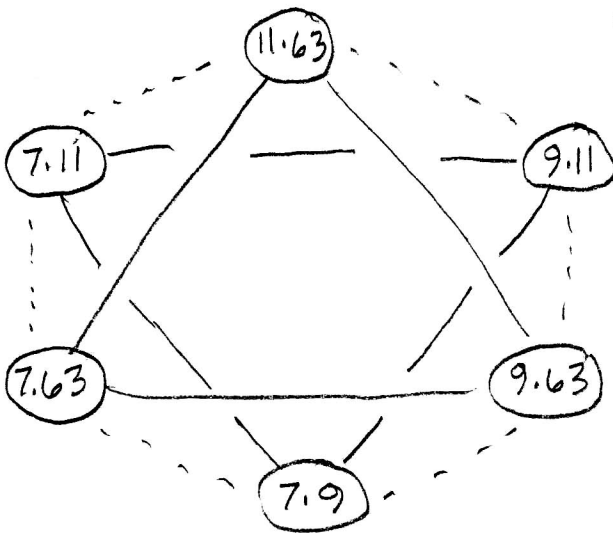
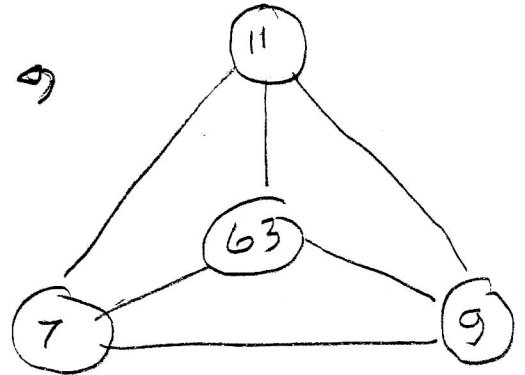
9

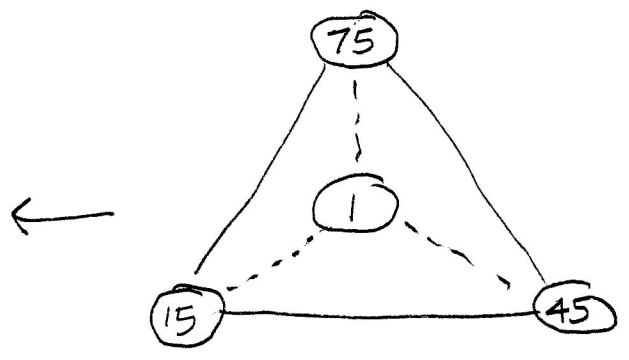
