

# Moments of Symmetry, of Equal Divisions of the Octave 5 thru

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Generator,  $2/5$  ;

|   |   |   |   |       |
|---|---|---|---|-------|
| 0 | 1 | 2 | 0 | Scale |
|   |   |   |   | ↓     |
| 2 | 3 |   |   | 1/2   |
| 2 | 2 | 1 |   | 1/3   |
|   |   |   |   | (2/5) |

Generator,  $3/10$  ;

|   |   |   |   |   |   |   |   |        |
|---|---|---|---|---|---|---|---|--------|
| 0 | 4 | 1 | 5 | 2 | 6 | 3 | 0 | Scale  |
|   |   |   |   |   |   |   |   | ↓      |
| 3 |   |   |   | 7 |   |   |   | 1/2    |
| 3 |   | 3 |   |   | 4 |   |   | 1/3    |
| 3 |   | 3 |   | 3 |   | 1 |   | 1/4    |
| 2 | 1 | 2 | 1 | 2 | 1 | 1 |   | 2/7    |
|   |   |   |   |   |   |   |   | (3/10) |

Generator,  $3/7$  ;

|   |   |   |   |   |   |       |
|---|---|---|---|---|---|-------|
| 0 | 3 | 1 | 4 | 2 | 0 | Scale |
|   |   |   |   |   |   | ↓     |
| 3 |   |   | 4 |   |   | 1/2   |
| 3 |   | 3 |   | 1 |   | 1/3   |
| 2 | 1 | 2 | 1 | 1 |   | 2/5   |
|   |   |   |   |   |   | (3/7) |

Generator,  $5/11$  ;

|   |   |   |   |   |   |   |   |   |   |        |
|---|---|---|---|---|---|---|---|---|---|--------|
| 0 | 7 | 5 | 3 | 1 | 8 | 6 | 4 | 2 | 0 | Scale  |
|   |   |   |   |   |   |   |   |   |   | ↓      |
| 5 |   |   |   |   | 6 |   |   |   |   | 1/2    |
| 5 |   |   |   |   | 5 |   |   | 1 |   | 1/3    |
| 4 |   | 1 |   | 4 |   | 1 | 1 |   |   | 2/5    |
| 3 | 1 | 1 |   | 3 | 1 | 1 | 1 |   |   | 3/7    |
| 2 | 1 | 1 | 1 | 2 | 1 | 1 | 1 | 1 |   | 4/9    |
|   |   |   |   |   |   |   |   |   |   | (5/11) |

Generator,  $3/8$  ;

|   |   |   |   |   |   |       |
|---|---|---|---|---|---|-------|
| 0 | 3 | 1 | 4 | 2 | 0 | Scale |
|   |   |   |   |   |   | ↓     |
| 3 |   |   | 5 |   |   | 1/2   |
| 3 |   | 3 |   | 2 |   | 1/3   |
| 1 | 2 | 1 | 2 | 2 |   | 2/5   |
|   |   |   |   |   |   | (3/8) |

Generator,  $4/11$  ;

|   |   |   |   |   |   |   |   |   |        |
|---|---|---|---|---|---|---|---|---|--------|
| 0 | 5 | 3 | 1 | 6 | 4 | 2 | 7 | 0 | Scale  |
|   |   |   |   |   |   |   |   |   | ↓      |
| 4 |   |   |   | 7 |   |   |   |   | 1/2    |
| 4 |   |   | 4 |   | 3 |   |   |   | 1/3    |
| 3 | 1 | 3 | 1 | 3 |   |   |   |   | 2/5    |
| 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 |   | 3/8    |
|   |   |   |   |   |   |   |   |   | (4/11) |

Generator,  $4/9$  ;

|   |   |   |   |   |   |   |   |       |
|---|---|---|---|---|---|---|---|-------|
| 0 | 5 | 3 | 1 | 6 | 4 | 2 | 0 | Scale |
|   |   |   |   |   |   |   |   | ↓     |
| 4 |   |   |   | 5 |   |   |   | 1/2   |
| 4 |   |   | 4 |   | 1 |   |   | 1/3   |
| 3 | 1 | 3 | 1 | 1 |   |   |   | 2/5   |
| 2 | 1 | 1 | 2 | 1 | 1 | 1 |   | 3/7   |
|   |   |   |   |   |   |   |   | (4/9) |

Generator,  $3/11$

|   |   |   |   |   |   |   |   |        |
|---|---|---|---|---|---|---|---|--------|
| 0 | 4 | 1 | 5 | 2 | 4 | 3 | 0 | Scale  |
|   |   |   |   |   |   |   |   | ↓      |
| 3 |   |   |   | 8 |   |   |   | 1/2    |
| 3 |   | 3 |   |   | 5 |   |   | 1/3    |
| 3 |   | 3 |   | 3 |   | 2 |   | 1/4    |
| 1 | 2 | 1 | 2 | 1 | 2 | 2 |   | 2/7    |
|   |   |   |   |   |   |   |   | (3/11) |

Generator,  $2/9$  ;

|   |   |   |   |   |   |       |
|---|---|---|---|---|---|-------|
| 0 | 1 | 2 | 3 | 4 | 0 | Scale |
|   |   |   |   |   |   | ↓     |
| 2 |   |   |   | 7 |   | 1/2   |
| 2 | 2 |   |   | 5 |   | 1/3   |
| 2 | 2 | 2 |   | 3 |   | 1/4   |
| 2 | 2 | 2 | 2 | 1 |   | 1/5   |
|   |   |   |   |   |   | (2/9) |

