

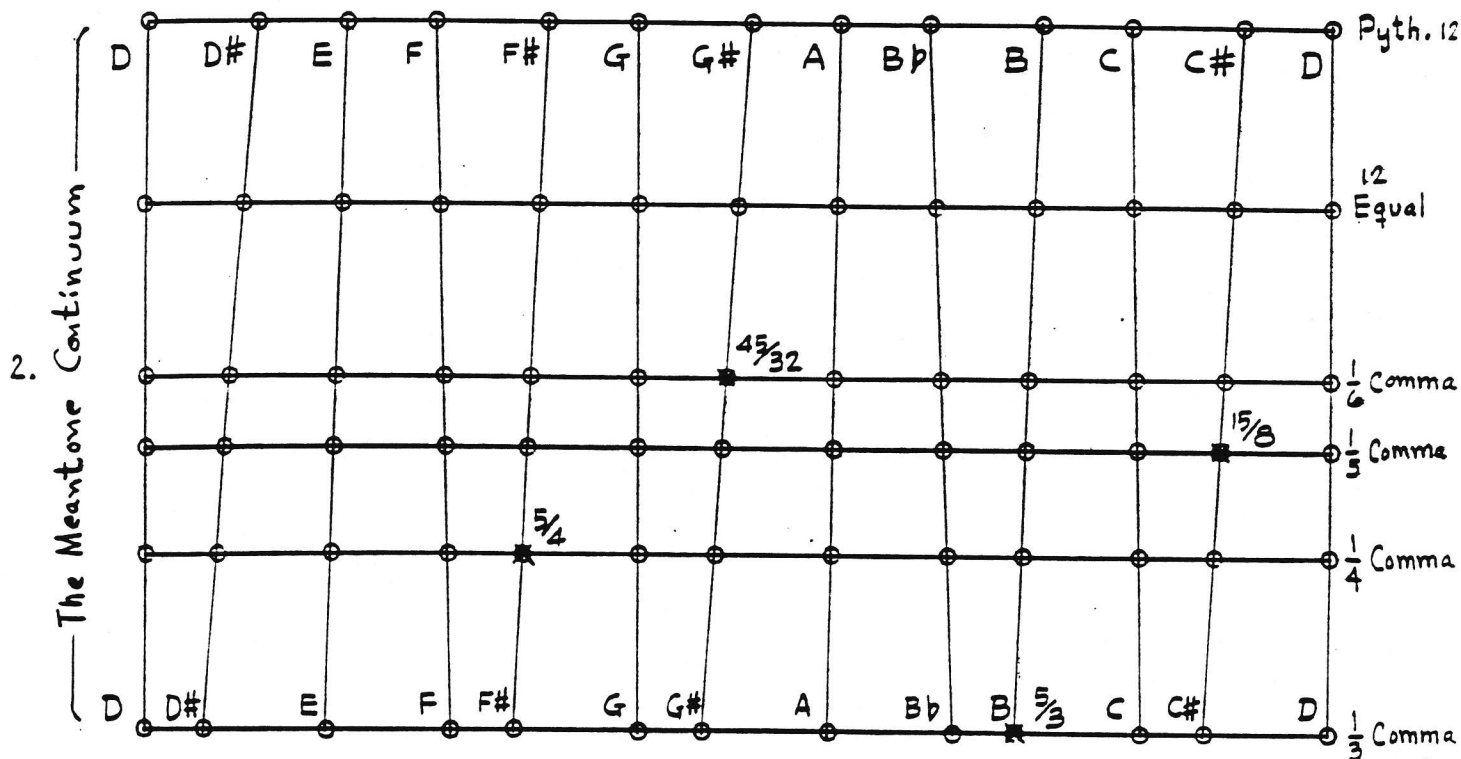
Some Basic Patterns
Underlying Genus 12 & 17
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Reprinted 1981 with revisions
1983 with revisions and additions

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(a)

D	D#	E	F	F#	G	G#	A	Bb	B	C	C#	D	
1	$\frac{2187}{2048}$	$\frac{9}{8}$	$\frac{27}{32}$	$\frac{81}{64}$	$\frac{4}{3}$	$\frac{729}{512}$	$\frac{3}{2}$	$\frac{128}{81}$	$\frac{27}{16}$	$\frac{16}{9}$	$\frac{243}{128}$	$\frac{2}{1}$	
$\frac{2187}{2048}$	$\frac{256}{243}$	$\frac{256}{243}$	$\frac{2187}{2048}$	$\frac{256}{243}$	$\frac{2187}{2048}$	$\frac{256}{243}$	$\frac{256}{243}$	$\frac{2187}{2048}$	$\frac{256}{243}$	$\frac{2187}{2048}$	$\frac{256}{243}$	$\frac{256}{243}$	Pyth. 12
$\frac{9}{8}$	$\frac{9}{8}$	$\frac{256}{243}$	$\frac{9}{8}$	$\frac{9}{8}$	$\frac{9}{8}$	$\frac{9}{8}$	$\frac{9}{8}$	$\frac{9}{8}$	$\frac{9}{8}$	$\frac{9}{8}$	$\frac{256}{243}$	$\frac{256}{243}$	Pyth. Diatonic

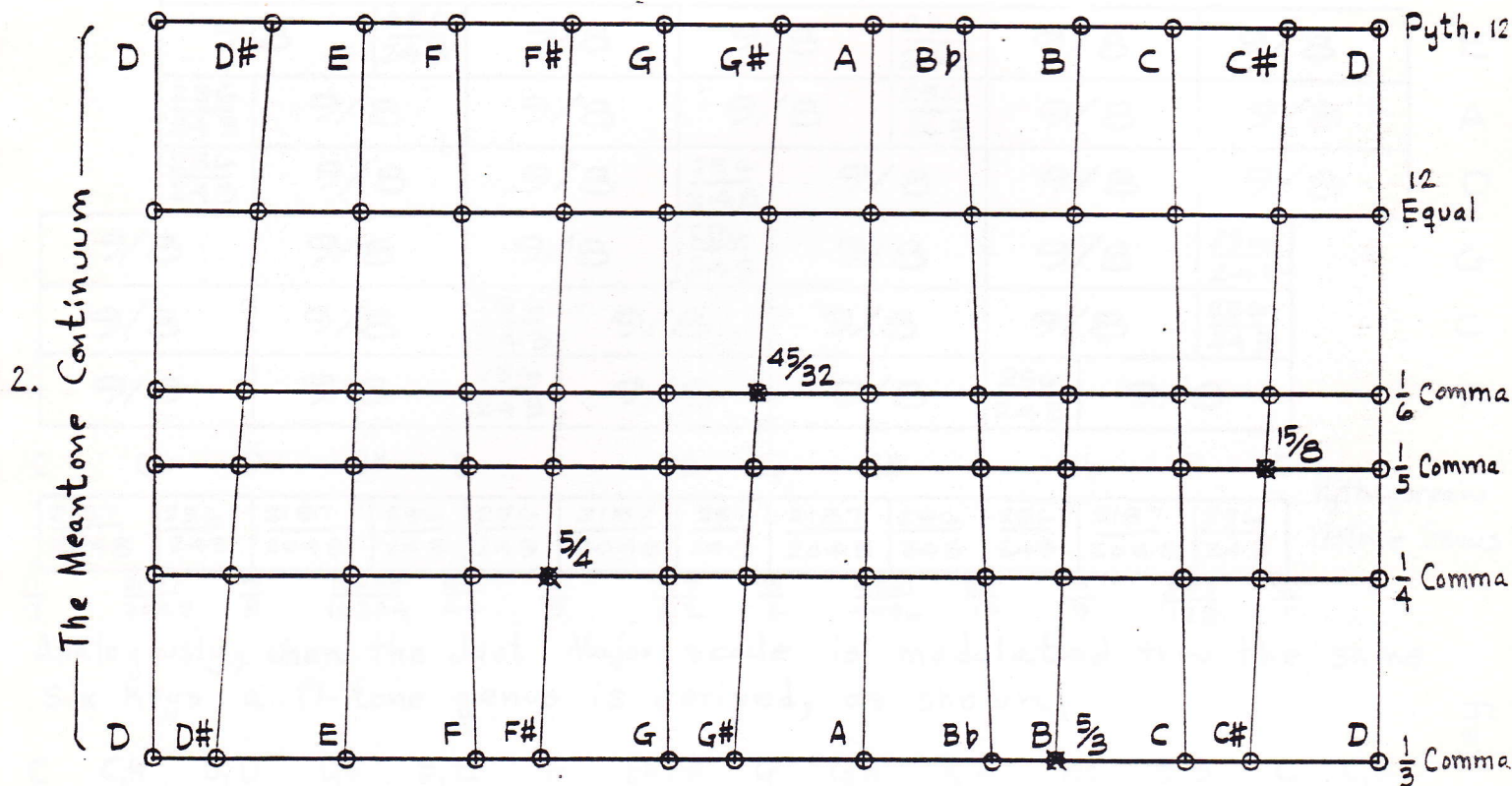


3.

9/8			10/9			16/15			9/8			10/9			9/8			16/15			Just Diatonic
$\frac{135}{128}$	$\frac{256}{243}$	$\frac{81}{80}$	$\frac{256}{243}$	$\frac{135}{128}$	$\frac{81}{80}$	$\frac{256}{243}$	$\frac{135}{128}$	$\frac{256}{243}$	$\frac{81}{80}$	$\frac{256}{243}$	$\frac{135}{128}$	$\frac{256}{243}$	$\frac{81}{80}$	$\frac{256}{243}$	$\frac{135}{128}$	$\frac{256}{243}$	$\frac{81}{80}$	$\frac{256}{243}$	$\frac{135}{128}$	$\frac{256}{243}$	Just 17
1	$\frac{135}{128}$	$\frac{10}{9}$	$\frac{9}{8}$	$\frac{32}{27}$	$\frac{5}{4}$	$\frac{81}{64}$	$\frac{4}{3}$	$\frac{45}{32}$	$\frac{40}{27}$	$\frac{3}{2}$	$\frac{128}{81}$	$\frac{5}{3}$	$\frac{27}{16}$	$\frac{16}{9}$	$\frac{15}{8}$	$\frac{160}{81}$	$\frac{2}{1}$				
D	D $\sharp$	E $\flat$	E	F	F $\sharp$	F $\sharp$	G	G $\sharp$	A $\flat$	A	B $\flat$	B $\flat$	B	C	C $\sharp$	D $\flat$	D				

1. The Pythagorean Diatonic, with true Fifths, when modulated thru six Keys gives a 12-tone genus.
2. Meantone 12 retains these six Keys but seeks good Thirds at the expense of the Fifths.
3. However, when the Just Diatonic, having both True Thirds and True Fifths, is modulated thru the same six Keys a 17-Tone genus results.

D	D#	E	F	F#	G	G#	A	Bb	B	C	C#	D	
1	$\frac{2187}{2048}$	$\frac{9}{8}$	$\frac{27}{32}$	$\frac{81}{64}$	$\frac{4}{3}$	$\frac{729}{512}$	$\frac{3}{2}$	$\frac{128}{81}$	$\frac{27}{16}$	$\frac{16}{9}$	$\frac{243}{128}$	$\frac{2}{1}$	Pyth. 12
$\frac{2187}{2048}$	$\frac{256}{243}$	$\frac{256}{243}$	$\frac{2187}{2048}$	$\frac{256}{243}$	$\frac{2187}{2048}$	$\frac{256}{243}$	$\frac{256}{243}$	$\frac{2187}{2048}$	$\frac{256}{243}$	$\frac{2187}{2048}$	$\frac{256}{243}$	$\frac{256}{243}$	Pyth Diatonic
$\frac{9}{8}$		$\frac{9}{8}$		$\frac{256}{243}$	$\frac{9}{8}$		$\frac{9}{8}$		$\frac{9}{8}$		$\frac{256}{243}$		



3.

9/8			10/9			16/15			9/8			10/9			9/8			16/15			Just Diatonic
$\frac{135}{128}$	$\frac{256}{243}$	$\frac{81}{80}$	$\frac{256}{243}$	$\frac{135}{128}$	$\frac{81}{80}$	$\frac{256}{243}$	$\frac{135}{128}$	$\frac{256}{243}$	$\frac{81}{80}$	$\frac{256}{243}$	$\frac{135}{128}$	$\frac{81}{80}$	$\frac{256}{243}$	$\frac{135}{128}$	$\frac{81}{80}$	$\frac{256}{243}$	$\frac{135}{128}$	$\frac{256}{243}$	$\frac{81}{80}$	Just 17	
1	$\frac{135}{128}$	$\frac{10}{9}$	$\frac{9}{8}$	$\frac{32}{27}$	$\frac{5}{4}$	$\frac{81}{64}$	$\frac{4}{3}$	$\frac{45}{32}$	$\frac{40}{27}$	$\frac{3}{2}$	$\frac{128}{81}$	$\frac{5}{3}$	$\frac{27}{16}$	$\frac{16}{9}$	$\frac{15}{8}$	$\frac{160}{81}$	$\frac{2}{1}$				
D	D ₁ #	E ₁ E	F	F ₁ # F#	G	G ₁ #	A ₁ A	B ₁ b	B ₁ B	C	C ₁ #	D ₁ D									

↑ B₁ is center of scale, and the best comparison would be to show it on the vertical line.

1. The Pythagorean Diatonic, with true Fifths, when modulated thru six keys gives a 12-tone genus.
2. Meantone 12 retains these six keys but seeks good Thirds at the expense of the Fifths.
3. However, when the Just Diatonic, having both true Thirds and true Fifths, is modulated thru the same six keys a 17-Tone genus results.