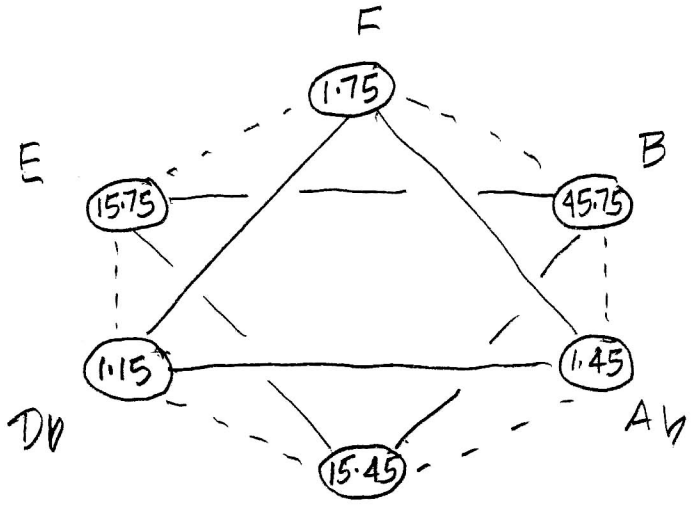
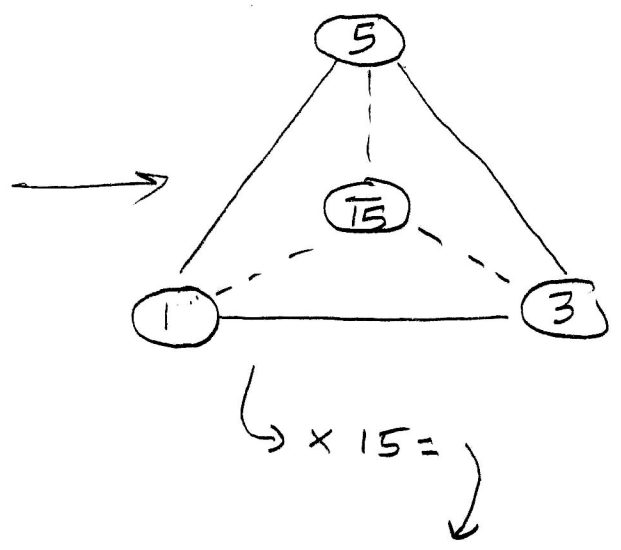
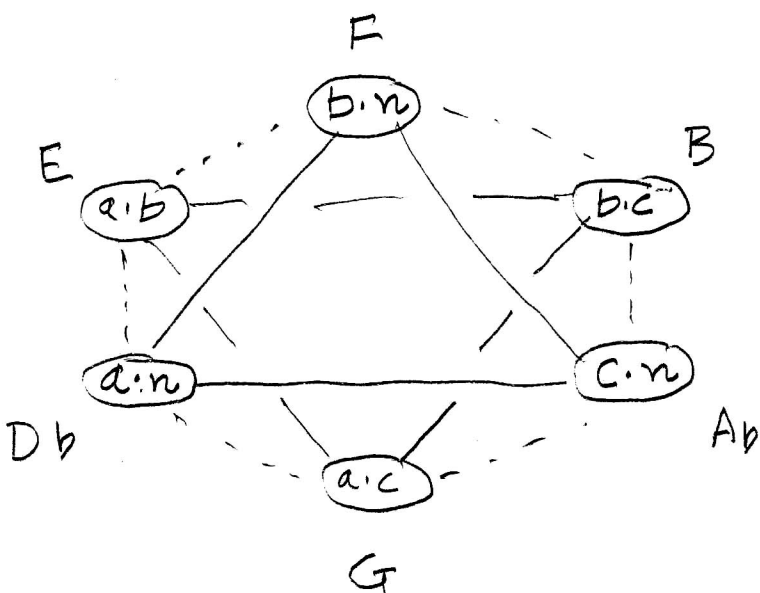
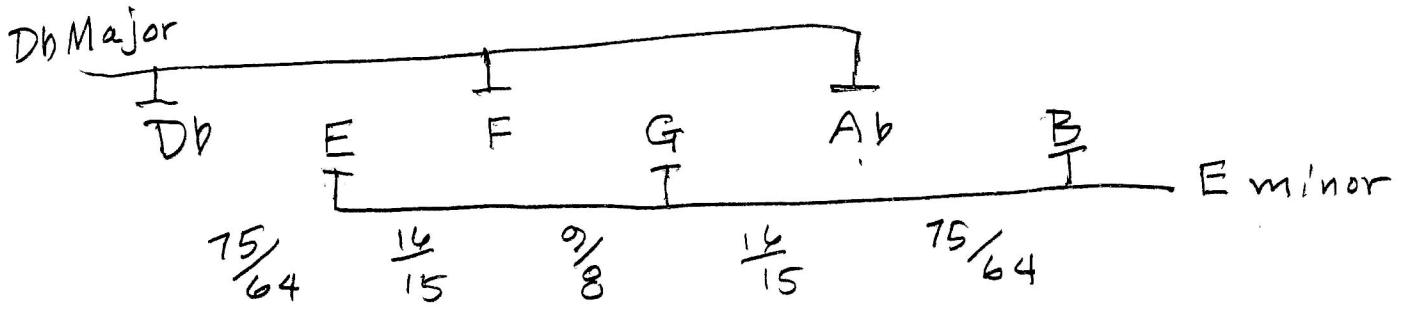