Gen.  $2/11$

|   |   |   |   |   |   |   |        |
|---|---|---|---|---|---|---|--------|
| 0 | 1 | 2 | 3 | 4 | 5 | 0 | Scale  |
|   |   |   |   |   |   |   | ↓      |
| 2 |   |   |   | 9 |   |   | 1/2    |
| 2 | 2 |   |   | 7 |   |   | 1/3    |
| 2 | 2 | 2 |   | 5 |   |   | 1/4    |
| 2 | 2 | 2 | 2 | 3 |   |   | 1/5    |
| 2 | 2 | 2 | 2 | 2 | 1 |   | 1/6    |
|   |   |   |   |   |   |   | (2/11) |

# Moments of Symetry

Generator, 5/12

|   |   |   |   |   |   |   |   |    |
|---|---|---|---|---|---|---|---|----|
| 0 | 5 | 3 | 1 | 6 | 4 | 2 | 0 |    |
|   | 5 |   |   | 7 |   |   |   | 2  |
|   | 5 |   |   | 5 |   | 2 |   | 3  |
|   | 3 | 2 |   | 3 | 2 | 2 |   | 5  |
|   | 1 | 3 | 3 | 1 | 3 | 3 | 3 | 7  |
|   |   |   |   |   |   |   |   | 12 |

Generator, 2/13

|   |   |   |   |    |   |   |   |   |
|---|---|---|---|----|---|---|---|---|
| 0 | 1 | 2 | 3 | 4  | 5 | 6 | 0 |   |
|   | 2 |   |   | 11 |   |   |   | 2 |
|   | 2 | 2 |   | 9  |   |   |   | 3 |
|   | 2 | 2 | 2 |    | 7 |   |   | 4 |
|   | 2 | 2 | 2 | 2  |   | 5 |   | 5 |
|   | 2 | 2 | 2 | 2  | 2 | 3 |   | 6 |
|   | 2 | 2 | 2 | 2  | 2 | 2 | 1 | 7 |

Generator, 6/13;

|   |   |   |   |   |   |    |   |   |   |   |   |    |
|---|---|---|---|---|---|----|---|---|---|---|---|----|
| 0 | 9 | 7 | 5 | 3 | 1 | 10 | 8 | 6 | 4 | 2 | 0 |    |
|   | 6 |   |   |   |   | 7  |   |   |   |   |   | 2  |
|   | 6 |   |   |   |   | 6  |   |   |   |   | 1 | 3  |
|   | 5 |   | 1 |   |   | 5  |   |   | 1 | 1 |   | 5  |
|   | 4 |   | 1 | 1 |   | 4  |   | 1 | 1 | 1 |   | 7  |
|   | 3 | 1 | 1 | 1 |   | 3  | 1 | 1 | 1 | 1 |   | 9  |
|   | 2 | 1 | 1 | 1 | 1 | 2  | 1 | 1 | 1 | 1 | 1 | 11 |

Generator, 5/14;

|   |   |   |   |   |   |   |    |   |   |   |   |    |
|---|---|---|---|---|---|---|----|---|---|---|---|----|
| 0 | 3 | 6 | 9 | 1 | 4 | 7 | 10 | 2 | 5 | 8 | 0 |    |
|   | 5 |   |   |   |   | 9 |    |   |   |   |   | 2  |
|   | 5 |   |   |   |   | 5 |    |   |   | 4 |   | 3  |
|   | 1 | 4 |   | 1 |   | 4 |    |   |   | 4 |   | 5  |
|   | 1 | 1 | 3 | 1 | 1 | 3 | 1  | 3 |   |   |   | 8  |
|   | 1 | 1 | 1 | 2 | 1 | 1 | 1  | 2 | 1 | 1 | 2 | 11 |

5/13;

|   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|
| 0 | 3 | 5 | 1 | 4 | 6 | 2 | 7 | 0 |   |
|   | 5 |   |   |   | 8 |   |   |   | 2 |
|   | 5 |   |   |   | 5 |   | 3 |   | 3 |
|   | 2 | 3 |   | 2 | 3 |   | 3 |   | 5 |
|   | 2 | 2 | 1 | 2 | 2 | 1 | 2 | 1 | 8 |

3/14;

|   |   |   |   |   |   |    |   |   |   |   |
|---|---|---|---|---|---|----|---|---|---|---|
| 0 | 5 | 1 | 6 | 2 | 7 | 3  | 8 | 4 | 0 |   |
|   | 3 |   |   |   |   | 11 |   |   |   | 2 |
|   | 3 | 3 |   |   |   | 8  |   |   |   | 3 |
|   | 3 | 3 |   |   | 3 |    | 5 |   |   | 4 |
|   | 3 | 3 |   |   | 3 |    | 3 | 2 |   | 5 |
|   | 1 | 2 | 1 | 2 | 1 | 2  | 1 | 2 | 2 | 9 |

4/13;

|   |   |   |   |   |   |   |   |   |   |   |    |
|---|---|---|---|---|---|---|---|---|---|---|----|
| 0 | 7 | 4 | 1 | 8 | 5 | 2 | 9 | 6 | 3 | 0 |    |
|   | 4 |   |   |   |   | 9 |   |   |   |   | 2  |
|   | 4 |   | 4 |   |   | 5 |   |   |   |   | 3  |
|   | 4 |   | 4 |   |   | 4 |   | 1 |   |   | 4  |
|   | 3 | 1 | 3 | 1 | 3 | 1 | 1 |   |   |   | 7  |
|   | 2 | 1 | 1 | 2 | 1 | 1 | 2 | 1 | 1 | 1 | 10 |