When the Pythagorean Major scale is modulated thru the 6 keys of E, A, D, G, C, F a composite 12-tone genus is derived as shown;

C	C#	D	D#	E	F	F#	G	G#	A	Bb	B	C	C#	Key
		9/8	$\frac{256}{243}$	9/8	9/8	$\frac{256}{243}$	9/8	$\frac{256}{243}$	9/8	9/8				E
	$\frac{256}{243}$	9/8	9/8	9/8	9/8	$\frac{256}{243}$	9/8	$\frac{256}{243}$	9/8	9/8				A
	$\frac{256}{243}$	9/8	9/8	$\frac{256}{243}$	9/8	9/8	9/8	9/8	9/8	9/8				D
9/8	9/8	9/8	$\frac{256}{243}$	9/8	9/8	9/8	$\frac{256}{243}$	9/8	9/8	$\frac{256}{243}$				G
9/8	9/8	$\frac{256}{243}$	9/8	9/8	9/8	9/8	9/8	9/8	$\frac{256}{243}$	9/8	$\frac{256}{243}$			C
9/8	9/8	$\frac{256}{243}$	9/8	9/8	9/8	$\frac{256}{243}$	9/8	9/8	$\frac{256}{243}$	9/8				F

C	C#	D	D#	E	F	F#	G	G#	A	Bb	B	C		Pythagorean 12-Tone Genus
$\frac{2187}{2048}$	$\frac{256}{243}$	$\frac{2187}{2048}$	$\frac{256}{243}$	$\frac{256}{243}$	$\frac{2187}{2048}$	$\frac{256}{243}$	$\frac{2187}{2048}$	$\frac{256}{243}$	$\frac{256}{243}$	$\frac{2187}{2048}$	$\frac{256}{243}$	$\frac{256}{243}$		
$\frac{2187}{2048}$	$\frac{256}{243}$	$\frac{256}{243}$	$\frac{2187}{2048}$	$\frac{256}{243}$	$\frac{256}{243}$	$\frac{2187}{2048}$	$\frac{256}{243}$	$\frac{256}{243}$	$\frac{2187}{2048}$	$\frac{256}{243}$	$\frac{256}{243}$	$\frac{2187}{2048}$	$\frac{256}{243}$	
$\frac{2187}{2048}$	$\frac{256}{243}$	$\frac{256}{243}$	$\frac{2187}{2048}$	$\frac{256}{243}$	$\frac{256}{243}$	$\frac{2187}{2048}$	$\frac{256}{243}$	$\frac{256}{243}$	$\frac{2187}{2048}$	$\frac{256}{243}$	$\frac{256}{243}$	$\frac{2187}{2048}$	$\frac{256}{243}$	

Analogously, when the Just Major scale is modulated thru the same six keys a 17-tone genus is derived, as shown;

C	C#	D	D#	E	F	F#	G	G#	A	Bb	B	C	C#	Key
		9/8	$\frac{16}{15}$	9/8	$\frac{10}{9}$	$\frac{16}{15}$	9/8	$\frac{10}{9}$	$\frac{16}{15}$	9/8	$\frac{10}{9}$			E
	$\frac{16}{15}$	9/8	$\frac{10}{9}$	$\frac{16}{15}$	9/8	$\frac{10}{9}$	$\frac{16}{15}$	9/8	$\frac{10}{9}$	$\frac{16}{15}$	9/8	$\frac{10}{9}$		A
	$\frac{16}{15}$	9/8	$\frac{10}{9}$	$\frac{16}{15}$	9/8	$\frac{10}{9}$	$\frac{16}{15}$	9/8	$\frac{10}{9}$	$\frac{16}{15}$	9/8	$\frac{10}{9}$		D
9/8	$\frac{10}{9}$	9/8	$\frac{16}{15}$	9/8	$\frac{10}{9}$	$\frac{16}{15}$	9/8	$\frac{10}{9}$	$\frac{16}{15}$	9/8	$\frac{10}{9}$	$\frac{16}{15}$		G
9/8	$\frac{10}{9}$	$\frac{16}{15}$	9/8	$\frac{10}{9}$	$\frac{16}{15}$	9/8	$\frac{10}{9}$	$\frac{16}{15}$	9/8	$\frac{10}{9}$	$\frac{16}{15}$	9/8		C
$\frac{10}{9}$	9/8	$\frac{16}{15}$	9/8	$\frac{10}{9}$	$\frac{16}{15}$	9/8	$\frac{10}{9}$	$\frac{16}{15}$	9/8	$\frac{10}{9}$	$\frac{16}{15}$	9/8		F

C	C#	D	D#	E	F	F#	G	G#	A	Bb	B	C		Just 17-Tone Genus
$\frac{135}{128}$	$\frac{256}{243}$	$\frac{81}{80}$	$\frac{135}{128}$	$\frac{256}{243}$	$\frac{81}{80}$	$\frac{256}{243}$	$\frac{135}{128}$	$\frac{81}{80}$	$\frac{256}{243}$	$\frac{135}{128}$	$\frac{256}{243}$	$\frac{81}{80}$	$\frac{256}{243}$	
$\frac{135}{128}$	$\frac{256}{243}$	$\frac{81}{80}$	$\frac{135}{128}$	$\frac{256}{243}$	$\frac{81}{80}$	$\frac{256}{243}$	$\frac{135}{128}$	$\frac{81}{80}$	$\frac{256}{243}$	$\frac{135}{128}$	$\frac{256}{243}$	$\frac{81}{80}$	$\frac{256}{243}$	
$\frac{135}{128}$	$\frac{256}{243}$	$\frac{81}{80}$	$\frac{135}{128}$	$\frac{256}{243}$	$\frac{81}{80}$	$\frac{256}{243}$	$\frac{135}{128}$	$\frac{81}{80}$	$\frac{256}{243}$	$\frac{135}{128}$	$\frac{256}{243}$	$\frac{81}{80}$	$\frac{256}{243}$	

Consider the Tetrachord ,

D	E	F#	G
$9/8$	$9/8$	$\frac{256}{243}$	
$1/1$	$9/8$	$81/64$	$4/3$

It has 3 rotations.

These may be arranged in PARALLEL position, as shown;

D	E $\flat$	E	F	F#	G
$9/8$		$9/8$		$\frac{256}{243}$	
$9/8$	$\frac{256}{243}$		$9/8$		
$\frac{256}{243}$		$9/8$		$9/8$	

D	E $\flat$	E	F	F#	G
$\frac{256}{243}$	$\frac{2187}{2048}$	$\frac{256}{243}$	$\frac{2187}{2048}$	$\frac{256}{243}$	
$1/1$	$256/243$	$9/8$	$32/27$	$81/64$	$4/3$

Composite genus

This sequence returns to its beginning and forms a CLOSED cycle.

Or these may be arranged in RELATIVE position, as shown;

D	E	F#	G	
$9/8$	$9/8$	$\frac{256}{243}$		A
	$9/8$	$\frac{256}{243}$	$9/8$	B
		$\frac{256}{243}$	$9/8$	$9/8$

The linkage between the interlocking tetrachords serves to generate a repeating series. This is OPEN-ended and may be extended, to MODULATE, indefinitely, each of the 3 tetrachords;

D	E	F#	G	A	B	C	D	E
$9/8$	$9/8$	$\frac{256}{243}$	$9/8$	$9/8$	$\frac{256}{243}$	$9/8$	$9/8$	et
$9/8$	$9/8$	$\frac{256}{243}$	$9/8$	$9/8$	$\frac{256}{243}$			
	$9/8$	$\frac{256}{243}$	$9/8$	$9/8$	$\frac{256}{243}$	$9/8$		
		$\frac{256}{243}$	$9/8$	$9/8$	$\frac{256}{243}$	$9/8$	$9/8$	

This series of overlapping tetrachords may be extended, thus, to form a 7-tone genus;

C	D	E	F#	G	A	B	C
	9/8	9/8	$\frac{256}{243}$	9/8	9/8	$\frac{256}{243}$	
9/8	9/8						

C	D	E	F#	G	A	B	C
9/8	9/8	9/8	$\frac{256}{243}$	9/8	9/8	$\frac{256}{243}$	
$\frac{1}{1}$	9/8	$\frac{81}{64}$	$\frac{729}{512}$	$\frac{3}{2}$	$\frac{27}{16}$	$\frac{243}{128}$	$\frac{2}{1}$

7-Tone Genus

Further extended to form a 12-tone genus;

C	D $\flat$	D	E $\flat$	E	F	F#	G	A $\flat$	A	B $\flat$	B	C
		9/8	9/8		$\frac{256}{243}$	9/8	9/8		9/8	$\frac{256}{243}$		
9/8	9/8	$\frac{256}{243}$	9/8	9/8	$\frac{256}{243}$	9/8	9/8	$\frac{256}{243}$	9/8			
9/8	$\frac{256}{243}$	9/8	9/8	$\frac{256}{243}$	9/8	9/8	9/8		9/8			
$\frac{256}{243}$	9/8	9/8										

C	D $\flat$	D	E $\flat$	E	F	F#	G	A $\flat$	A	B $\flat$	B	C
$\frac{256}{243}$	$\frac{2187}{2048}$	$\frac{256}{243}$	$\frac{2187}{2048}$	$\frac{256}{243}$	$\frac{2187}{2048}$	$\frac{256}{243}$	$\frac{256}{243}$	$\frac{2187}{2048}$	$\frac{256}{243}$	$\frac{2187}{2048}$	$\frac{256}{243}$	
$\frac{1}{1}$	$\frac{256}{243}$	9/8	$\frac{32}{27}$	$\frac{81}{64}$	$\frac{4}{3}$	$\frac{729}{512}$	$\frac{3}{2}$	$\frac{128}{81}$	$\frac{27}{16}$	$\frac{16}{9}$	$\frac{243}{128}$	$\frac{2}{1}$

12-Tone Genus

Continuing this series brings to light an important 17-Tone genus;

C	D $\flat$	E $\flat\flat$	D	E $\flat$	F $\flat$	E	F	G $\flat$	F#	G	A $\flat$	B $\flat\flat$	A	B $\flat$	C $\flat$	B	C
			9/8	9/8		$\frac{256}{243}$	9/8	9/8		$\frac{256}{243}$	9/8		9/8	$\frac{256}{243}$			
9/8	9/8	$\frac{256}{243}$	9/8	9/8	$\frac{256}{243}$	9/8	9/8	$\frac{256}{243}$	9/8	9/8	$\frac{256}{243}$	9/8					
9/8	$\frac{256}{243}$	9/8	9/8	9/8	$\frac{256}{243}$	9/8	9/8	$\frac{256}{243}$	9/8	9/8		9/8					
$\frac{256}{243}$	9/8	9/8	$\frac{256}{243}$	9/8	9/8	$\frac{256}{243}$	9/8	9/8	$\frac{256}{243}$	9/8	$\frac{256}{243}$	9/8					
	9/8	$\frac{256}{243}$	9/8	9/8	9/8	$\frac{256}{243}$	9/8	9/8	$\frac{256}{243}$	9/8	9/8	9/8					
$\frac{256}{243}$	9/8	9/8															

D $\flat$

C	D $\flat$	E $\flat\flat$	D	E $\flat$	F $\flat$	E	F	G $\flat$	F#	G	A $\flat$	B $\flat\flat$	A	B $\flat$	C $\flat$	B	C
$\frac{256}{243}$	$\frac{256}{243}$	$\frac{256}{243}$	$\frac{256}{243}$	$\frac{256}{243}$	$\frac{256}{243}$	$\frac{256}{243}$	$\frac{256}{243}$	$\frac{256}{243}$	$\frac{256}{243}$	$\frac{256}{243}$	$\frac{256}{243}$	$\frac{256}{243}$	$\frac{256}{243}$	$\frac{256}{243}$	$\frac{256}{243}$	$\frac{256}{243}$	
	$\frac{531441}{524288}$	$\frac{531441}{524288}$	$\frac{531441}{524288}$	$\frac{531441}{524288}$	$\frac{531441}{524288}$	$\frac{531441}{524288}$	$\frac{531441}{524288}$	$\frac{531441}{524288}$	$\frac{531441}{524288}$	$\frac{531441}{524288}$	$\frac{531441}{524288}$	$\frac{531441}{524288}$	$\frac{531441}{524288}$	$\frac{531441}{524288}$	$\frac{531441}{524288}$	$\frac{531441}{524288}$	

"Pythagorean"
17-Tone Genus

Three Cycles forming the 12-Tone Genus

(4)