7

8, 11

9

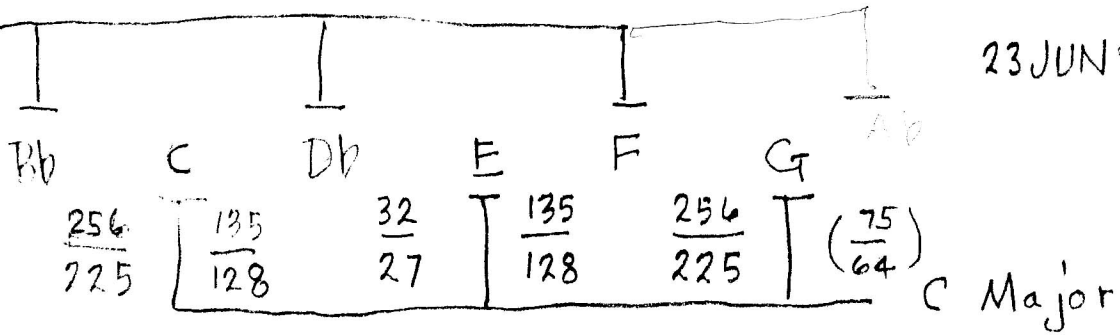




Imbed in 12 for

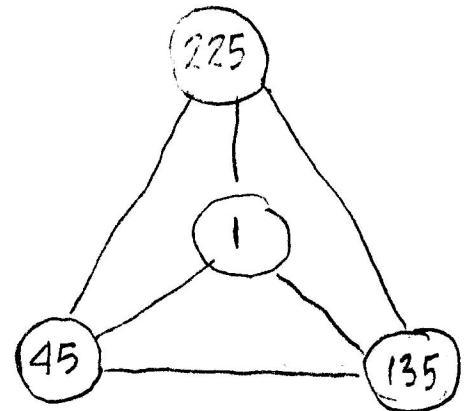
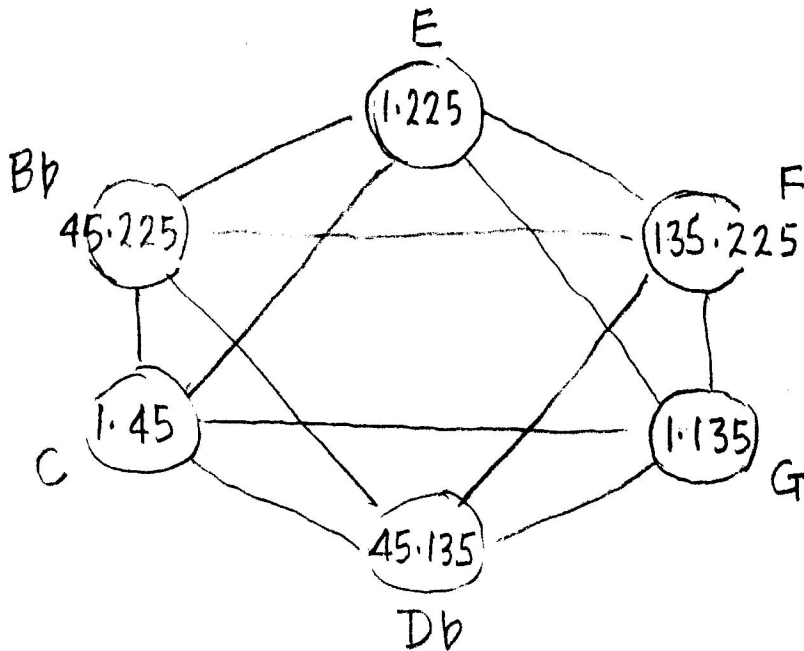
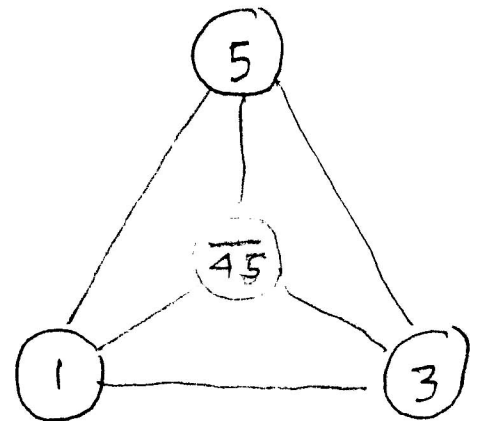
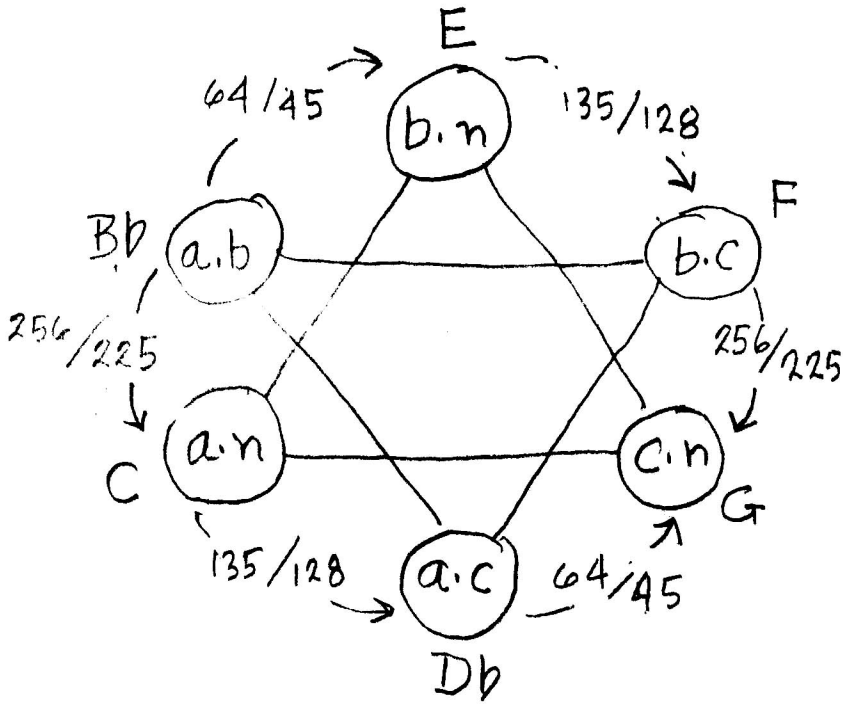
3b minor