Generator, 7/15

|   |    |   |   |   |   |   |    |    |   |   |   |   |   |    |
|---|----|---|---|---|---|---|----|----|---|---|---|---|---|----|
| 0 | 11 | 9 | 7 | 5 | 3 | 1 | 12 | 10 | 8 | 6 | 4 | 2 | 0 |    |
|   | 7  |   |   |   |   |   | 8  |    |   |   |   |   |   | 2  |
|   | 7  |   |   |   |   |   | 7  |    |   |   |   | 1 |   | 3  |
|   | 6  |   |   | 1 |   |   | 6  |    |   |   | 1 | 1 |   | 5  |
|   | 5  |   | 1 | 1 |   |   | 5  |    |   | 1 | 1 | 1 |   | 7  |
|   | 4  |   | 1 | 1 | 1 |   | 4  |    |   | 1 | 1 | 1 |   | 9  |
|   | 3  | 1 | 1 | 1 | 1 |   | 3  | 1  | 1 | 1 | 1 | 1 |   | 11 |
|   | 2  | 1 | 1 | 1 | 1 | 1 | 2  | 1  | 1 | 1 | 1 | 1 | 1 | 13 |

3/13;

|   |   |   |   |   |   |    |   |   |   |  |   |
|---|---|---|---|---|---|----|---|---|---|--|---|
| 0 | 5 | 1 | 6 | 2 | 7 | 3  | 8 | 4 | 0 |  |   |
|   | 3 |   |   |   |   | 10 |   |   |   |  | 2 |
|   | 3 | 3 |   |   |   | 7  |   |   |   |  | 3 |
|   | 3 | 3 |   |   | 3 |    | 4 |   |   |  | 4 |
|   | 3 | 3 |   |   | 3 |    | 3 | 1 |   |  | 5 |
|   | 2 | 1 | 2 | 1 | 2 | 1  | 2 | 1 | 1 |  | 9 |

Generator, 4/15;

|   |   |   |   |   |   |   |    |    |   |   |   |    |
|---|---|---|---|---|---|---|----|----|---|---|---|----|
| 0 | 4 | 8 | 1 | 5 | 9 | 2 | 6  | 10 | 3 | 7 | 0 |    |
|   | 4 |   |   |   |   |   | 11 |    |   |   |   | 2  |
|   | 4 |   |   |   |   |   | 7  |    |   |   |   | 3  |
|   | 4 |   |   |   |   |   | 4  |    |   | 3 |   | 4  |
|   | 1 | 3 | 1 | 3 | 1 | 3 | 3  |    |   |   |   | 7  |
|   | 1 | 1 | 2 | 1 | 1 | 2 | 1  | 1  | 2 | 1 | 2 | 11 |

Moments of Symmetry

Generator, 7/16;

|   |   |   |   |   |   |   |   |   |   |   |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 7 | 5 | 3 | 1 | 8 | 6 | 4 | 2 | 0 |   |
|   | 7 |   |   |   |   |   |   |   |   | 2 |
|   | 7 |   |   |   | 7 |   |   |   | 2 | 3 |
|   | 5 |   | 2 |   | 5 |   | 2 | 2 | 2 | 5 |
|   | 3 | 2 | 2 |   | 3 | 2 | 2 | 2 | 2 | 7 |
|   | 1 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 9 |

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|   |   |   |   |    |   |   |   |    |    |   |    |   |    |    |    |
|---|---|---|---|----|---|---|---|----|----|---|----|---|----|----|----|
| 0 | 3 | 6 | 9 | 12 | 1 | 4 | 7 | 10 | 13 | 2 | 5  | 8 | 11 |    |    |
|   | 6 |   |   |    |   |   |   |    |    |   | 11 |   |    | 2  |    |
|   | 6 |   |   |    |   | 6 |   |    |    |   | 5  |   |    | 3  |    |
|   | 1 | 5 |   |    | 1 | 5 |   |    |    |   | 5  |   |    | 5  |    |
|   | 1 | 1 | 4 |    | 1 | 1 | 4 |    |    | 1 | 4  |   |    | 8  |    |
|   | 1 | 1 | 1 | 3  | 1 | 1 | 1 | 3  |    | 1 | 1  | 3 |    | 11 |    |
|   | 1 | 1 | 1 | 1  | 2 | 1 | 1 | 1  | 1  | 2 | 1  | 1 | 1  | 2  | 14 |

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|   |    |   |   |   |    |   |   |    |    |   |   |   |   |    |
|---|----|---|---|---|----|---|---|----|----|---|---|---|---|----|
| 0 | 10 | 7 | 4 | 1 | 11 | 8 | 5 | 2  | 12 | 9 | 6 | 3 | 0 |    |
|   | 5  |   |   |   |    |   |   | 11 |    |   |   |   |   | 2  |
|   | 5  |   |   |   | 5  |   |   | 6  |    |   |   |   |   | 3  |
|   | 5  |   |   |   | 5  |   |   | 5  |    |   |   | 1 |   | 4  |
|   | 4  | 1 |   | 4 | 1  |   | 4 |    | 1  | 1 |   | 1 |   | 7  |
|   | 3  | 1 | 1 | 3 | 1  | 1 | 3 |    | 1  | 1 | 1 | 1 |   | 10 |
|   | 2  | 1 | 1 | 1 | 2  | 1 | 1 | 1  | 2  | 1 | 1 | 1 | 1 | 13 |