Fig 5. Cycle of Fourths

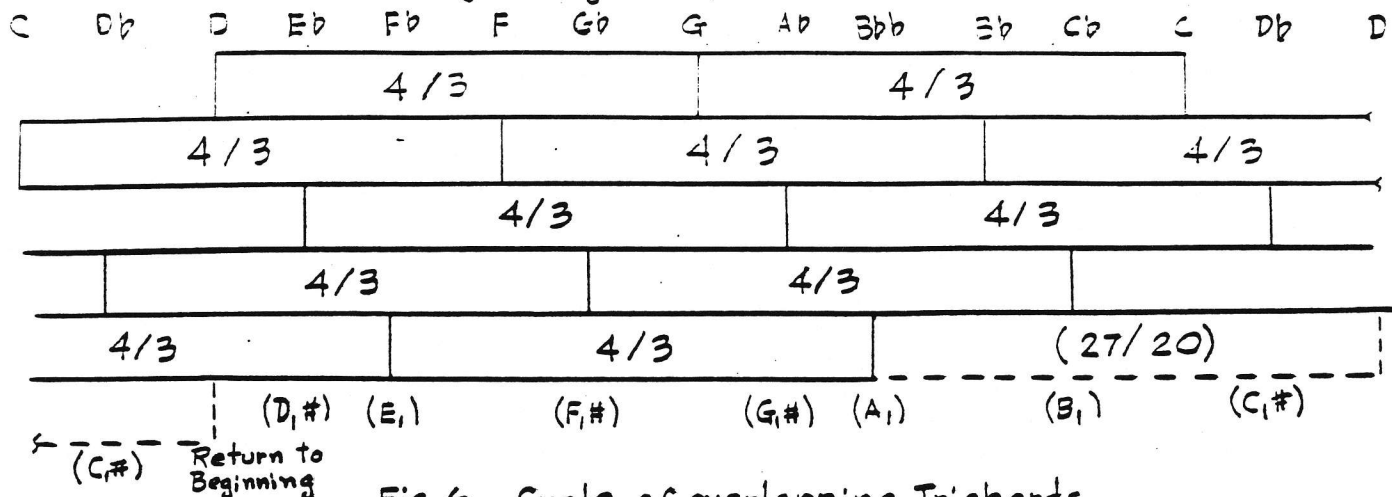


Fig 6. Cycle of overlapping Trichords

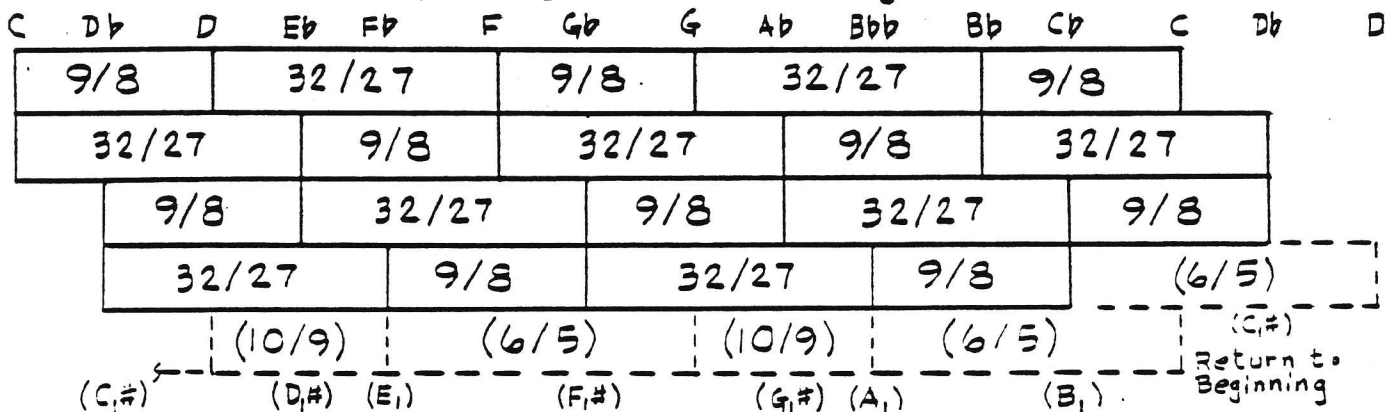


Fig 7. Cycle of overlapping Tetrachords

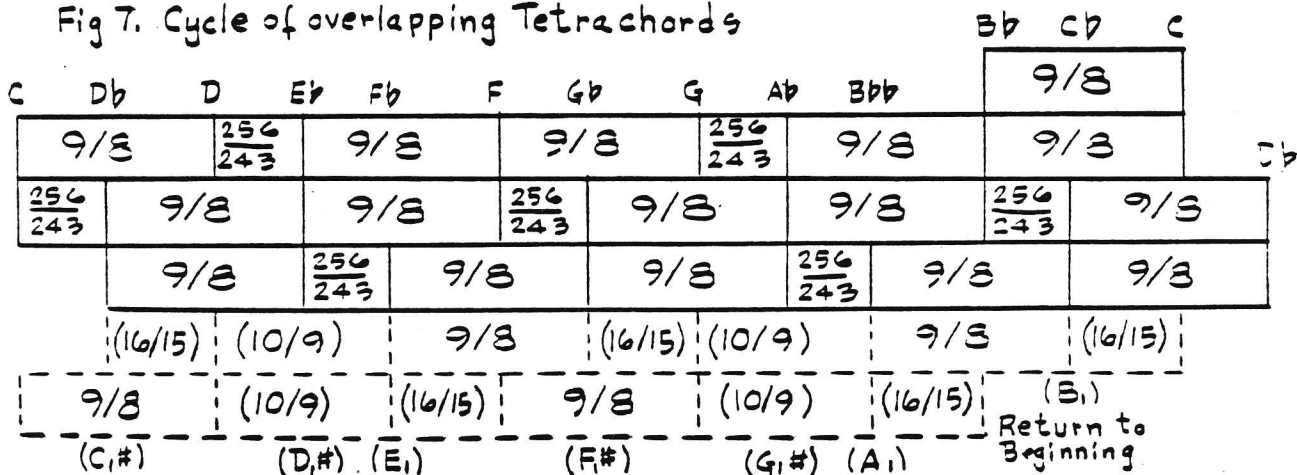
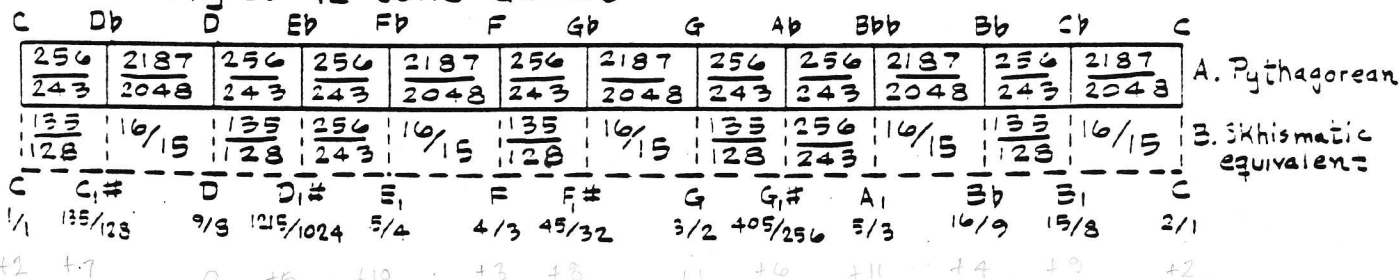


Fig 8. 12-tone Genus



Notes: Ratios in () are skhismatic equivalents of very complex ratios.



(9/8)	10/9	9/8	16/15	10/9	9/8	16/15
9/8	(10/9)	9/8	16/15	10/9	9/8	16/15
9/8	10/9	(9/8)	16/15	10/9	9/8	16/15
9/8	10/9	16/15	(9/8)	10/9	9/8	16/15
9/8	10/9	16/15	9/8	(10/9)	9/8	16/15
9/8	10/9	16/15	9/8	10/9	(9/8)	16/15
9/8	10/9	16/15	9/8	10/9	16/15	(9/8)
(9/8)	10/9	16/15	9/8	10/9	16/15	9/8
9/8	(10/9)	16/15	9/8	10/9	16/15	9/8
9/8	$\frac{256}{243}$	(9/8)	9/8	10/9	16/15	9/8
9/8	$\frac{256}{243}$	9/8	(9/8)	10/9	16/15	9/8
9/8	$\frac{256}{243}$	9/8	9/8	(10/9)	16/15	9/8

C	D $\flat$	D	E $\flat$	F $\flat$	F	G $\flat$	G	A $\flat$	B $\flat$	B $\natural$	C $\flat$	C
$\frac{256}{243}$	$\frac{2187}{2048}$	$\frac{256}{243}$	$\frac{256}{243}$	$\frac{2187}{2048}$	$\frac{256}{243}$	$\frac{2187}{2048}$	$\frac{256}{243}$	$\frac{256}{243}$	$\frac{2187}{2048}$	$\frac{256}{243}$	$\frac{2187}{2048}$	$\frac{256}{243}$
$\frac{135}{128}$	16/15	$\frac{256}{243}$	$\frac{135}{128}$	16/15	$\frac{135}{128}$	16/15	$\frac{135}{128}$	$\frac{256}{243}$	16/15	$\frac{135}{128}$	16/15	$\frac{135}{128}$

"Pythagorean"
12-tone Genus
isn't ismatic
equivalent

Consider a second important tetrachord,

D	E	F#	G
9/8	10/9	16/15	
1/1	9/8	5/4	4/3

and its mirror,

D	E ^b	F	G
16/15	10/9	9/8	
1/1	16/15	6/5	4/3

These have 3 rotations, each, which arranged in PARALLEL position are, respectively;

9/8	10/9	16/15
10/9	16/15	9/8
16/15	9/8	10/9

16/15	10/9	9/8
10/9	9/8	16/15
9/8	16/15	10/9

D	E ^b	E	E	F	F'	F#	G
16/15	25/24	81/80	256/243	81/80	25/24	16/15	
1/1	16/15	10/9	9/8	32/27	5/4	5/4	4/3

Composite

D	E ^b	E	E	F	F'	F#	G
16/15	25/24	81/80	256/243	81/80	25/24	16/15	
1/1	16/15	10/9	9/8	32/27	5/4	5/4	4/3

Composite

These sequences return to their respective beginnings forming CLOSED cycles. Their respective composites are equal to each other.

A BRAID, which pivots its way thru all six PERMUTATIONS, and returns to the beginning, forming a closed cycle, is as follows;

9/8	10/9	16/15
10/9	9/8	16/15
10/9	16/15	9/8
16/15	10/9	9/8
16/15	9/8	10/9
9/8	16/15	10/9

→ return to beginning

D	E ^b	E	E	F	F'	F#	G
16/15	25/24	81/80	256/243	81/80	25/24	16/15	
1/1	16/15	10/9	9/8	32/27	5/4	5/4	4/3

Composite

Or, these notations can be put in RELATIVE position, establishing the basis for 2, repeating series, as shown:

9/8	10/9	16/15		
	10/9	16/15	9/8	
		16/15	9/8	10/9

D	E	F#	G	A	B ₁	C	D	E ₁	etc
9/8	10/9	16/15	9/8	10/9	16/15	9/8	10/9		
1/1	9/8	5/4	4/3	3/2	5/3	16/9	2/1	10/9	

and;

10/9	9/8	16/15		
	9/8	16/15	10/9	
		16/15	10/9	9/8

D	E ₁	F#	G	A ₁	B ₁	C	D ₁	E ₁	etc
10/9	9/8	16/15	10/9	9/8	16/15	10/9	9/8		
1/1	10/9	5/4	4/3	40/27	5/3	16/9	160/81	10/9	

Six, 7-tone, tetrachordal species are derived, three from each series. They are, respectively;

9/8	10/9	16/15	9/8	10/9	16/15		
	10/9	16/15	9/8	10/9	16/15	9/8	
and:		16/15	9/8	10/9	16/15	9/8	10/9

and;

10/9	9/8	16/15	10/9	9/8	16/15		
	9/8	16/15	10/9	9/8	16/15	10/9	
		16/15	10/9	9/8	16/15	10/9	9/8

The composite repeating series gives a 10-tone species, thus;

D	E ₁ E	F#	G	A ₁ A	B ₁	C	D ₁ D	E ₁	
10/9	31/30	10/9	16/15	10/9	21/20	10/9	16/15	10/9	9/8
1/1	10/9 9/8	5/4	4/3	40/27 3/2	5/3	16/9	160/81 2/1	10/9	

Similarly, Six, 17-tone species are derived, three from each series. One from each series is shown, respectively;

C	C#	D, D	D#	E, E	F	F# F#	G	G#	A, A	Bb	B, B	C	C#
		16/15		9/8		10/9		16/15		9/8		10/9	
	16/15		9/8		10/9		16/15		9/8		10/9		16/15
9/8		10/9		16/15		9/8		10/9		16/15		9/8	
10/9													

C	C#	D, D	D#	E, E	F	F# F#	G	G#	A, A	Bb	B, B	C	C#
135/128	256/243	81/80	135/128	256/243	81/80	256/243	135/128	81/80	256/243	135/128	256/243	81/80	256/243

17-tone species

1/1 135/128 10/9 9/8 1215/1024 5/4 81/80 4/3 45/32 729/512 3/2 405/256 5/3 27/16 16/9 15/8 243/128 2/1

And;

C	C#	D, D	D#	E, E	F	F# F#	G	G#	A, A	A#	B, B	C	C#
							10/9		9/8		16/15		10/9
	9/8		16/15		10/9		9/8		16/15		10/9		9/8
	16/15		10/9		9/8		16/15		10/9		9/8		16/15
10/9		9/8		16/15									

C	C#	D, D	D#	E, E	F	F# F#	G	G#	A, A	A#	B, B	C	C#
135/128	256/243	81/80	135/128	256/243	81/80	256/243	135/128	81/80	256/243	135/128	256/243	81/80	256/243

17-tone specie

1/1 135/128 10/9 9/8 1215/1024 5/4 81/80 4/3 45/32 729/512 3/2 405/256 5/3 27/16 3645/2048 15/8 243/128 2/1

These 2 species differ from each other at one tone only; and there, by the very small interval of the SKHISMA, about 1/612 of an 8ve, and having the ratio of 32805/32768.

A 12-tone genus conspicuously is not generated by extending the repeating series 9/8, 10/9, 16/15, nor its mirror 16/15, 10/9, 9/8.

However, the "Just" (above) 17-tone genus differs from the "Pythagorean" 17-tone genus by one skhisma at intervals 135/128 and 81/80. The mapping is as shown; (* = 531441/524288) († = 2048/2025)

C	C#	D, D	D#	E, E	F	F# F#	G	G#	A, A	Bb	B, B	C	C#
135/128	256/243	81/80	135/128	256/243	81/80	256/243	135/128	81/80	256/243	135/128	256/243	81/80	256/243
256/243	256/243	*	256/243	256/243	*	256/243	256/243	*	256/243	256/243	*	256/243	256/243

"Just" 17-Tone Genus

"Pythagorean" 17-Tone Genus

(Persian)

C	D	E	F	G	A	B	C	D	E	F	G	A	B	C
256/243	135/128	†	135/128	135/128	†	135/128	135/128	†	135/128	135/128	†	135/128	135/128	†

(Third form added 1983)

FIG 1. Cycle of overlapping Triads

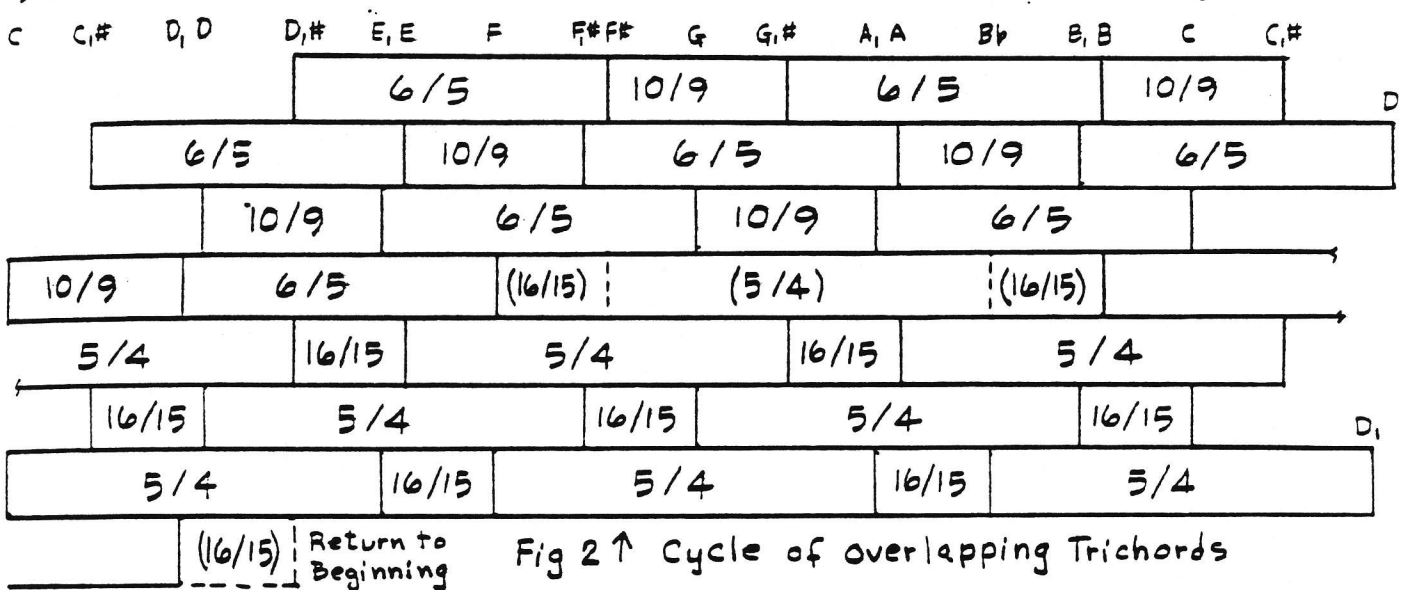
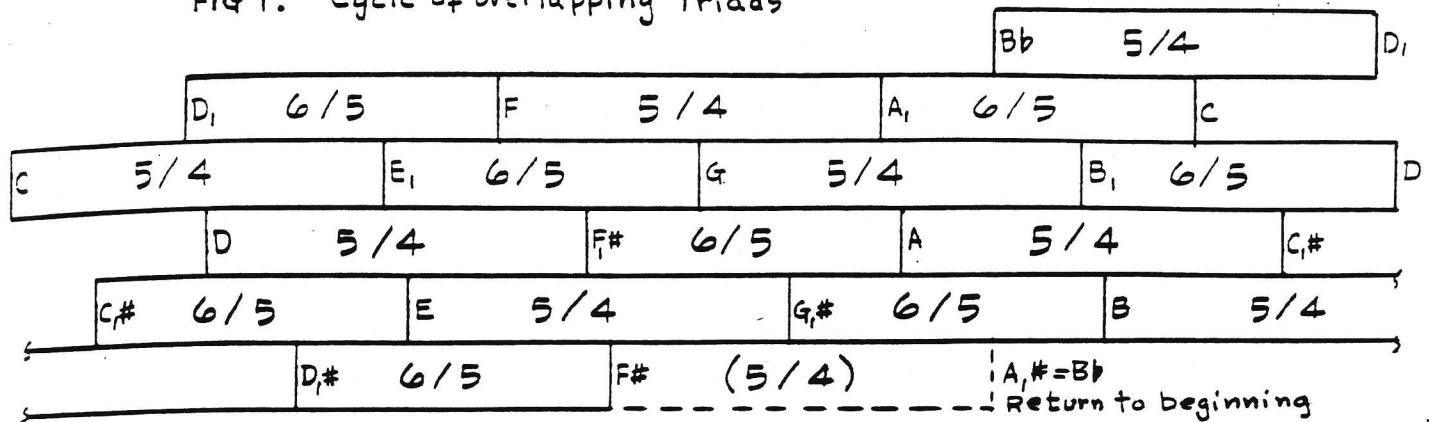