23 JUN 99 - E.W.



Wilson

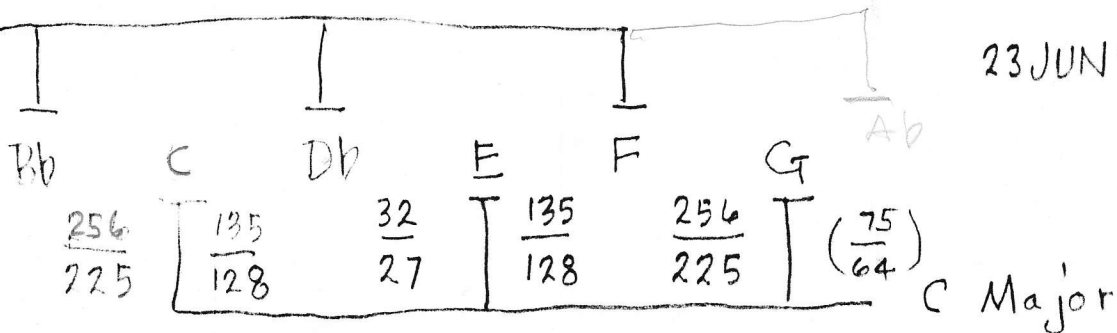
C Major



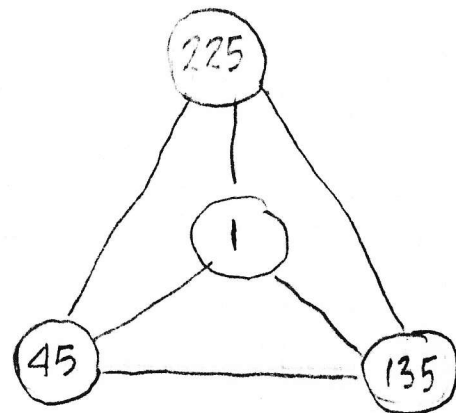
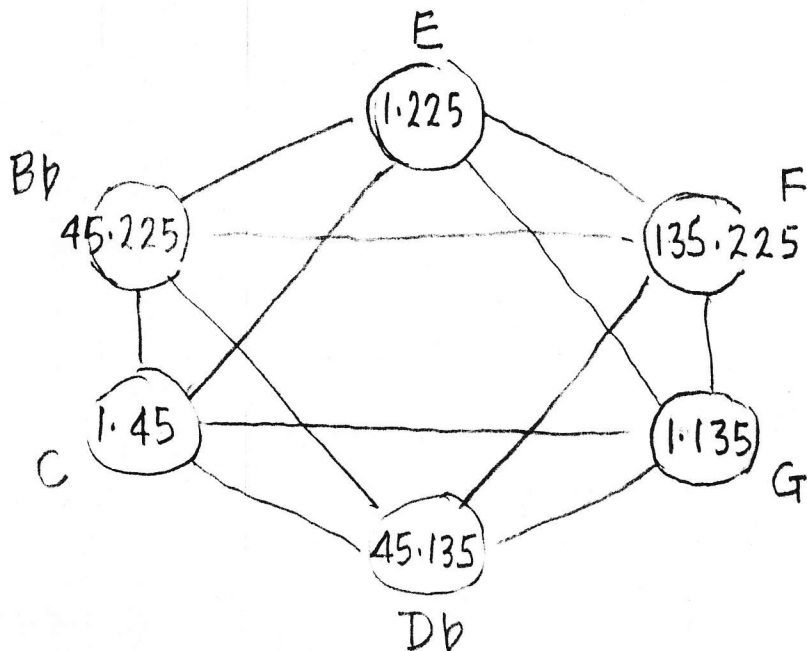
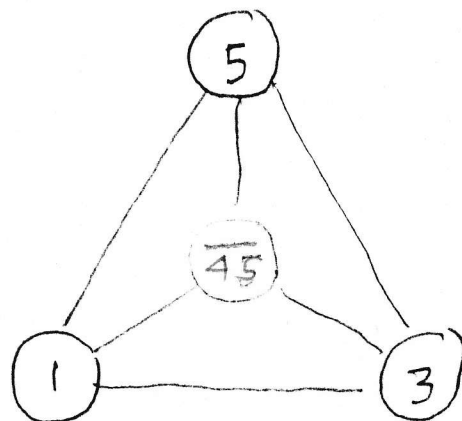
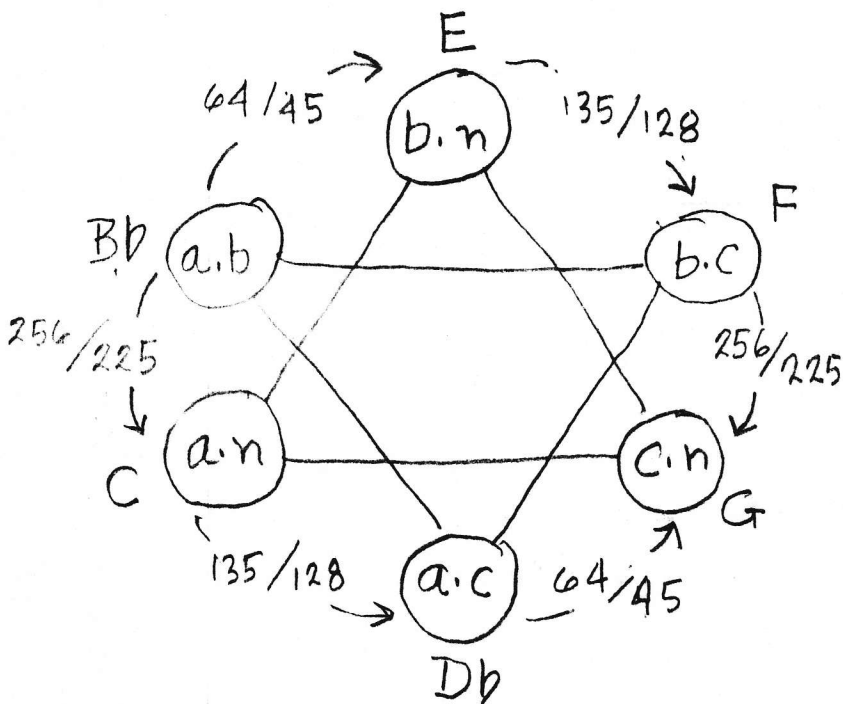
Embed in  $\mathbb{Z}$  for

$Bb$  minor

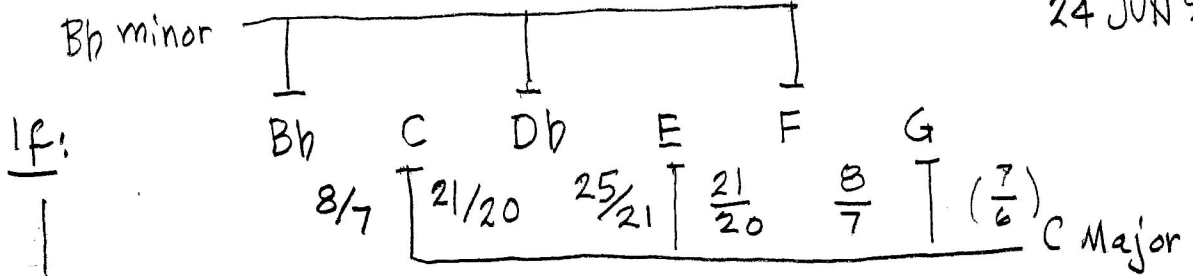
23 JUN 99 - E.W.