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|   |   |   |   |   |   |   |   |    |   |   |    |
|---|---|---|---|---|---|---|---|----|---|---|----|
| 0 | 7 | 4 | 1 | 8 | 5 | 2 | 9 | 6  | 3 |   |    |
|   | 5 |   |   |   |   |   |   | 11 |   | 2 |    |
|   | 5 |   |   |   | 5 |   |   | 7  |   | 3 |    |
|   | 5 |   |   |   | 5 |   |   | 5  | 2 | 4 |    |
|   | 3 | 2 |   | 3 | 2 |   | 3 | 2  | 2 | 7 |    |
|   | 1 | 2 | 2 | 1 | 2 | 2 | 1 | 2  | 2 | 2 | 10 |

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|   |   |   |   |   |   |   |   |    |    |   |   |    |
|---|---|---|---|---|---|---|---|----|----|---|---|----|
| 0 | 6 | 1 | 7 | 2 | 8 | 3 | 9 | 4  | 10 | 5 | 0 |    |
|   | 3 |   |   |   |   |   |   | 13 |    |   |   | 2  |
|   | 3 | 3 |   |   |   |   |   | 10 |    |   |   | 3  |
|   | 3 | 3 | 3 |   |   |   |   | 7  |    |   |   | 4  |
|   | 3 | 3 | 3 | 3 |   |   |   | 4  |    |   |   | 5  |
|   | 3 | 3 | 3 | 3 | 3 |   |   | 3  | 1  |   |   | 6  |
|   | 2 | 1 | 2 | 1 | 2 | 1 | 2 | 1  | 2  | 1 | 1 | 11 |

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|   |   |   |   |    |   |   |    |    |   |    |   |   |   |    |
|---|---|---|---|----|---|---|----|----|---|----|---|---|---|----|
| 0 | 9 | 5 | 1 | 10 | 6 | 2 | 11 | 7  | 3 | 12 | 8 | 4 | 0 |    |
|   | 4 |   |   |    |   |   |    | 13 |   |    |   |   |   | 2  |
|   | 4 | 4 |   |    |   |   |    | 9  |   |    |   |   |   | 3  |
|   | 4 | 4 |   |    |   |   |    | 4  | 5 |    |   |   |   | 4  |
|   | 4 | 4 |   |    |   |   |    | 4  | 4 | 1  |   |   |   | 5  |
|   | 3 | 1 | 3 | 1  | 3 | 1 | 3  | 1  | 3 | 1  | 1 |   |   | 9  |
|   | 2 | 1 | 1 | 2  | 1 | 1 | 2  | 1  | 1 | 2  | 1 | 1 | 1 | 13 |

Generator 8/17;

|   |    |    |   |   |   |   |   |    |    |    |   |   |   |   |   |    |
|---|----|----|---|---|---|---|---|----|----|----|---|---|---|---|---|----|
| 0 | 13 | 11 | 9 | 7 | 5 | 3 | 1 | 14 | 12 | 10 | 8 | 6 | 4 | 2 | 0 |    |
|   | 8  |    |   |   |   |   |   |    |    |    | 9 |   |   |   |   | 2  |
|   | 8  |    |   |   |   |   |   | 8  |    |    |   |   |   | 1 |   | 3  |
|   | 7  |    |   | 1 |   |   |   | 7  |    |    |   |   | 1 | 1 |   | 5  |
|   | 6  |    |   | 1 | 1 |   |   | 6  |    |    |   |   | 1 | 1 | 1 | 7  |
|   | 5  |    |   | 1 | 1 | 1 |   | 5  |    |    |   |   | 1 | 1 | 1 | 9  |
|   | 4  |    |   | 1 | 1 | 1 | 1 | 4  |    |    |   |   | 1 | 1 | 1 | 11 |
|   | 3  |    |   | 1 | 1 | 1 | 1 | 3  |    |    |   |   | 1 | 1 | 1 | 13 |
|   | 2  |    |   | 1 | 1 | 1 | 1 | 2  |    |    |   |   | 1 | 1 | 1 | 15 |

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|  |   |   |   |   |   |   |   |    |   |   |   |   |   |   |   |    |
|--|---|---|---|---|---|---|---|----|---|---|---|---|---|---|---|----|
|  | 3 |   |   |   |   |   |   | 14 |   |   |   |   |   |   |   | 2  |
|  | 3 | 3 |   |   |   |   |   | 11 |   |   |   |   |   |   |   | 3  |
|  | 3 | 3 | 3 |   |   |   |   | 8  |   |   |   |   |   |   |   | 4  |
|  | 3 | 3 | 3 | 3 |   |   |   | 5  |   |   |   |   |   |   |   | 5  |
|  | 3 | 3 | 3 | 3 | 3 |   |   | 3  | 2 |   |   |   |   |   |   | 6  |
|  | 1 | 2 | 1 | 2 | 1 | 2 | 1 | 2  | 1 | 2 | 1 | 2 | 1 | 2 | 2 | 11 |