Fig 2 ↑ Cycle of overlapping Trichords

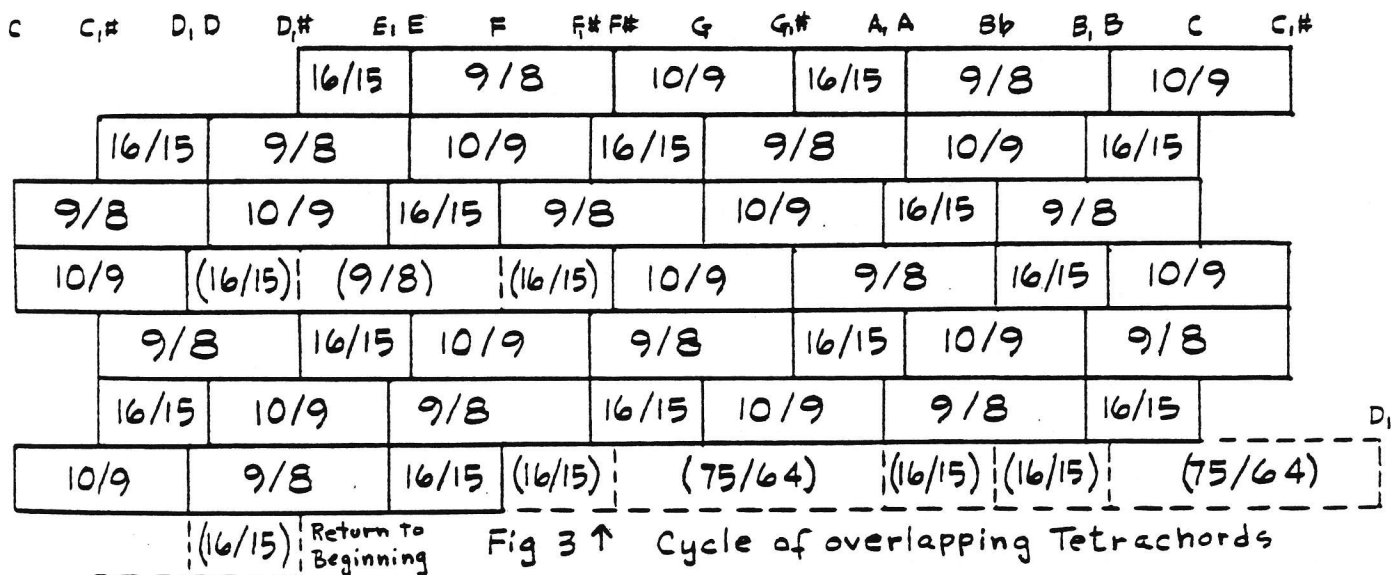
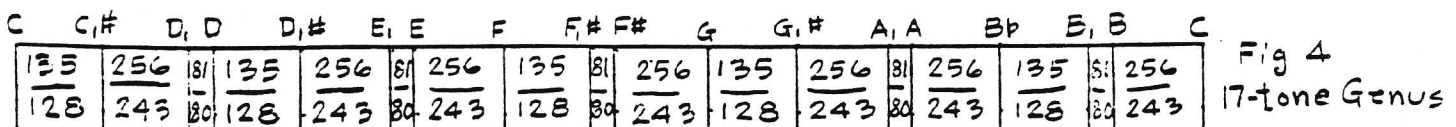


Fig 3 ↑ Cycle of overlapping Tetrachords



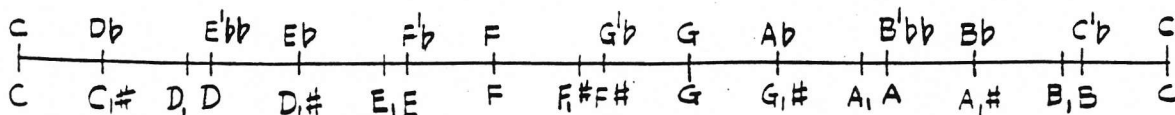
Three Cycles Forming the 17-Tone Genus

A cycle of 7-tone scales
derived from the cycle of triads in 17
(the skhisma neglected)

9A



C	10/9	D ₁	9/8	E ₁	16/15	F	9/8	G	10/9	A ₁	16/15	B _b	9/8	C
C	10/9	D ₁	9/8	E ₁	16/15	F	9/8	G	10/9	A ₁	9/8	B ₁	16/15	C
C	9/8	D	10/9	E ₁	16/15	F	9/8	G	10/9	A ₁	9/8	B ₁	16/15	C
C	9/8	D	10/9	E ₁	9/8	F _#	16/15	G	10/9	A ₁	9/8	B ₁	16/15	C
C	9/8	D	10/9	E ₁	9/8	F _#	16/15	G	9/8	A	10/9	B ₁	16/15	C
C _#	16/15	D	10/9	E ₁	9/8	F _#	16/15	G	9/8	A	10/9	B ₁	9/8	C ₁ #
C _#	16/15	D	9/8	E	10/9	F _#	16/15	G	9/8	A	10/9	B ₁	9/8	C ₁ #
C _#	16/15	D	9/8	E	10/9	F _#	9/8	G _#	16/15	A	10/9	B ₁	9/8	C ₁ #
C _#	16/15	D	9/8	E	10/9	F _#	9/8	G _#	16/15	A	9/8	B	10/9	C ₁ #
C _#	9/8	D _#	16/15	E	10/9	F _#	9/8	G _#	16/15	A	9/8	B	10/9	C ₁ #
C _#	9/8	D _#	16/15	E	9/8	F _#	10/9	G _#	16/15	A	9/8	B	10/9	C ₁ #
C _#	9/8	D _#	16/15	E	9/8	F _#	10/9	G _#	9/8	A _#	16/15	B	10/9	C ₁ #
D ₁	16/15	E _b	16/15	F _b	9/8	G _b	10/9	A _b	9/8	B _b	16/15	C _b	75/64	D ₁
D ₁	16/15	E _b	9/8	F	16/15	G _b	10/9	A _b	9/8	B _b	16/15	C _b	75/64	D ₁
D ₁	16/15	E _b	9/8	F	16/15	G _b	75/64	A ₁	16/15	B _b	16/15	C _b	75/64	D ₁
D ₁	16/15	E _b	9/8	F	16/15	G _b	75/64	A ₁	16/15	B _b	9/8	C	10/9	D ₁
D ₁	9/8	E ₁	16/15	F	16/15	G _b	75/64	A ₁	16/15	B _b	9/8	C	10/9	D ₁



A Cycle of Pentatonic scales from the 17-tone genus (Skhisma neglected)

(10)

C C# D D# E F F# G G# A Bb B C C#

(9/8)	6/5	10/9	6/5	10/9	
6/5	(9/8)	10/9	6/5	10/9	
6/5	10/9	(9/8)	6/5	10/9	
6/5	10/9	6/5	(9/8)	10/9	
6/5	10/9	6/5	10/9	(9/8)	
(9/8)	10/9	6/5	10/9	6/5	
10/9	(9/8)	6/5	10/9	6/5	
10/9	6/5	(9/8)	10/9	6/5	
10/9	6/5	10/9	(9/8)	6/5	
10/9	6/5	10/9	6/5	(9/8)	
(9/8)	6/5	10/9	6/5	10/9	
6/5	(9/8)	10/9	6/5	10/9	
6/5	16/15	(75/64)	6/5	10/9	
6/5	16/15	5/4	(9/8)	10/9	
6/5	16/15	5/4	16/15	(75/64)	
(9/8)	16/15	5/4	16/15	5/4	
16/15	(9/8)	5/4	16/15	5/4	
16/15	5/4	9/8	16/15	5/4	
16/15	5/4	16/15	(9/8)	5/4	
(9/8)	16/15	5/4	16/15	5/4	
16/15	(9/8)	5/4	16/15	5/4	
16/15	5/4	(9/8)	16/15	5/4	
16/15	5/4	16/15	(9/8)	5/4	
16/15	5/4	16/15	5/4	(9/8)	
(9/8)	5/4	16/15	5/4	16/15	
5/4	(9/8)	16/15	5/4	16/15	
5/4	16/15	(9/8)	5/4	16/15	
5/4	16/15	5/4	(9/8)	16/15	
5/4	16/15	5/4	16/15	(9/8)	
(9/8)	16/15	5/4	16/15	5/4	
16/15	(9/8)	5/4	16/15	5/4	
16/15	6/5	(75/64)	16/15	5/4	
16/15	6/5	10/9	(9/8)	5/4	
16/15	6/5	10/9	6/5	(75/64)	

C C# D D# E F F# G G# A Bb B C

135	256	31	135	256	31	256	135	31	256	135	256	31	256	135	31	256
128	243	80	128	243	80	243	128	80	243	128	243	80	243	128	80	243

C C# D D# E E F F# F# G G# A A Bb B B C C#

(9/8)	16/15	9/8	10/9	16/15	9/8	10/9
16/15	(9/8)	9/8	10/9	16/15	9/8	10/9
16/15	9/8	(9/8)	10/9	16/15	9/8	10/9
16/15	9/8	10/9	(9/8)	16/15	9/8	10/9
16/15	9/8	10/9	16/15	(9/8)	9/8	10/9
16/15	9/8	10/9	16/15	9/8	(9/8)	10/9
16/15	9/8	10/9	16/15	9/8	10/9	(9/8)

(9/8)	9/8	10/9	16/15	9/8	10/9	16/15
9/8	(9/8)	10/9	16/15	9/8	10/9	16/15
9/8	10/9	(9/8)	16/15	9/8	10/9	16/15
9/8	10/9	16/15	(9/8)	9/8	10/9	16/15
9/8	10/9	16/15	9/8	(9/8)	10/9	16/15
9/8	10/9	16/15	9/8	10/9	(9/8)	16/15
9/8	10/9	16/15	9/8	10/9	16/15	(9/8)
(9/8)	10/9	16/15	9/8	10/9	16/15	9/8
10/9	(9/8)	16/15	9/8	10/9	16/15	9/8
10/9	16/15	(9/8)	9/8	10/9	16/15	9/8
10/9	16/15	9/8	(9/8)	10/9	16/15	9/8
10/9	16/15	9/8	16/15	(75/64)	16/15	9/8
10/9	16/15	9/8	16/15	10/9	(9/8)	9/8
10/9	16/15	9/8	16/15	10/9	9/8	(9/8)

(75/64)	16/15	9/8	16/15	10/9	9/8	16/15
10/9	(9/8)	9/8	16/15	10/9	9/8	16/15
10/9	9/8	(9/8)	16/15	10/9	9/8	16/15
10/9	9/8	16/15	(9/8)	10/9	9/8	16/15
10/9	9/8	16/15	10/9	(9/8)	9/8	16/15
10/9	9/8	16/15	10/9	9/8	(9/8)	16/15
10/9	9/8	16/15	10/9	9/8	16/15	(9/8)

(9/8)	9/8	16/15	10/9	9/8	16/15	10/9
9/8	(9/8)	16/15	10/9	9/8	16/15	10/9
9/8	16/15	(9/8)	10/9	9/8	16/15	10/9
9/8	16/15	10/9	(9/8)	9/8	16/15	10/9
9/8	16/15	10/9	9/8	(9/8)	16/15	10/9
9/8	16/15	10/9	9/8	16/15	(9/8)	10/9
9/8	16/15	10/9	9/8	16/15	10/9	(9/8)
(9/8)	16/15	10/9	9/8	16/15	10/9	9/8
16/15	(9/8)	10/9	9/8	16/15	10/9	9/8
16/15	10/9	(9/8)	9/8	16/15	10/9	9/8
16/15	10/9	9/8	(9/8)	16/15	10/9	9/8
16/15	10/9	9/8	16/15	(9/8)	10/9	9/8
16/15	10/9	9/8	16/15	16/15	(75/64)	9/8
16/15	10/9	9/8	16/15	16/15	75/64	(9/8)

(9/8)	10/9	9/8	16/15	16/15	75/64	16/15
16/15	(75/64)	9/8	16/15	16/15	75/64	16/15
16/15	75/64	(9/8)	16/15	16/15	75/64	16/15
16/15	75/64	16/15	(9/8)	16/15	75/64	16/15
16/15	75/64	16/15	16/15	(9/8)	75/64	16/15
16/15	75/64	16/15	16/15	9/8	(75/64)	16/15
16/15	75/64	16/15	16/15	9/8	10/9	(9/8)