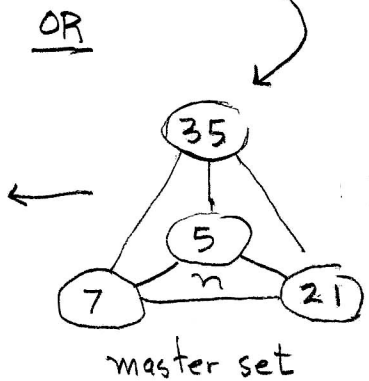
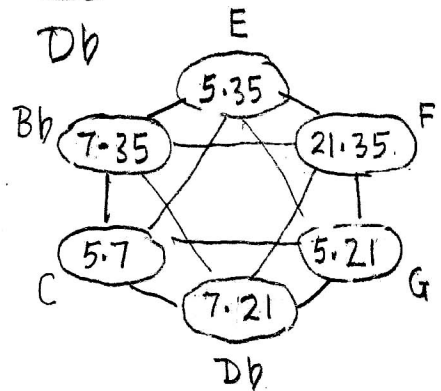
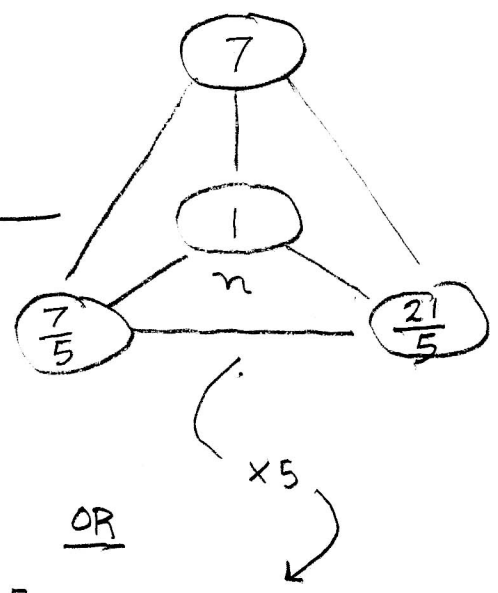
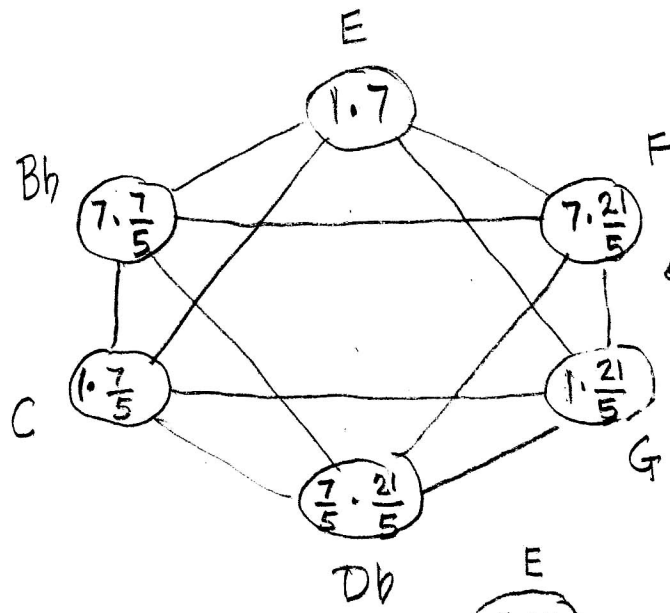
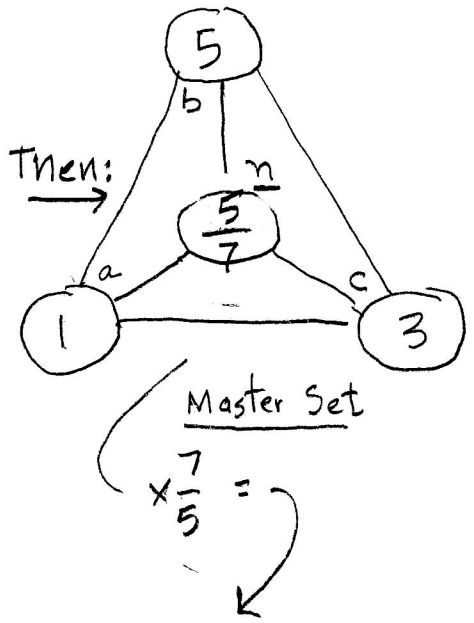
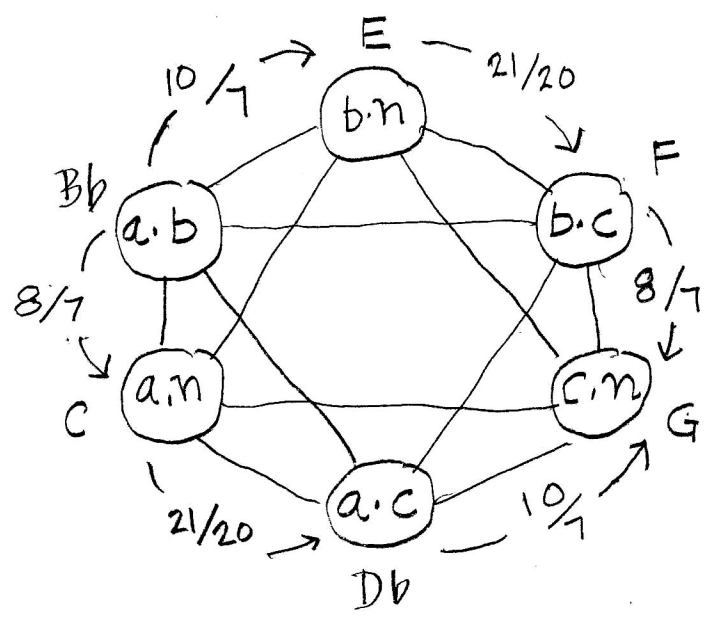
Wilson