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|  |   |   |   |   |   |   |   |    |   |   |   |   |   |   |   |   |
|--|---|---|---|---|---|---|---|----|---|---|---|---|---|---|---|---|
|  | 2 |   |   |   |   |   |   | 15 |   |   |   |   |   |   |   |   |
|  | 2 | 2 |   |   |   |   |   | 13 |   |   |   |   |   |   |   |   |
|  | 2 | 2 | 2 |   |   |   |   | 11 |   |   |   |   |   |   |   |   |
|  | 2 | 2 | 2 | 2 |   |   |   | 9  |   |   |   |   |   |   |   |   |
|  | 2 | 2 | 2 | 2 | 2 |   |   | 7  |   |   |   |   |   |   |   |   |
|  | 2 | 2 | 2 | 2 | 2 | 2 |   | 5  |   |   |   |   |   |   |   |   |
|  | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 3  |   |   |   |   |   |   |   |   |
|  | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2  | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 1 |

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|   |   |    |   |   |   |   |    |    |   |   |   |   |    |
|---|---|----|---|---|---|---|----|----|---|---|---|---|----|
| 0 | 5 | 10 | 3 | 8 | 1 | 6 | 11 | 4  | 9 | 2 | 7 | 0 |    |
|   | 7 |    |   |   |   |   |    | 10 |   |   |   |   | 2  |
|   | 7 |    |   |   |   |   |    | 7  |   |   |   | 3 | 3  |
|   | 4 |    | 3 |   |   | 4 |    | 3  |   | 3 |   | 5 |    |
|   | 1 | 3  | 3 | 1 |   | 3 |    | 3  |   | 3 |   | 7 |    |
|   | 1 | 1  | 2 | 1 | 2 | 1 | 1  | 2  | 1 | 2 | 1 | 2 | 12 |

# Moments of Symmetry

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|   |   |   |    |   |    |   |   |    |   |   |    |   |   |    |   |
|---|---|---|----|---|----|---|---|----|---|---|----|---|---|----|---|
| 0 | 8 | 3 | 11 | 6 | 1  | 9 | 4 | 12 | 7 | 2 | 10 | 5 | 0 |    |   |
|   | 7 |   |    |   | 11 |   |   |    |   |   |    |   |   | 2  |   |
|   | 7 |   |    |   | 7  |   |   |    | 4 |   |    |   |   |    | 3 |
|   | 3 | 4 |    |   | 3  | 4 |   | 4  |   |   |    |   |   | 5  |   |
|   | 3 | 3 | 1  |   | 3  | 3 | 1 | 3  | 1 |   |    |   |   | 8  |   |
|   | 2 | 1 | 2  | 1 | 1  | 2 | 1 | 2  | 1 | 1 | 2  | 1 | 1 | 13 |   |

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|   |   |   |   |   |    |   |   |    |   |   |   |  |  |    |
|---|---|---|---|---|----|---|---|----|---|---|---|--|--|----|
| 0 | 4 | 8 | 1 | 5 | 9  | 2 | 6 | 10 | 3 | 7 | 0 |  |  |    |
|   | 5 |   |   |   | 13 |   |   |    |   |   |   |  |  | 2  |
|   | 5 |   |   |   | 5  |   | 8 |    |   |   |   |  |  | 3  |
|   | 5 |   |   |   | 5  |   | 5 |    | 3 |   |   |  |  | 4  |
|   | 2 | 3 | 2 |   | 3  | 2 | 3 | 3  |   |   |   |  |  | 7  |
|   | 2 | 2 | 1 | 2 | 2  | 1 | 2 | 2  | 1 | 2 | 1 |  |  | 11 |

Generator 9/19;

|   |    |    |    |   |   |   |   |   |    |    |    |    |   |   |   |   |   |  |    |  |   |  |   |
|---|----|----|----|---|---|---|---|---|----|----|----|----|---|---|---|---|---|--|----|--|---|--|---|
| 0 | 15 | 13 | 11 | 9 | 7 | 5 | 3 | 1 | 16 | 14 | 12 | 10 | 8 | 6 | 4 | 2 | 0 |  |    |  |   |  |   |
|   | 9  |    |    |   |   |   |   |   | 10 |    |    |    |   |   |   |   |   |  |    |  | 2 |  |   |
|   | 9  |    |    |   |   |   |   |   | 9  |    |    |    |   |   |   |   | 1 |  |    |  |   |  | 3 |
|   | 8  |    |    |   | 1 |   |   |   | 8  |    |    |    | 1 |   | 1 |   |   |  | 5  |  |   |  |   |
|   | 7  |    |    |   | 1 |   |   |   | 7  |    |    |    | 1 |   | 1 |   |   |  | 7  |  |   |  |   |
|   | 6  |    |    |   | 1 |   |   |   | 6  |    |    |    | 1 |   | 1 |   |   |  | 9  |  |   |  |   |
|   | 5  |    |    |   | 1 |   |   |   | 5  |    |    |    | 1 |   | 1 |   |   |  | 11 |  |   |  |   |
|   | 4  |    |    |   | 1 |   |   |   | 4  |    |    |    | 1 |   | 1 |   |   |  | 13 |  |   |  |   |
|   | 3  |    |    |   | 1 |   |   |   | 3  |    |    |    | 1 |   | 1 |   |   |  | 15 |  |   |  |   |
|   | 2  |    |    |   | 1 |   |   |   | 2  |    |    |    | 1 |   | 1 |   |   |  | 17 |  |   |  |   |