(9/8)	75/64	16/15	16/15	9/8	10/9	16/15
9/8	(75/64)	16/15	16/15	9/8	10/9	16/15

A Bb B B C C# D D# E E F F# F# G G# A A Bb B B C

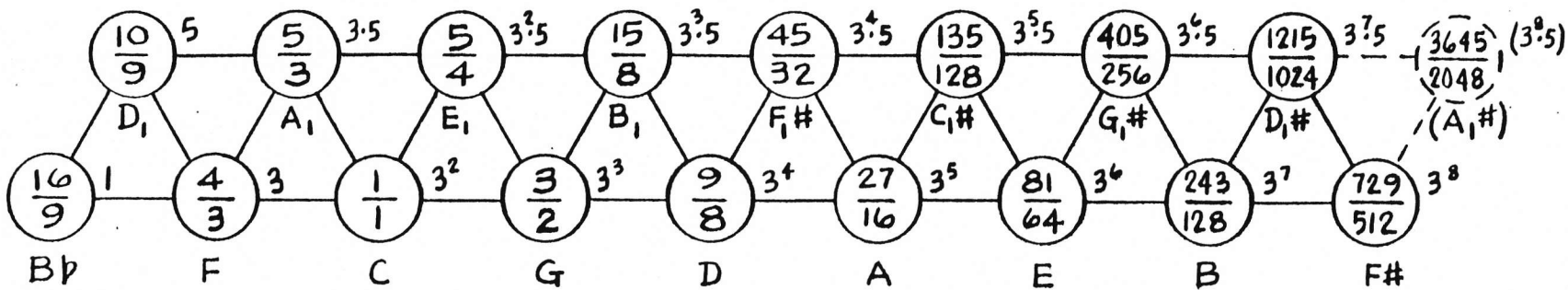
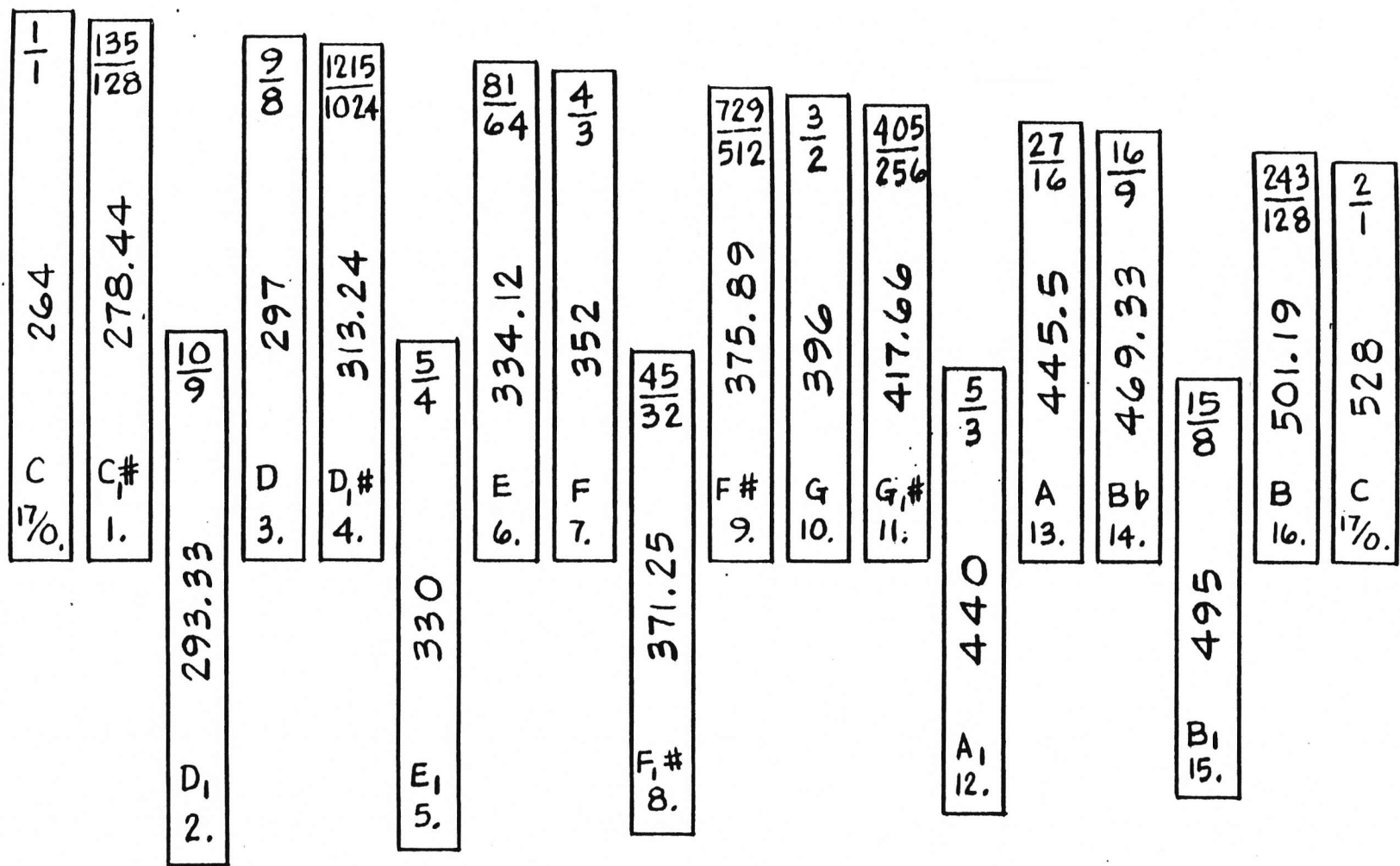
A Cycle of 7-tone Scales, derived from the cycle of tetrachords in the 17-tone Genus, the Skhisms neglected

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Note: tetrachordal disjunctions in ().

(5+12) 17-TONE TUBULONG, GENUS 3^{8.5}

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Tetrachordal Scales from the 12-tone Genus (the Skhisma neglected)

(13)

1/1	9/8	81/64	27/20	3/2	27/16	9/5	2/1
9/8	9/8	16/15 ₈₁	10/9	9/8	16/15	(10/9)	Bbb
9/8	9/8	256/243 ₈₀	9/8	9/8	16/15 ₈₁	(10/9)	Fb
9/8	9/8	256/243 ₈₁	9/8	9/8	256/243 ₈₀	(9/8)	Cb Gb Db } Ab Eb Bb }
9/8	10/9	16/15 ₈₀	9/8	9/8	256/243 ₈₁	(9/8)	F
9/8 ₈₁	10/9	16/15	9/8	10/9	16/15 ₈₀	(9/8)	C
10/9 ₈₀	9/8	16/15	9/8 ₈₁	10/9	16/15	(9/8)	G
10/9	9/8	16/15	10/9 ₈₀	9/8	16/15	(9/8)	D
1/1	10/9	5/4	4/3	40/27	5/3	16/9	2/1

1/1	9/8	6/5	27/20	3/2	8/5	9/5	2/1
9/8	16/15	9/8 ₈₁	10/9	16/15	9/8	(10/9)	Bbb
9/8	16/15	10/9 ₈₀	9/8	16/15	9/8 ₈₁	(10/9)	Fb
9/8	16/15 ₈₁	10/9	9/8	16/15	10/9 ₈₀	(9/8)	Cb
9/8	256/243 ₈₀	9/8	9/8	16/15 ₈₁	10/9	(9/8)	Gb
9/8 ₈₁	256/243	9/8	9/8	256/243 ₈₀	9/8	(9/8)	Db Ab Eb } Bb F C }
10/9 ₈₀	16/15	9/8	9/8 ₈₁	256/243	9/8	(9/8)	G
10/9	16/15	9/8	10/9 ₈₀	16/15	9/8	(9/8)	D
1/1	10/9	32/27	4/3	40/27	128/81	16/9	2/1

1/1	16/15	6/5	27/20	64/45	8/5	9/5	2/1
16/15	9/8	9/8 ₈₁	256/243	9/8	9/8	(10/9)	Bbb
16/15	9/8	10/9 ₈₀	16/15	9/8	9/8 ₈₁	(10/9)	Fb
16/15	9/8 ₈₁	10/9	16/15	9/8	10/9 ₈₀	(9/8)	Cb
16/15	10/9 ₈₀	9/8	16/15	9/8 ₈₁	10/9	(9/8)	Gb
16/15 ₈₁	10/9	9/8	16/15	10/9 ₈₀	9/8	(9/8)	Db
256/243 ₈₀	9/8	9/8	16/15 ₈₁	10/9	9/8	(9/8)	Ab
256/243	9/8	9/8	256/243 ₈₀	9/8	9/8	(9/8)	Eb Bb F } C G D }
1/1	256/243	32/27	4/3	1024/729	128/81	16/9	2/1

Note: Disjunction in ().

Tetrachordal Scales from the 17-tone Genus (the Skhisma neglected)

14

1/1	75/64	5/4	4/3	25/16	5/3	16/9	2/1
75/64	16/15	16/15	75/64	(25) (24)	16/15	16/15	(9/8) F#
75/64	(25) (24)	16/15	16/15	9/8	10/9	16/15	(9/8) B
9/8	10/9	16/15	9/8	10/9	(25) (24)	16/15	(9/8) E A D } G C F }
9/8	10/9	(25) (24)	16/15	9/8	16/15	10/9	(9/8) Bb
9/8	16/15	10/9	9/8	16/15	10/9	(25) (24)	(9/8) D# G# C# } F# B, E }
9/8	16/15	10/9	9/8	16/15	16/15	(25) (24)	(75/64) A1
9/8	16/15	16/15	75/64	16/15	16/15	(75/64)	D1
1/1	7/8	6/5	32/25	3/2	8/5	128/75	2/1

1/1	10/9	32/27	4/3	40/27	128/81	16/9	2/1
10/9	16/15	9/8	10/9	(25) (24)	16/15	9/8	(9/8) F# B E } A D G }
10/9	(25) (24)	16/15	9/8	16/15	10/9	9/8	(9/8) C
16/15	10/9	9/8	16/15	10/9	(25) (24)	9/8	(9/8) F Bb D# } G# C# F# }
16/15	10/9	(25) (24)	9/8	16/15	16/15	75/64	(9/8) B1
16/15	16/15	(25) (24)	75/64	16/15	16/15	75/64	(9/8) E1
16/15	16/15	75/64	16/15	16/15	9/8	(25) (24)	(75/64) A1
16/15	16/15	9/8	(25) (24)	10/9	16/15	9/8	(75/64) D1
1/1	16/15	256/225	32/25	64/45	1024/675	128/75	2/1

1/1	10/9	5/4	4/3	40/27	5/3	16/9	2/1
10/9	9/8	16/15	10/9	(25) (24)	9/8	16/15	(9/8) F# B E } A D G }
10/9	(25) (24)	9/8	16/15	16/15	75/64	16/15	(9/8) C
16/15	75/64	16/15	16/15	75/64	(25) (24)	16/15	(9/8) F
16/15	75/64	(25) (24)	16/15	16/15	9/8	10/9	(9/8) Bb
16/15	9/8	10/9	16/15	9/8	10/9	(25) (24)	(9/8) D# G# C# } F# B, E }
16/15	9/8	10/9	16/15	9/8	16/15	(25) (24)	(75/64) A1
16/15	9/8	16/15	(25) (24)	10/9	9/8	16/15	(75/64) D1
1/1	16/15	6/5	32/25	64/45	8/5	128/75	2/1

Note: Disjunction in ()

Modes of Linear 12, floating skhisma

1 $\frac{256}{243}$ $\frac{10}{9}$ $\frac{32}{27}$ $\frac{5}{4}$ $\frac{4}{3}$ $\frac{45}{32}$ $\frac{40}{27}$ $\frac{128}{81}$ $\frac{5}{3}$ $\frac{16}{9}$ $\frac{15}{8}$ $\frac{2}{1}$

$\frac{256}{243}$	$\frac{135}{128}$	$\frac{16}{15}$	$\frac{135}{128}$	$\frac{16}{15}$	$\frac{135}{128}$	$\frac{256}{243}$	$\frac{81}{80}$	$\frac{16}{15}$	$\frac{135}{128}$	$\frac{16}{15}$	$\frac{135}{128}$	$\frac{16}{15}$
		$\frac{81}{80}$					$\frac{80}{81}$					
		$\frac{81}{80}$										
				$\frac{81}{80}$				$\frac{16}{15}$				
	$\frac{2187}{2048}$			$\frac{80}{81}$					$\frac{256}{243}$			$\frac{81}{80}$
		$\frac{256}{243}$				$\frac{81}{80}$			$\frac{2187}{2048}$			$\frac{80}{81}$
	$\frac{81}{80}$			$\frac{2187}{2048}$		$\frac{80}{81}$				$\frac{256}{243}$		
	$\frac{80}{81}$				$\frac{256}{243}$				$\frac{81}{80}$		$\frac{2187}{2048}$	
			$\frac{81}{80}$			$\frac{2187}{2048}$		$\frac{80}{81}$				
			$\frac{80}{81}$								$\frac{81}{80}$	
					$\frac{81}{80}$					$\frac{80}{81}$		
$\frac{16}{15}$	$\frac{135}{128}$	$\frac{16}{15}$	$\frac{135}{128}$	$\frac{16}{15}$	$\frac{80}{81}$	$\frac{135}{128}$	$\frac{256}{243}$	$\frac{16}{15}$	$\frac{135}{128}$	$\frac{16}{15}$	$\frac{135}{128}$	$\frac{256}{243}$

1 $\frac{16}{15}$ $\frac{9}{8}$ $\frac{6}{5}$ $\frac{81}{64}$ $\frac{27}{20}$ $\frac{729}{512}$ $\frac{3}{2}$ $\frac{8}{5}$ $\frac{27}{16}$ $\frac{9}{5}$ $\frac{243}{128}$ $\frac{2}{1}$

Modes of Linear 17, floating skhisma

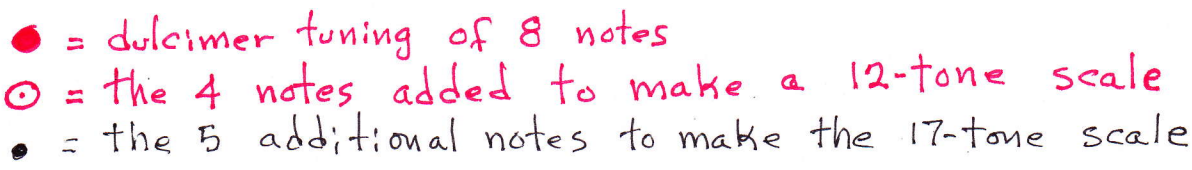
D 1 $\frac{135}{128}$ $\frac{10}{9}$ $\frac{75}{64}$ $\frac{32}{27}$ $\frac{5}{4}$ $\frac{675}{512}$ $\frac{4}{3}$ $\frac{45}{32}$ $\frac{40}{27}$ $\frac{25}{16}$ $\frac{128}{81}$ $\frac{5}{3}$ $\frac{225}{128}$ $\frac{16}{9}$ $\frac{15}{8}$ $\frac{160}{81}$ $\frac{2}{1}$