24 JUN 99 - E.W.



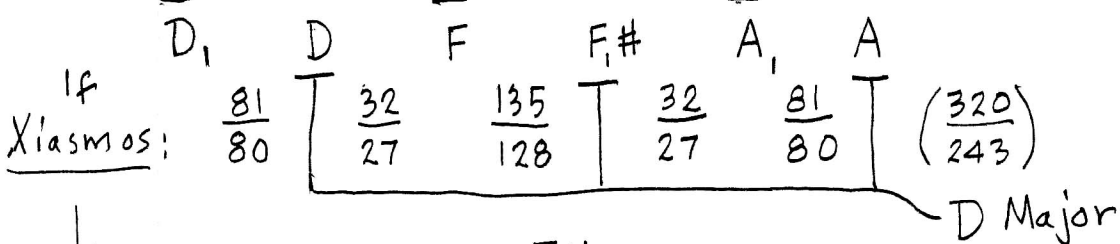
If:  
and: →



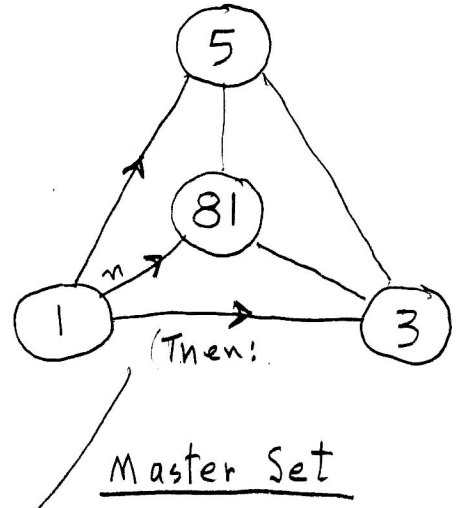
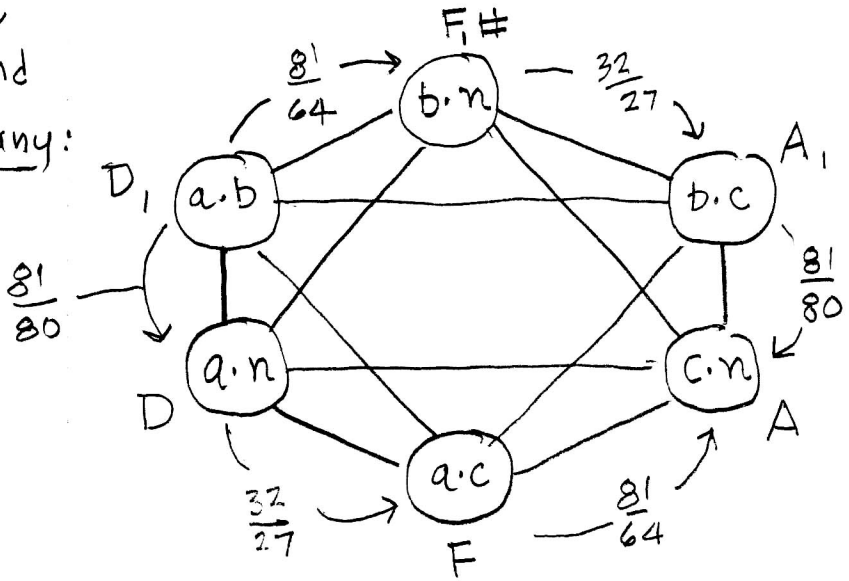
This deletes fractions