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|   |   |    |   |   |    |   |    |   |   |   |   |   |    |   |
|---|---|----|---|---|----|---|----|---|---|---|---|---|----|---|
| 0 | 5 | 10 | 3 | 8 | 1  | 6 | 11 | 4 | 9 | 2 | 7 | 0 |    |   |
|   | 8 |    |   |   | 11 |   |    |   |   |   |   |   |    | 2 |
|   | 8 |    |   |   | 8  |   |    |   | 3 |   |   |   |    | 3 |
|   | 5 |    | 3 |   | 5  |   | 3  |   | 3 |   |   |   | 5  |   |
|   | 2 | 3  | 3 | 2 | 3  | 3 | 3  | 3 |   |   |   |   | 7  |   |
|   | 2 | 2  | 1 | 2 | 1  | 2 | 2  | 1 | 2 | 1 | 2 | 1 | 12 |   |

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|   |   |   |   |   |    |   |    |   |   |   |   |  |    |
|---|---|---|---|---|----|---|----|---|---|---|---|--|----|
| 0 | 3 | 6 | 9 | 1 | 4  | 7 | 10 | 2 | 5 | 8 | 0 |  |    |
|   | 7 |   |   |   | 12 |   |    |   |   |   |   |  | 2  |
|   | 7 |   |   |   | 7  |   |    |   | 5 |   |   |  | 3  |
|   | 2 | 5 |   | 2 | 5  |   | 5  |   |   |   |   |  | 5  |
|   | 2 | 2 | 3 | 2 | 2  | 3 | 2  | 3 |   |   |   |  | 8  |
|   | 2 | 2 | 2 | 1 | 2  | 2 | 2  | 1 | 2 | 2 | 1 |  | 11 |



# Moments of Symmetry

Generator 6/19;

|   |         |         |         |   |   |   |   |   |   |   |    |   |   |    |   |    |
|---|---------|---------|---------|---|---|---|---|---|---|---|----|---|---|----|---|----|
| 0 | 1310741 | 1411852 | 1512963 | 0 |   |   |   |   |   |   |    |   |   |    |   |    |
|   | 6       |         | 13      |   |   | 2 |   |   |   |   |    |   |   |    |   |    |
|   | 6       |         | 6       |   | 7 | 3 |   |   |   |   |    |   |   |    |   |    |
|   | 6       |         | 6       |   | 6 | 4 |   |   |   |   |    |   |   |    |   |    |
|   | 5       | 1       | 5       | 1 | 5 | 1 | 1 | 7 |   |   |    |   |   |    |   |    |
|   | 4       | 1       | 1       | 4 | 1 | 1 | 4 | 1 | 1 | 1 | 10 |   |   |    |   |    |
|   | 3       | 1       | 1       | 1 | 3 | 1 | 1 | 1 | 3 | 1 | 1  | 1 | 1 | 13 |   |    |
|   | 2       | 1       | 1       | 1 | 1 | 2 | 1 | 1 | 1 | 1 | 2  | 1 | 1 | 1  | 1 | 16 |

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|   |      |       |       |      |   |   |   |   |   |    |   |    |
|---|------|-------|-------|------|---|---|---|---|---|----|---|----|
| 0 | 4812 | 15913 | 26104 | 3711 | 0 |   |   |   |   |    |   |    |
|   | 5    |       | 14    |      |   | 2 |   |   |   |    |   |    |
|   | 5    |       | 5     |      | 9 | 3 |   |   |   |    |   |    |
|   | 5    |       | 5     |      | 5 | 4 |   |   |   |    |   |    |
|   | 1    | 4     | 1     | 4    | 1 | 4 | 4 | 7 |   |    |   |    |
|   | 1    | 1     | 3     | 1    | 1 | 3 | 1 | 1 | 3 | 11 |   |    |
|   | 1    | 1     | 1     | 2    | 1 | 1 | 1 | 2 | 1 | 1  | 2 | 15 |

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|   |     |      |      |      |    |   |   |   |   |   |   |    |
|---|-----|------|------|------|----|---|---|---|---|---|---|----|
| 0 | 510 | 1611 | 2712 | 3813 | 49 | 0 |   |   |   |   |   |    |
|   | 4   |      | 15   |      |    | 2 |   |   |   |   |   |    |
|   | 4   |      | 4    |      | 11 | 3 |   |   |   |   |   |    |
|   | 4   |      | 4    |      | 7  | 4 |   |   |   |   |   |    |
|   | 4   | 4    | 4    | 4    | 4  | 3 | 5 |   |   |   |   |    |
|   | 1   | 3    | 1    | 3    | 1  | 3 | 3 | 9 |   |   |   |    |
|   | 1   | 1    | 2    | 1    | 1  | 2 | 1 | 1 | 2 | 1 | 2 | 14 |

3/19;

|   |    |    |    |     |     |     |   |   |   |   |   |    |
|---|----|----|----|-----|-----|-----|---|---|---|---|---|----|
| 0 | 71 | 82 | 93 | 104 | 115 | 126 | 0 |   |   |   |   |    |
|   | 3  |    | 16 |     |     | 2   |   |   |   |   |   |    |
|   | 3  |    | 3  |     | 13  | 3   |   |   |   |   |   |    |
|   | 3  |    | 3  |     | 10  | 4   |   |   |   |   |   |    |
|   | 3  | 3  | 3  | 3   | 7   | 5   |   |   |   |   |   |    |
|   | 3  | 3  | 3  | 3   | 3   | 4   | 6 |   |   |   |   |    |
|   | 3  | 3  | 3  | 3   | 3   | 3   | 1 | 7 |   |   |   |    |
|   | 2  | 1  | 2  | 1   | 2   | 1   | 2 | 1 | 2 | 1 | 1 | 13 |