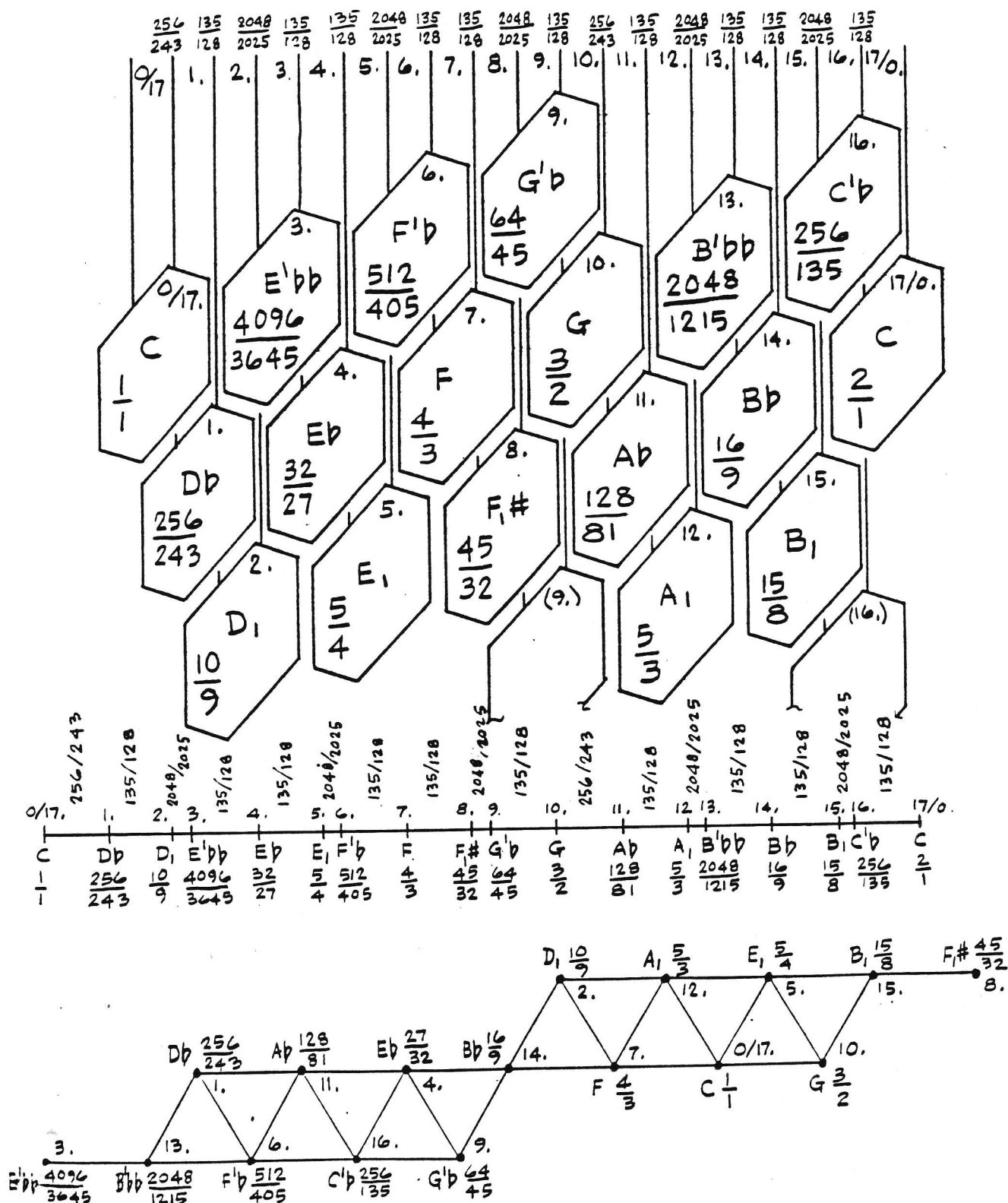
$\frac{135}{128}$	$\frac{256}{243}$	$\frac{135}{128}$	*	$\frac{135}{128}$	$\frac{135}{128}$	*	$\frac{135}{128}$	$\frac{256}{243}$	$\frac{135}{128}$	$\frac{25}{24}$	*	$\frac{135}{128}$	$\frac{135}{128}$	*	$\frac{135}{128}$	$\frac{256}{243}$	$\frac{81}{80}$
		$\frac{25}{24}$								$\frac{25}{24}$							
					$\frac{25}{24}$				$\frac{81}{80}$								
		$\frac{81}{80}$			$\frac{25}{24}$											$\frac{25}{24}$	
								$\frac{25}{24}$				$\frac{81}{80}$				$\frac{25}{24}$	
	$\frac{25}{24}$				$\frac{81}{80}$			$\frac{256}{243}$								*	
	$\frac{25}{24}$	$\frac{256}{243}$								$\frac{25}{24}$			$\frac{256}{243}$				
	*			$\frac{25}{24}$	$\frac{256}{243}$			*				$\frac{25}{24}$					
							$\frac{25}{24}$			$\frac{81}{80}$					$\frac{25}{24}$		
$\frac{25}{24}$							$\frac{25}{24}$										
			$\frac{25}{24}$						$\frac{25}{24}$				$\frac{81}{80}$				
			$\frac{25}{24}$										$\frac{25}{24}$				
					$\frac{25}{24}$									$\frac{25}{24}$			
$\frac{81}{80}$	$\frac{256}{243}$	$\frac{135}{128}$	*	$\frac{135}{128}$	$\frac{135}{128}$	*	$\frac{24}{135}$	$\frac{256}{243}$	$\frac{135}{128}$	*	$\frac{135}{128}$	$\frac{135}{128}$	*	$\frac{135}{128}$	$\frac{256}{243}$	$\frac{135}{128}$	

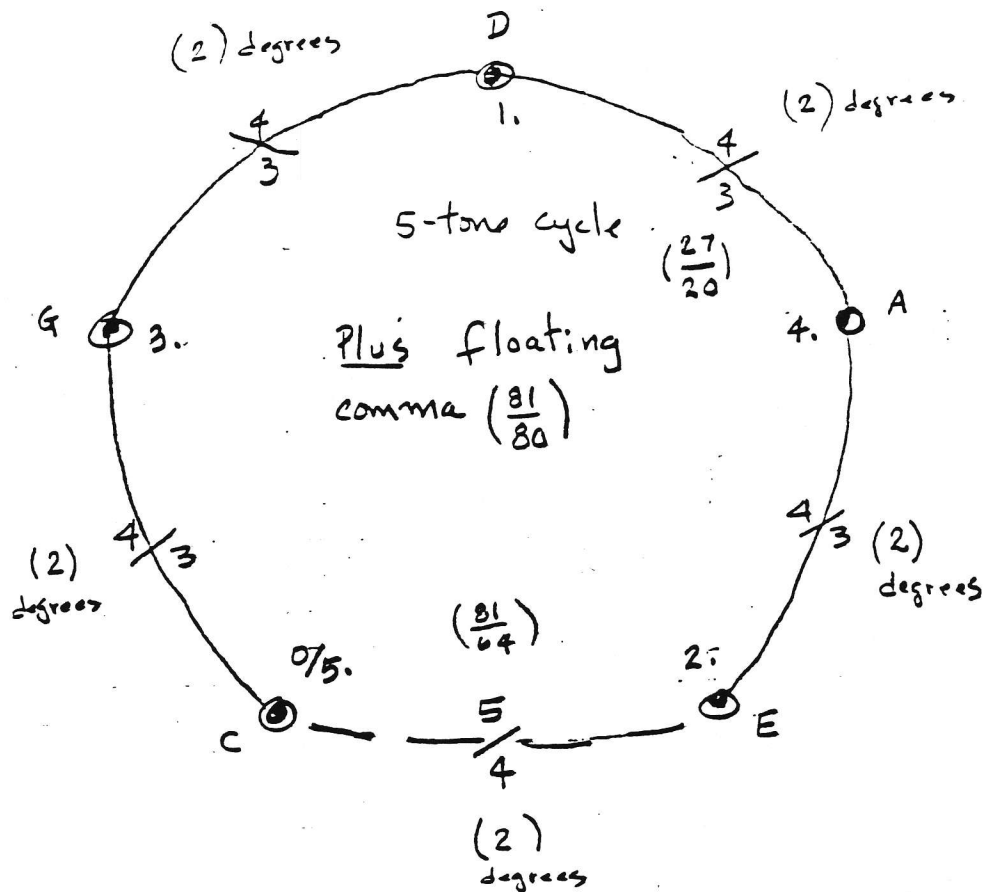
1 $\frac{81}{80}$ $\frac{16}{15}$ $\frac{9}{8}$ $\frac{256}{225}$ $\frac{6}{5}$ $\frac{81}{64}$ $\frac{32}{25}$ $\frac{27}{20}$ $\frac{64}{45}$ $\frac{3}{2}$ $\frac{1024}{675}$ $\frac{8}{5}$ $\frac{27}{16}$ $\frac{128}{75}$ $\frac{9}{5}$ $\frac{256}{135}$ $\frac{2}{1}$

* = 2048/2025

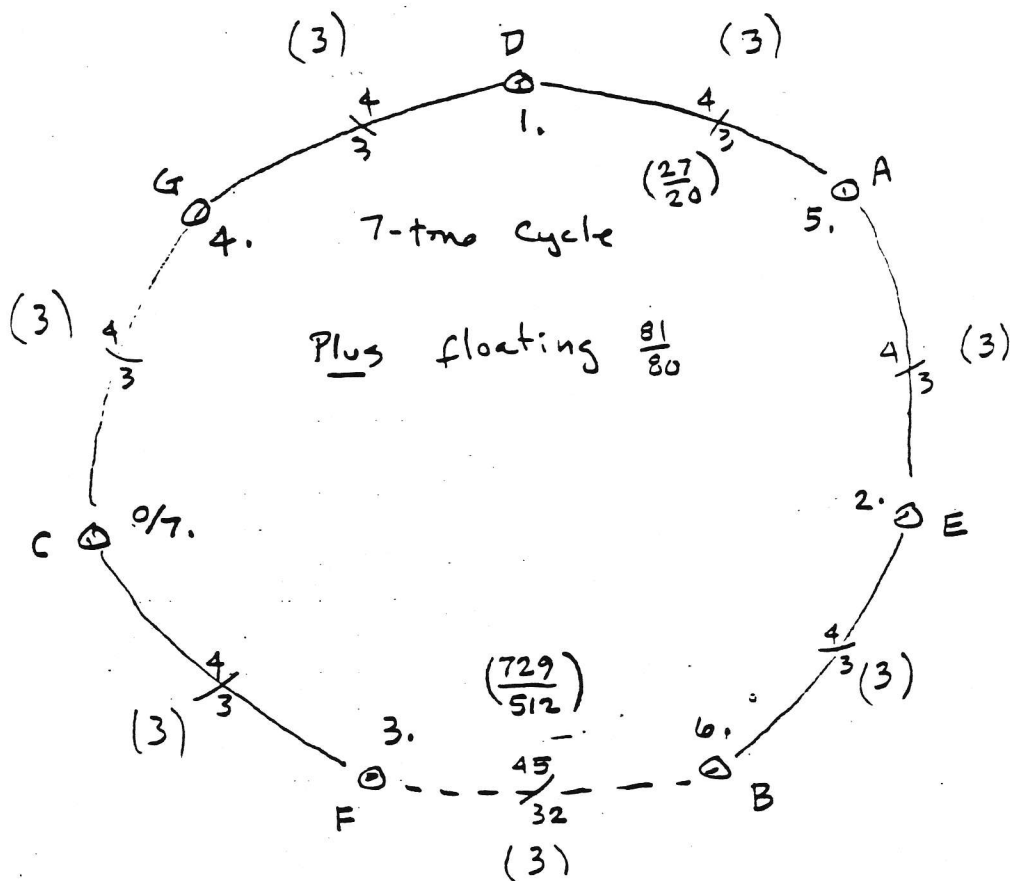
(16)