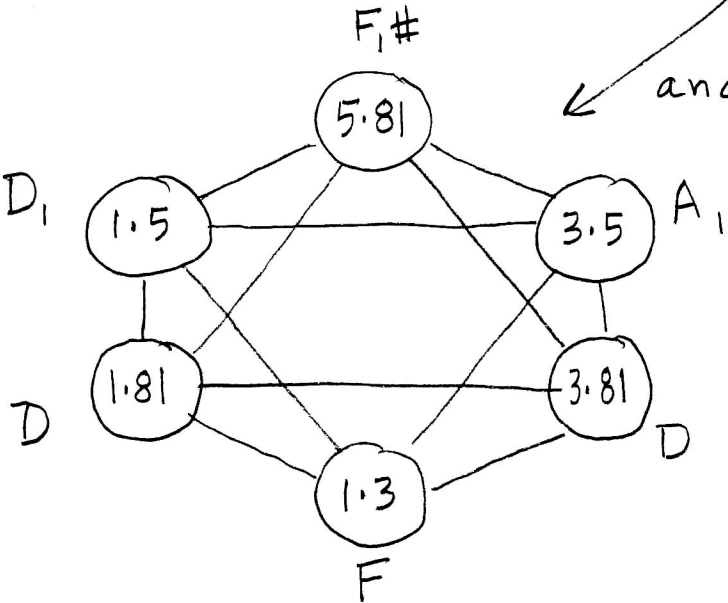
$D_1$  minor

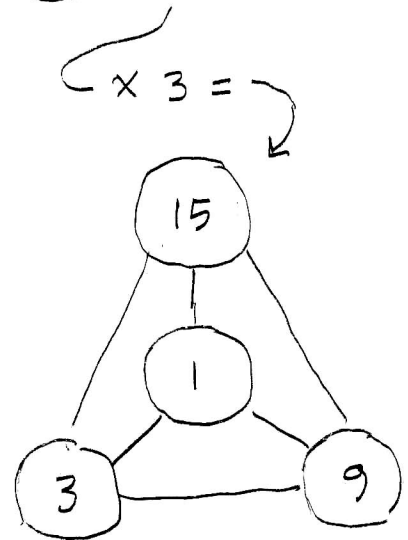
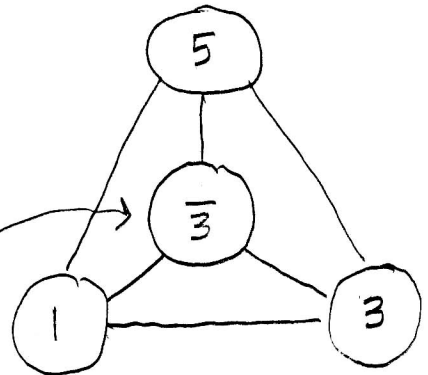
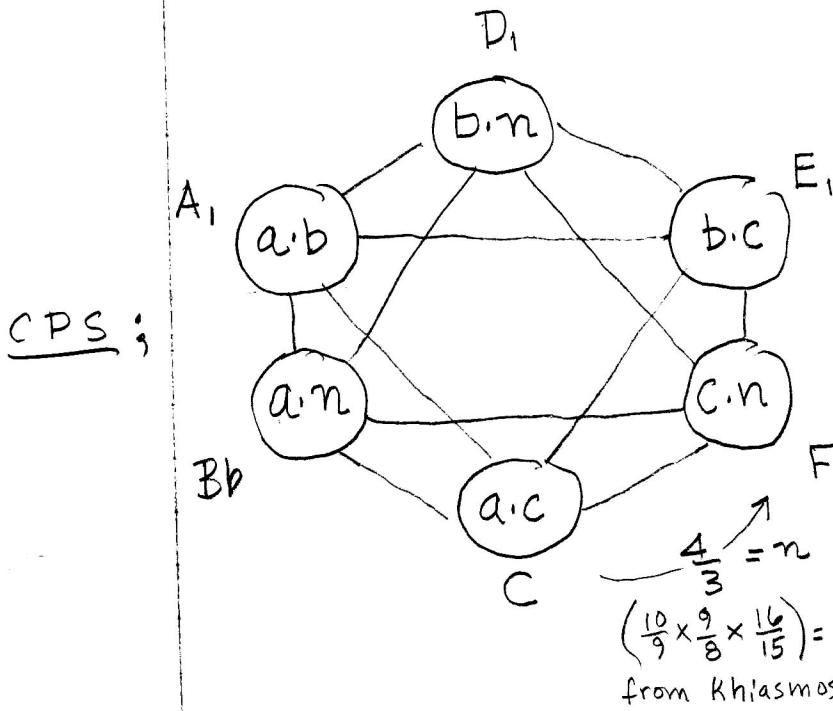
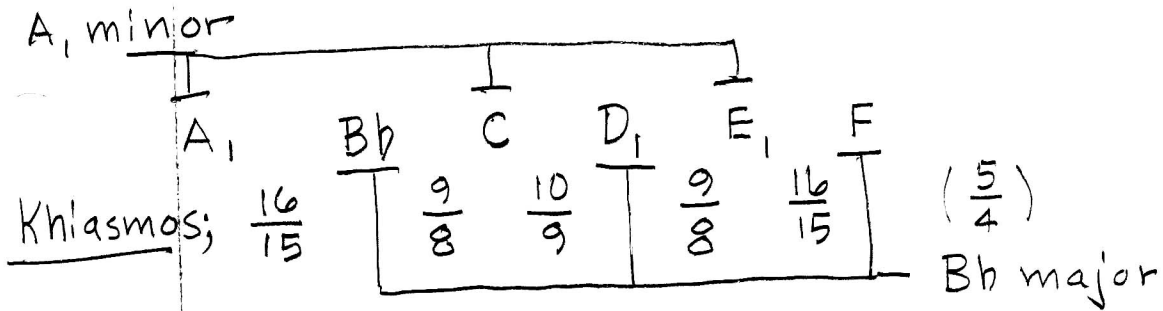


↓  
and  
Hexany:

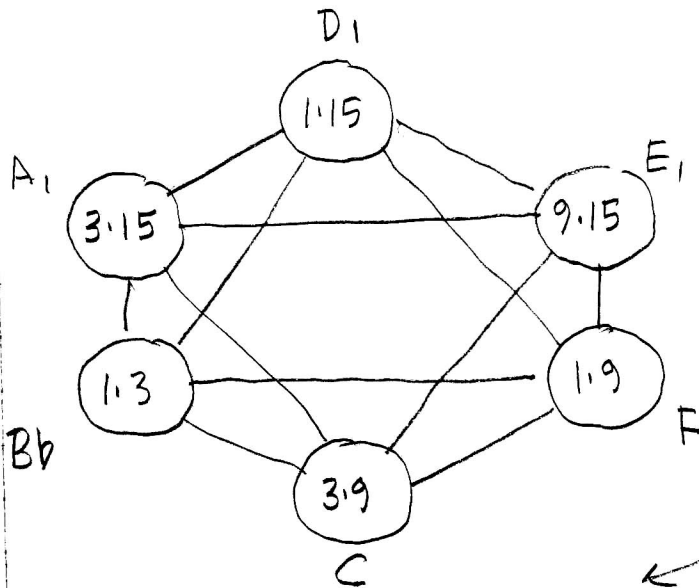


← and:





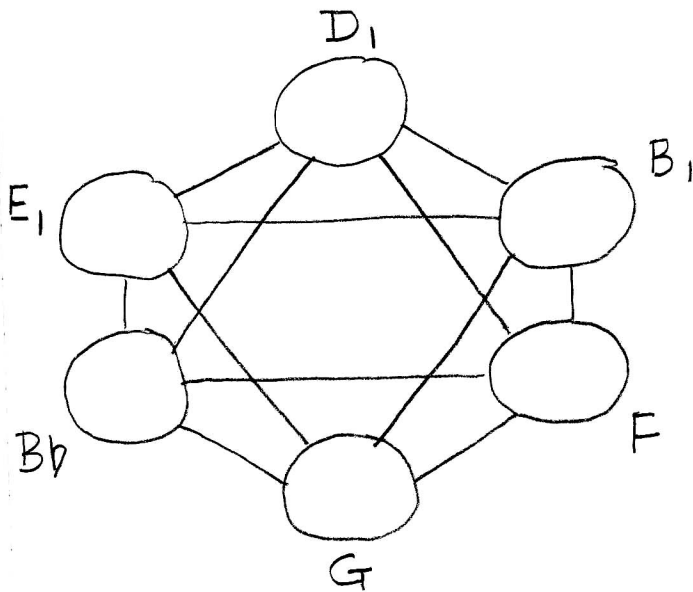
Master Set

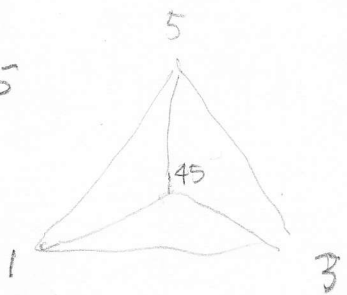
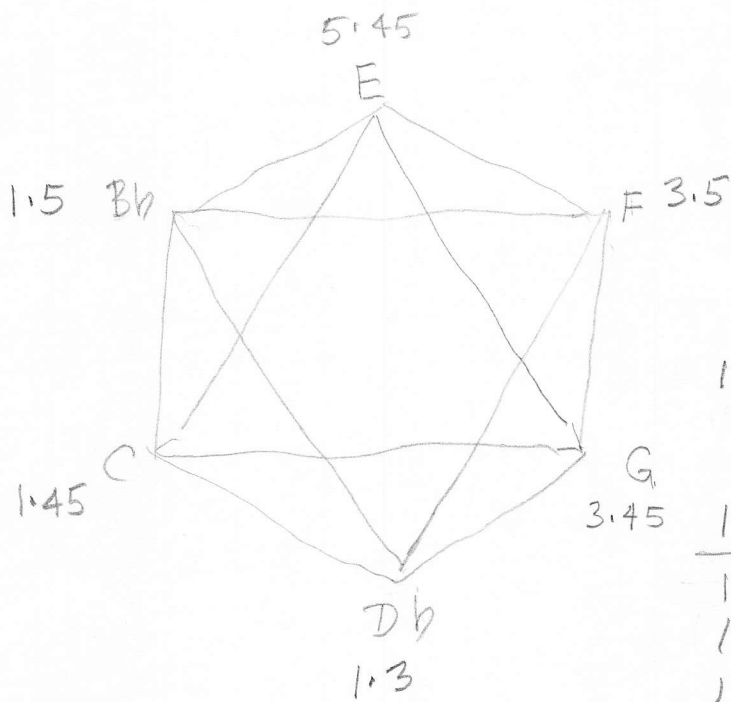
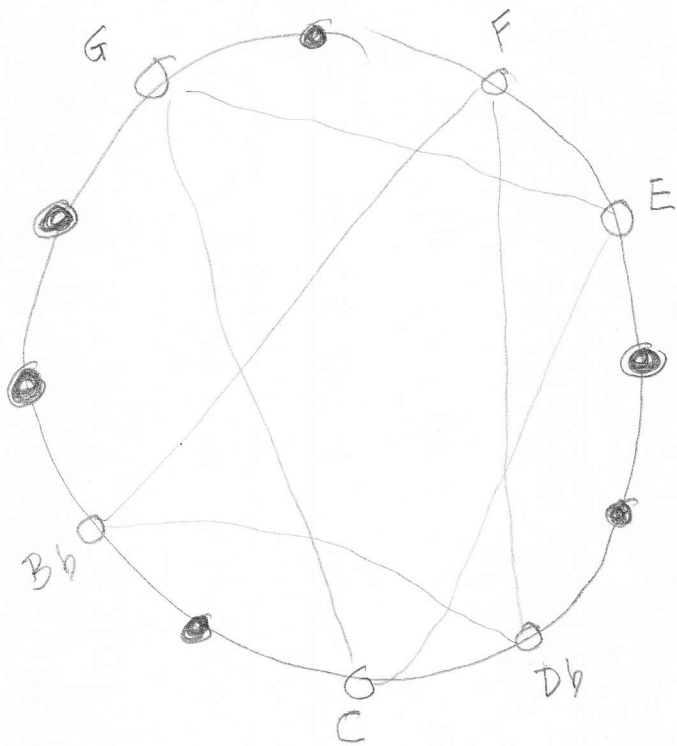


(2/4) 1, 3, 9, 15 Hexany

E F Bb D<sub>1</sub>

Bb D<sub>1</sub> F





|       |   |   |    |
|-------|---|---|----|
| 1     | 3 | 5 | 45 |
| <hr/> |   |   |    |
| 1     | 3 |   |    |
| 1     |   | 5 |    |
| 1     |   |   | 45 |
|       | 3 | 5 |    |
|       | 3 |   | 45 |
|       |   | 5 | 45 |