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|   |   |   |    |   |     |   |   |   |   |   |    |
|---|---|---|----|---|-----|---|---|---|---|---|----|
| 0 | 9 | 7 | 5  | 3 | 110 | 8 | 6 | 4 | 2 | 0 |    |
|   | 9 |   | 11 |   |     | 2 |   |   |   |   |    |
|   | 9 |   | 9  |   | 9   | 2 | 3 |   |   |   |    |
|   | 7 |   | 2  |   | 7   | 2 | 2 | 5 |   |   |    |
|   | 5 | 2 | 2  | 5 | 2   | 2 | 2 | 7 |   |   |    |
|   | 3 | 2 | 2  | 2 | 3   | 2 | 2 | 2 | 9 |   |    |
|   | 1 | 2 | 2  | 2 | 2   | 1 | 2 | 2 | 2 | 2 | 11 |

## Moments of Symmetry

Generator, 7/20;

|  |  |   |   |  |     |           |     |   |  |     |  |         |  |   |   |   |    |
|--|--|---|---|--|-----|-----------|-----|---|--|-----|--|---------|--|---|---|---|----|
| 0 3 6 9 12 15 1 4 7 10 13 16 2 5 8 11 14 0 |  |   |   |  |     |           |     |   |  |     |  |         |  |   |   |   |    |
| 7  |  |   |   |  |     |           | 13  |   |  |     |  |         |  | 2 |   |   |    |
| 7  |  |   |   |  |     |           | 7   |   |  |     |  |         |  | 6 |   | 3 |    |
| 1 1  |  |   | 6 |  |     |           | 1 1 |   |  | 6   |  |         |  | 6 |   | 5 |    |
| 1 1  |  | 5 |   |  | 1 1 |           | 5   |   |  | 1 1 |  | 5       |  |   | 8 |   |    |
| 1 1 1                                      |  | 4 |   |  |     | 1 1 1     |     | 4 |  |     |  | 1 1     |  | 4 |   |   | 11 |
| 1 1 1 1                                    |  | 3 |   |  |     | 1 1 1 1   |     | 3 |  |     |  | 1 1 1   |  | 3 |   |   | 14 |
| 1 1 1 1 1                                  |  | 2 |   |  |     | 1 1 1 1 1 |     | 2 |  |     |  | 1 1 1 1 |  | 2 |   |   | 17 |

Generator, 3/20

|                                |  |     |   |     |  |     |    |     |    |     |  |     |  |   |   |    |
|--------------------------------|--|-----|---|-----|--|-----|----|-----|----|-----|--|-----|--|---|---|----|
| 0 7 1 8 2 9 3 10 4 11 5 12 6 0 |  |     |   |     |  |     |    |     |    |     |  |     |  |   |   |    |
| 3                              |  |     |   |     |  |     | 17 |     |    |     |  |     |  | 2 |   |    |
| 3                              |  |     | 3 |     |  |     | 14 |     |    |     |  |     |  | 3 |   |    |
| 3                              |  |     | 3 |     |  | 3   |    |     | 11 |     |  |     |  | 4 |   |    |
| 3                              |  |     | 3 |     |  | 3   |    |     | 3  |     |  | 8   |  |   | 5 |    |
| 3                              |  |     | 3 |     |  | 3   |    |     | 3  |     |  | 5   |  |   | 6 |    |
| 3                              |  |     | 3 |     |  | 3   |    |     | 3  |     |  | 3   |  | 2 |   | 7  |
| 1 2                            |  | 1 2 |   | 1 2 |  | 1 2 |    | 1 2 |    | 1 2 |  | 1 2 |  | 2 |   | 13 |

Generator 10/21;

|  |  |                 |               |  |           |   |    |  |   |                   |                 |  |  |             |    |    |
|--|--|-----------------|---------------|--|-----------|---|----|--|---|-------------------|-----------------|--|--|-------------|----|----|
| 0 17 15 13 11 9 7 5 3 1 18 16 14 12 10 8 6 4 2 0 |  |                 |               |  |           |   |    |  |   |                   |                 |  |  |             |    |    |
| 10   |  |                 |               |  |           |   | 11 |  |   |                   |                 |  |  | 2           |    |    |
| 10   |  |                 |               |  |           |   | 10 |  |   |                   |                 |  |  | 1           |    | 3  |
| 9  |  |                 |               |  | 1         |   |    |  | 9 |                   |                 |  |  | 1 1         |    | 5  |
| 8  |  |                 |               |  | 1 1       |   |    |  | 8 |                   |                 |  |  | 1 1 1       |    | 7  |
| 7  |  |                 |               |  | 1 1 1     |   |    |  | 7 |                   |                 |  |  | 1 1 1 1     |    | 9  |
| 6  |  |                 |               |  | 1 1 1 1   |   |    |  | 6 |                   |                 |  |  | 1 1 1 1 1   |    | 11 |
| 5  |  |                 |               |  | 1 1 1 1 1 |   |    |  | 5 |                   |                 |  |  | 1 1 1 1 1 1 |    | 13 |
| 4  |  |                 | 1 1 1 1 1 1   |  |           |   | 4  |  |   |                   | 1 1 1 1 1 1 1   |  |  |             | 15 |    |
| 3  |  |                 | 1 1 1 1 1 1 1 |  |           |   | 3  |  |   |                   | 1 1 1 1 1 1 1 1 |  |  |             | 17 |    |
| 2  |  | 1 1 1 1 1 1 1 1 |               |  |           | 2 |    |  |   | 1 1 1 1 1 1 1 1 1 |                 |  |  | 19          |    |    |