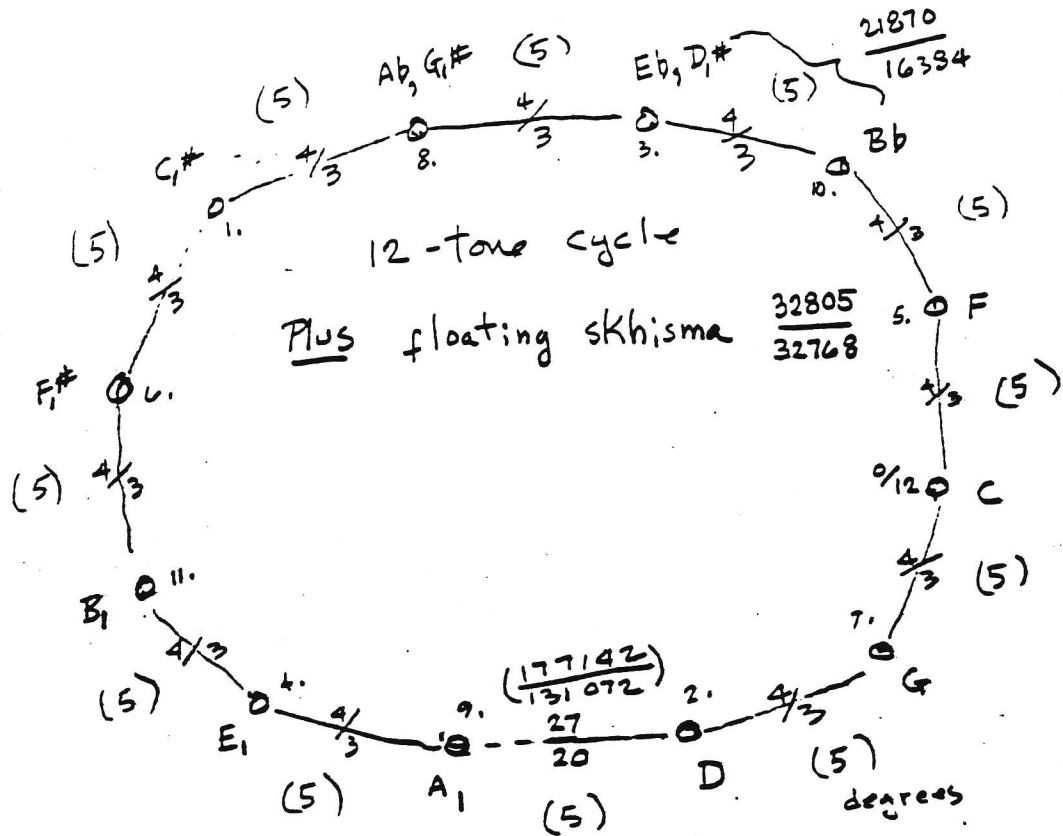




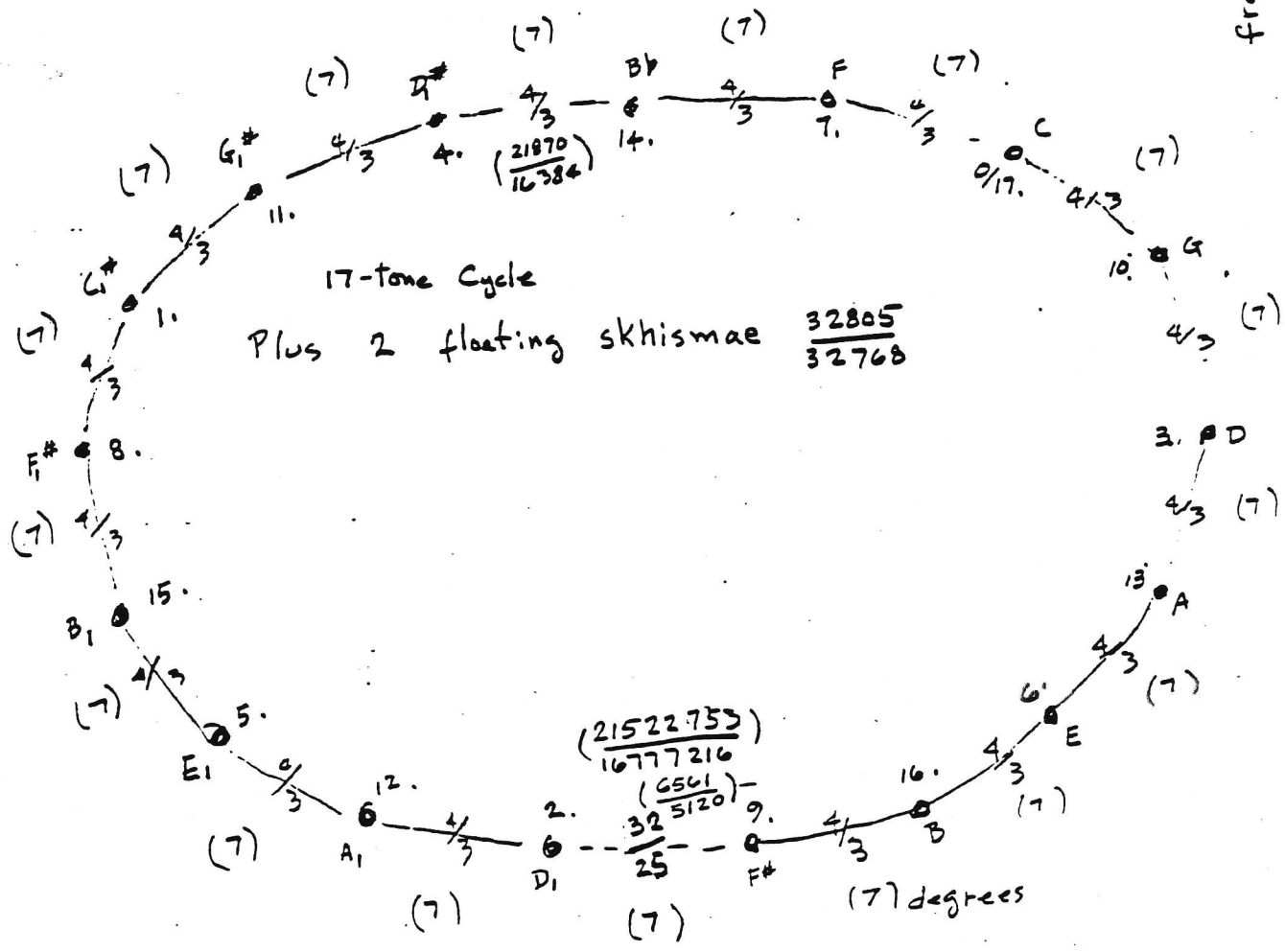


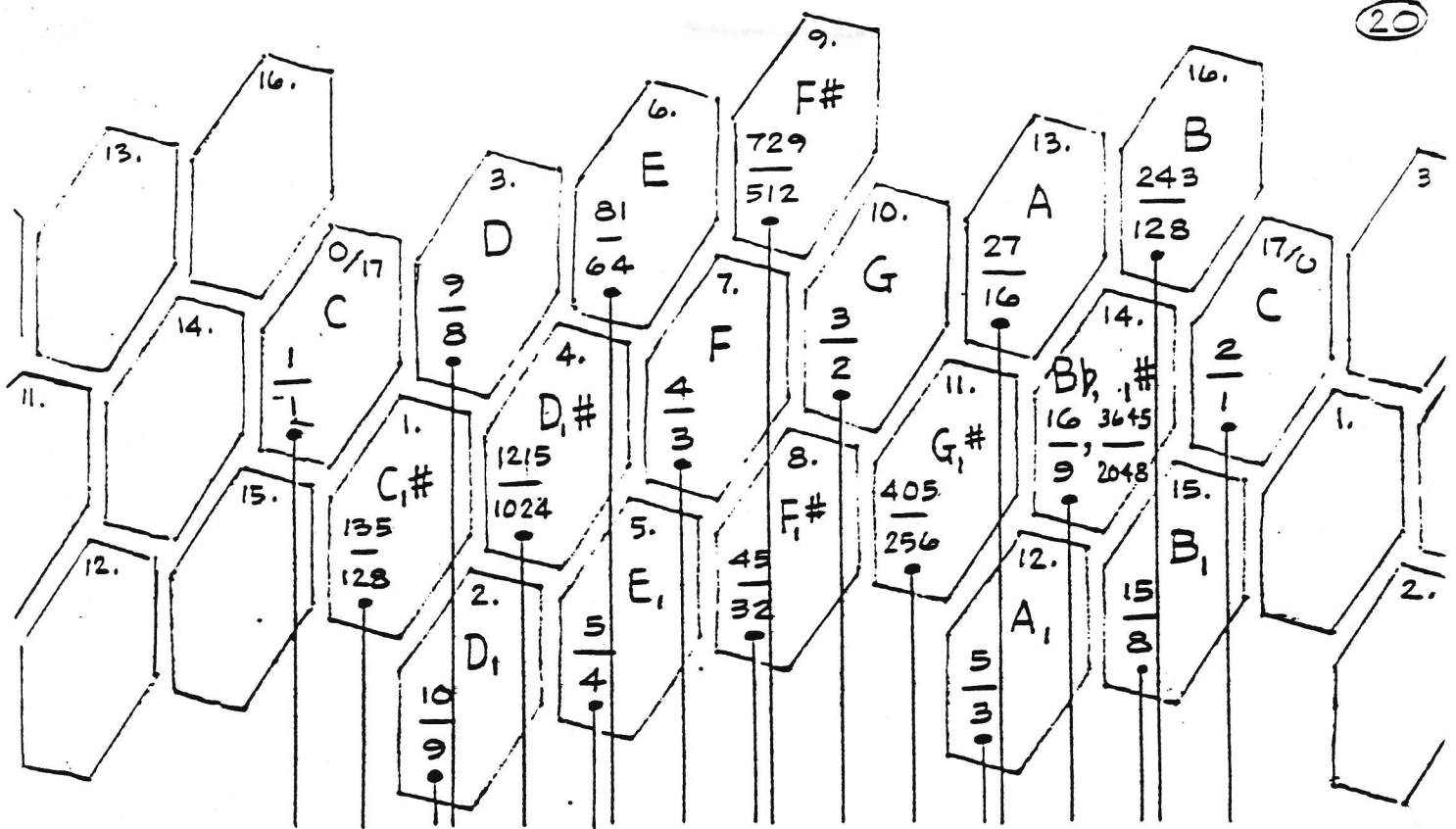
Figures
From my notebook





Figures from my notebook

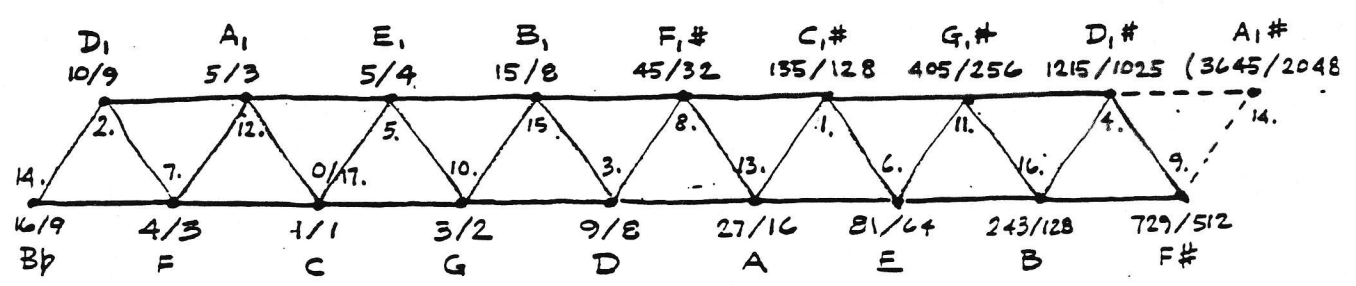




$\frac{135}{128}$	$\frac{256}{243}$	$\frac{135}{128}$	$\frac{256}{243}$	$\frac{135}{128}$	$\frac{256}{243}$	$\frac{135}{128}$	$\frac{256}{243}$	$\frac{135}{128}$	$\frac{256}{243}$	$\frac{135}{128}$	$\frac{256}{243}$	$\frac{135}{128}$	$\frac{256}{243}$	$\frac{135}{128}$	$\frac{256}{243}$	$\frac{135}{128}$	$\frac{256}{243}$
-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------	-------------------

C C₁# D₁ D₁# E₁ E F F₁# F₁# G G₁# A₁ A B₁ B C C₁#

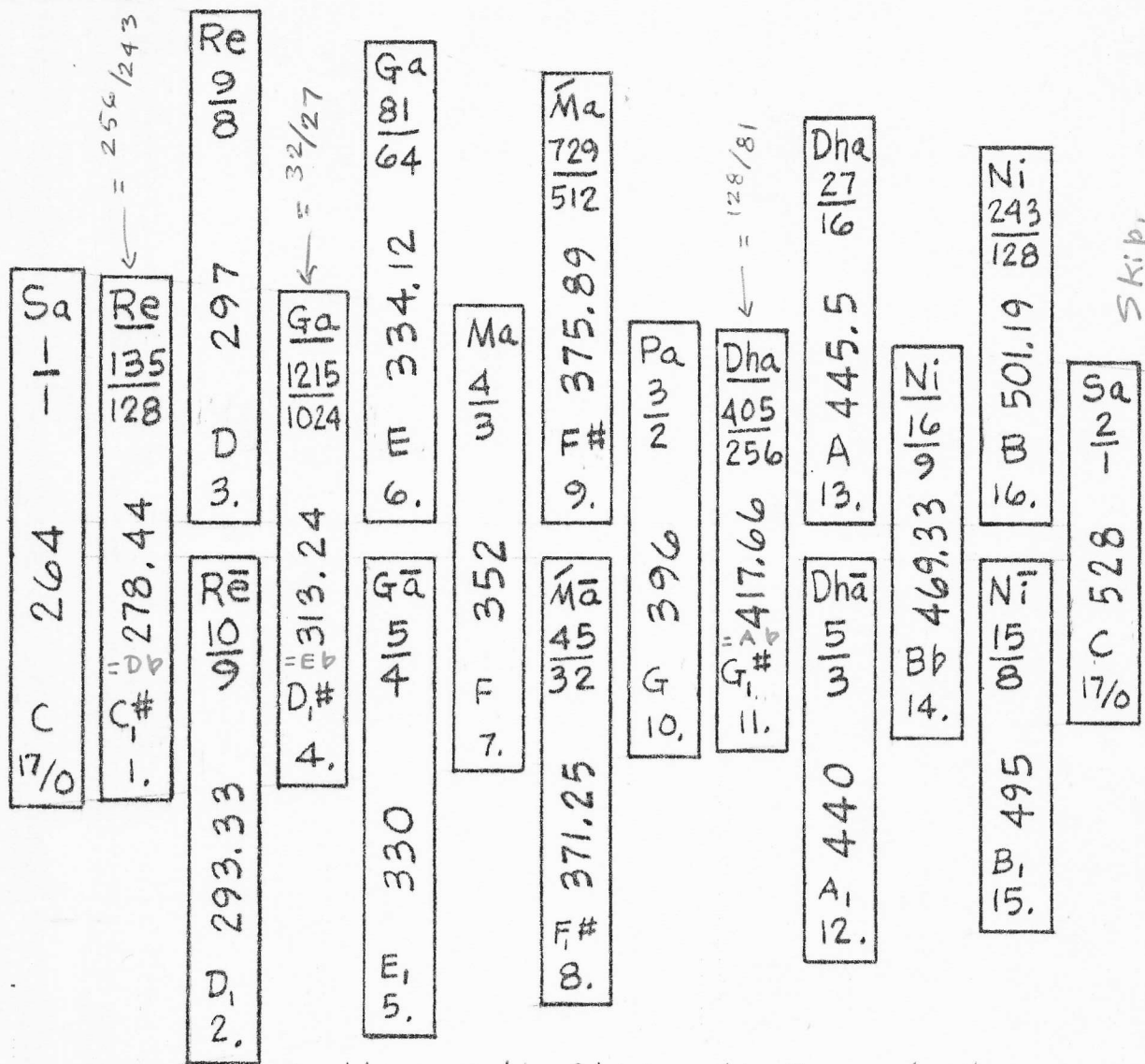
Begin	16/15	9/8	10/9	16/15	9/8	10/9	
16/15	9/8	10/9	16/15	9/8	10/9	16/15	
9/8	10/9	16/15	9/8	10/9	16/15	9/8	
10/9	16/15	9/8	16/15	10/9	9/8	16/15	10/9
9/8	16/15	10/9	9/8	16/15	10/9	9/8	
16/15	10/9	9/8	16/15	10/9	9/8	16/15	
10/9	9/8	16/15	16/15	75/64	16/15	16/15	
75/64	16/15	to beginning					



17-TONE TUBULONG, GENUS 3⁸.5

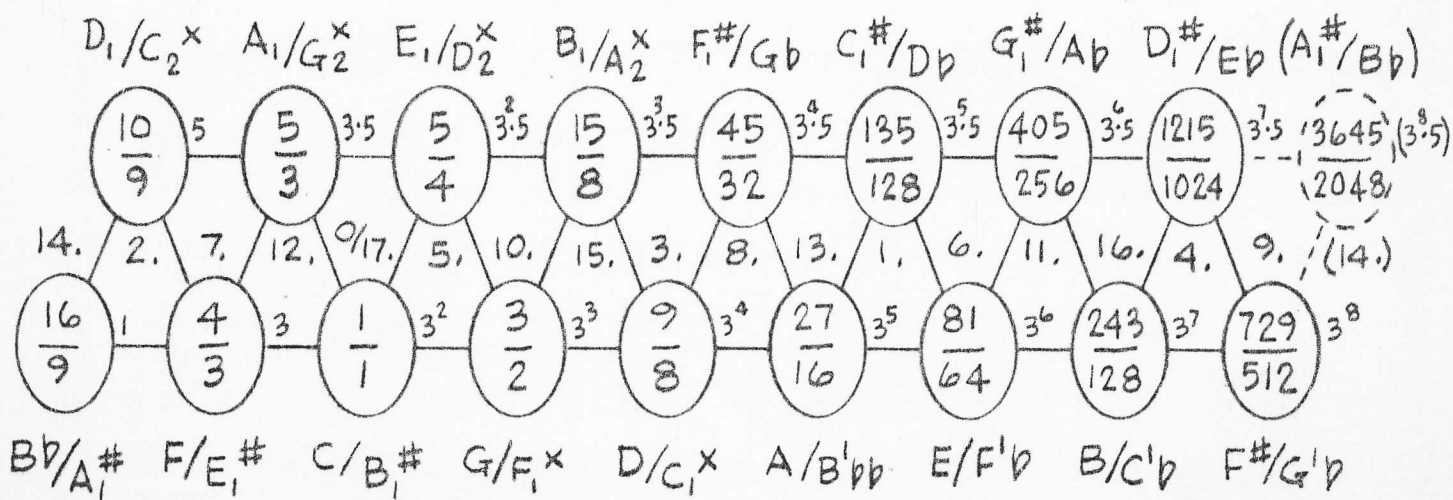
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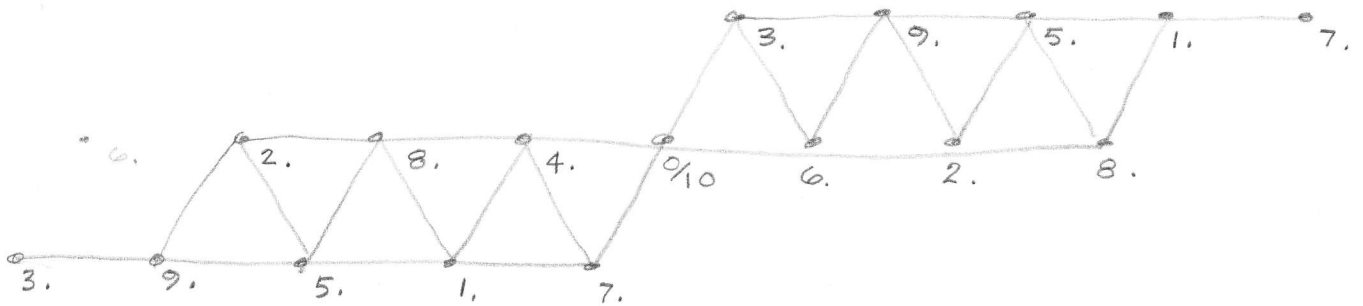
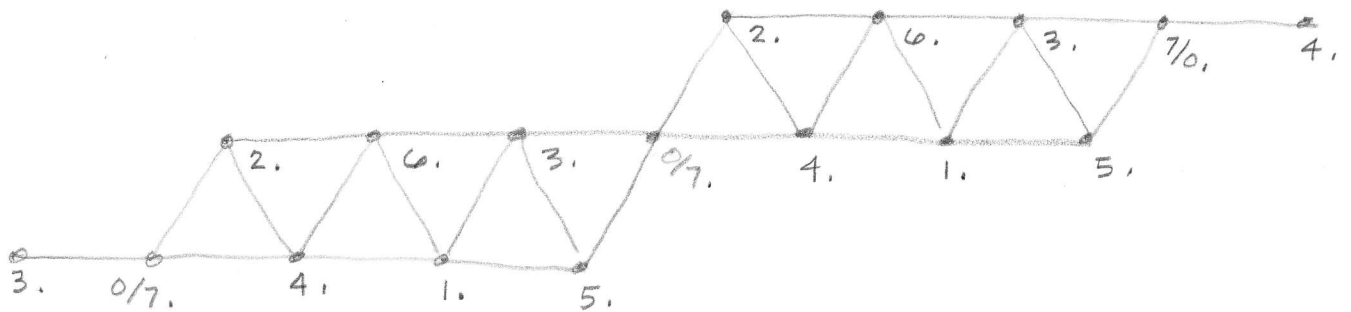


This Persian-like scale contains all the regular ragas of Modern India. It is simpler and superior to the 22-tone theoretical form which is no longer used.

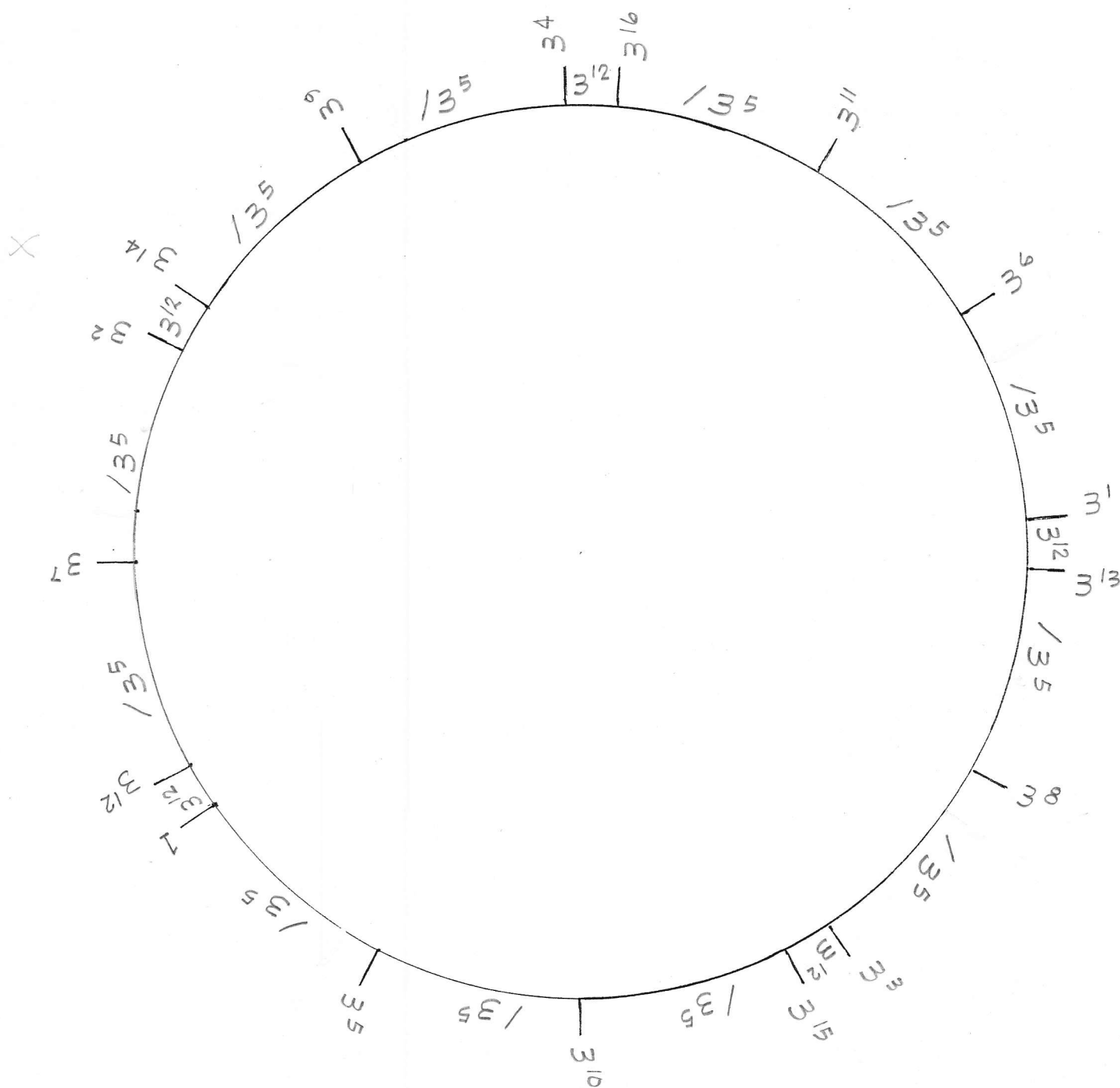
Lattice with Skhismatic Equivalents



inserted after
 p 16 "Basic Pffns
 Genus 12 & 17"
 (TN)



Persian Pythagorean 17



17 - Persian Version w. North Indian Raga-Scales

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0.	1.	2. 3.	4.	5. 6.	7.	8. 9.	10.	11.	12. 13.	14.	15. 16.	17.					
1	$\frac{135}{128}$	$\frac{109}{98}$	$\frac{1215}{1024}$	$\frac{531}{464}$	$\frac{4}{3}$	$\frac{45}{32}$	$\frac{729}{512}$	$\frac{3}{2}$	$\frac{405}{256}$	$\frac{5}{3}$	$\frac{27}{16}$	$\frac{16}{9}$	$\frac{15}{8}$	$\frac{243}{128}$	$\frac{2}{1}$		
	$\frac{135}{128}$	$\frac{256}{243}$	$\frac{81}{80}$	$\frac{135}{128}$	$\frac{256}{243}$	$\frac{81}{80}$	$\frac{256}{243}$	$\frac{135}{128}$	$\frac{81}{80}$	$\frac{256}{243}$	$\frac{135}{128}$	$\frac{256}{243}$	$\frac{81}{80}$	$\frac{256}{243}$	$\frac{135}{128}$	$\frac{81}{80}$	$\frac{256}{243}$
	9/8		10/9		9/8		16/15		10/9		9/8		16/15		Kalyan		
	9/8		10/9		16/15		9/8		9/8		10/9		16/15		Bilawal		
	9/8		10/9		16/15		9/8		10/9		16/15		9/8		Khamaj		
	10/9		16/15		9/8		9/8		10/9		16/15		9/8		old Kafi		
	9/8		$\frac{256}{243}$		9/8		9/8		9/8		$\frac{256}{243}$		9/8		Kafi		
	9/8		$\frac{256}{243}$		9/8		9/8		$\frac{256}{243}$		9/8		9/8		Asawari		
	$\frac{256}{243}$	9/8		9/8		9/8		$\frac{256}{243}$		9/8		9/8		Bhairavi			
	$\frac{135}{128}$	32/27			9/8		16/15		10/9		9/8		16/15		Marwa		
	$\frac{135}{128}$	32/27			9/8		16/15		$\frac{135}{128}$	32/27			16/15		Purvi		
	$\frac{135}{128}$	32/27			16/15		$\frac{135}{128}$	32/27			9/8		16/15		Lalit 2		
	$\frac{135}{128}$	9/8		32/27			16/15		$\frac{135}{128}$	32/27			16/15		Todi		
	$\frac{135}{128}$	32/27			16/15		$\frac{135}{128}$	9/8		32/27			16/15		Lalit		
	$\frac{135}{128}$	9/8		32/27			16/15		$\frac{135}{128}$	9/8		$\frac{4096}{3645}$			No Name		
	$\frac{135}{128}$	32/27			16/15		9/8		10/9		9/8		16/15		Anand Bhairav		
	$\frac{135}{128}$	32/27			16/15		9/8		$\frac{135}{128}$	32/27			16/15		Bhairav		
	$\frac{135}{128}$	9/8		$\frac{4096}{3645}$			9/8		$\frac{135}{128}$	32/27			16/15		Jogiya Todi		
	9/8		$\frac{135}{128}$	32/27			16/15		9/8		10/9		16/15		Madhubanti		
	9/8		10/9		16/15		9/8		$\frac{135}{128}$	32/27			16/15		Nat Bhairav		
	$\frac{135}{128}$	32/27			16/15		9/8		10/9		16/15		9/8		Ahir Bhairav		
	9/8		$\frac{135}{128}$	$\frac{4096}{3645}$			9/8		$\frac{135}{128}$	32/27			16/15		Chandra Kanada		
	$\frac{135}{128}$	32/27			16/15		9/8		$\frac{135}{128}$	$\frac{4096}{3645}$			9/8		Basant Mukhari		
	9/8		9/8		10/9		16/15		9/8		$\frac{135}{128}$	$\frac{4096}{3645}$			Champakali		
	9/8		$\frac{135}{128}$	$\frac{4096}{3645}$			9/8		9/8		10/9		16/15		Patdeep		
	9/8		10/9		16/15		9/8		$\frac{135}{128}$	$\frac{4096}{3645}$			9/8		Mohan Kauns		
	$\frac{135}{128}$	$\frac{4096}{3645}$			9/8		9/8		10/9		16/15		9/8		Parameswari		

Ref: Applied Theory of Indian Music (North), Amiya Dasgupte
1977, California Institute of the Arts

A Variation on Persian-17, with North Indian Raga-Scales

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1	$\frac{135}{128}$	$\frac{10}{9}$	$\frac{1215}{1024}$	$\frac{5}{4}$	$\frac{31}{64}$	$\frac{4}{3}$	$\frac{45}{32}$	$\frac{729}{512}$	$\frac{3}{2}$	$\frac{405}{256}$	$\frac{5}{3}$	$\frac{27}{16}$	$\frac{16}{9}$	$\frac{15}{8}$	$\frac{243}{128}$	2
$\frac{135}{128}$	$\frac{256}{243}$	$\frac{81}{80}$	$\frac{135}{128}$	$\frac{256}{243}$	$\frac{81}{80}$	$\frac{256}{243}$	$\frac{135}{128}$	$\frac{81}{80}$	$\frac{256}{243}$	$\frac{135}{128}$	$\frac{256}{243}$	$\frac{81}{80}$	$\frac{256}{243}$	$\frac{135}{128}$	$\frac{81}{80}$	$\frac{256}{243}$
9/8		10/9		9/8		16/15	10/9		9/8		16/15					Kalyan
9/8		10/9		16/15		9/8		9/8			10/9		16/15			Bilawal
9/8		10/9		16/15		9/8		10/9		16/15		9/8				Khamaj
10/9		16/15		9/8		9/8		10/9		16/15		9/8				old Kafi
9/8		$\frac{256}{243}$		9/8		9/8		9/8		$\frac{256}{243}$		9/8				Kafi
9/8		$\frac{256}{243}$		9/8		9/8		$\frac{256}{243}$		9/8		9/8				Asawari
$\frac{256}{243}$		9/8		9/8		9/8		$\frac{256}{243}$		9/8		9/8				Bhairavi
$\frac{135}{128}$		32/27		9/8		16/15		10/9		9/8		16/15				Marwa
$\frac{135}{128}$		32/27		9/8		16/15		$\frac{135}{128}$		32/27		16/15				Purvi
$\frac{135}{128}$		32/27		16/15		$\frac{135}{128}$		32/27		9/8		16/15				Lalit 2
$\frac{135}{128}$		9/8		32/27		16/15		$\frac{135}{128}$		32/27		16/15				Todi
$\frac{135}{128}$		32/27		16/15		$\frac{135}{128}$		9/8		32/27		16/15				Lalit
$\frac{135}{128}$		9/8		32/27		16/15		$\frac{135}{128}$		9/8		$\frac{4096}{3645}$				No Name
$\frac{135}{128}$		32/27		16/15		9/8		10/9		9/8		16/15				Anand Bhairav
$\frac{135}{128}$		32/27		16/15		9/8		$\frac{135}{128}$		32/27		16/15				Bhairav
$\frac{135}{128}$		9/8		$\frac{4096}{3645}$		9/8		$\frac{135}{128}$		32/27		16/15				Jogiya Todi
9/8		$\frac{135}{128}$		32/27		16/15		9/8		10/9		16/15				Madhubanti
9/8		10/9		16/15		9/8		$\frac{135}{128}$		32/27		16/15				Nat Bhairav
$\frac{135}{128}$		32/27		16/15		9/8		10/9		16/15		9/8				Ahir Bhairav
9/8		$\frac{135}{128}$		$\frac{4096}{3645}$		9/8		$\frac{135}{128}$		32/27		16/15				Chandra Kanada
$\frac{135}{128}$		32/27		16/15		9/8		$\frac{135}{128}$		$\frac{4096}{3645}$		9/8				Basant Mukhari
9/8		9/8		10/9		16/15		9/8		$\frac{135}{128}$		$\frac{4096}{3645}$				Champakali
9/8		$\frac{135}{128}$		$\frac{4096}{3645}$		9/8		9/8		10/9		16/15				Patdeep
9/8		10/9		16/15		9/8		$\frac{135}{128}$		$\frac{4096}{3645}$		9/8				Mohan Kaurs
$\frac{135}{128}$		$\frac{4096}{3645}$		9/8		9/8		10/9		16/15		9/8				Parameswari

$$\frac{1}{1}, \frac{256}{243}, \frac{9}{8}, \frac{32}{27}, \frac{5}{4}, \frac{4}{3}, \frac{45}{32}, \frac{3}{2}, \frac{128}{81}, \frac{5}{3}, \frac{27}{16}, \frac{16}{9}, \frac{15}{8}, \frac{2}{1}$$
[illegible]