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|                       |  |     |   |   |  |     |    |     |  |   |   |     |   |   |   |    |
|-----------------------|--|-----|---|---|--|-----|----|-----|--|---|---|-----|---|---|---|----|
| 0 3 6 1 4 7 2 5 0 (1) |  |     |   |   |  |     |    |     |  |   |   |     |   |   |   |    |
| 8                     |  |     |   |   |  |     | 13 |     |  |   |   |     |   | 2 |   |    |
| 8                     |  |     |   |   |  |     | 8  |     |  |   |   |     |   | 5 |   | 3  |
| 3                     |  |     | 5 |   |  |     | 3  |     |  | 5 |   |     |   | 5 |   | 5  |
| 3                     |  |     | 3 |   |  | 2   |    | 3   |  |   | 3 |     | 2 |   | 8 |    |
| 1 2                   |  | 1 2 |   | 2 |  | 1 2 |    | 1 2 |  | 2 |   | 1 2 |   | 2 |   | 13 |

(21)

# Moments of Symmetry

Generator 5/21

|   |    |   |   |   |    |    |    |   |    |    |   |   |    |    |   |   |   |
|---|----|---|---|---|----|----|----|---|----|----|---|---|----|----|---|---|---|
| 0 | 13 | 9 | 5 | 1 | 14 | 10 | 6  | 2 | 15 | 11 | 7 | 3 | 16 | 12 | 8 | 4 | 0 |
|   | 5  |   |   |   |    |    |    |   |    |    |   |   |    |    | 2 |   |   |
|   | 5  |   | 5 |   |    |    | 11 |   |    |    |   |   | 3  |    |   |   |   |
|   | 5  |   | 5 |   | 5  |    |    |   | 6  |    |   |   | 4  |    |   |   |   |
|   | 5  |   | 5 |   | 5  |    |    |   | 5  |    | 1 |   | 5  |    |   |   |   |
|   | 4  | 1 | 4 | 1 | 4  | 1  | 4  | 1 | 4  | 1  | 1 | 1 | 9  |    |   |   |   |
|   | 3  | 1 | 1 | 3 | 1  | 1  | 3  | 1 | 1  | 3  | 1 | 1 | 1  | 13 |   |   |   |
|   | 2  | 1 | 1 | 1 | 2  | 1  | 1  | 1 | 2  | 1  | 1 | 1 | 1  | 17 |   |   |   |

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|   |    |   |   |    |   |   |    |   |   |    |   |   |    |    |   |   |
|---|----|---|---|----|---|---|----|---|---|----|---|---|----|----|---|---|
| 0 | 11 | 6 | 1 | 12 | 7 | 2 | 13 | 8 | 3 | 14 | 9 | 4 | 15 | 10 | 5 | 0 |
|   | 4  |   |   |    |   |   |    |   |   |    |   |   |    |    | 2 |   |
|   | 4  |   | 4 |    |   |   | 13 |   |   |    |   |   | 3  |    |   |   |
|   | 4  |   | 4 |    | 4 |   |    |   | 9 |    |   |   | 4  |    |   |   |
|   | 4  |   | 4 |    | 4 |   |    |   | 4 |    | 5 |   | 5  |    |   |   |
|   | 4  |   | 4 |    | 4 |   |    |   | 4 |    | 1 |   | 6  |    |   |   |
|   | 3  | 1 | 3 | 1  | 3 | 1 | 3  | 1 | 3 | 1  | 3 | 1 | 1  | 11 |   |   |
|   | 2  | 1 | 1 | 2  | 1 | 1 | 2  | 1 | 1 | 2  | 1 | 1 | 1  | 16 |   |   |

Generator 9/22

|   |   |    |    |   |   |    |    |    |    |    |   |   |    |    |   |    |   |     |
|---|---|----|----|---|---|----|----|----|----|----|---|---|----|----|---|----|---|-----|
| 0 | 5 | 10 | 15 | 3 | 8 | 13 | 1  | 16 | 11 | 16 | 4 | 9 | 14 | 2  | 7 | 12 | 0 | (1) |
|   | 9 |    |    |   |   |    |    |    |    |    |   |   |    |    | 2 |    |   |     |
|   | 9 |    | 9  |   |   |    | 13 |    |    |    | 4 |   | 3  |    |   |    |   |     |
|   | 5 |    | 4  |   | 5 |    |    |    | 4  |    | 4 |   | 5  |    |   |    |   |     |
|   | 1 | 4  | 4  | 1 | 4 | 4  | 4  | 4  | 4  | 4  | 4 | 7 |    |    |   |    |   |     |
|   | 1 | 1  | 3  | 1 | 3 | 1  | 1  | 3  | 1  | 3  | 1 | 3 | 12 |    |   |    |   |     |
|   | 1 | 1  | 1  | 2 | 1 | 1  | 2  | 1  | 1  | 2  | 1 | 1 | 2  | 17 |   |    |   |     |

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Generator 7/22;

|   |    |    |    |   |   |   |    |    |    |   |   |   |    |    |    |   |   |   |   |
|---|----|----|----|---|---|---|----|----|----|---|---|---|----|----|----|---|---|---|---|
| 0 | 16 | 13 | 10 | 7 | 4 | 1 | 17 | 14 | 11 | 8 | 5 | 2 | 18 | 15 | 12 | 9 | 6 | 3 | 0 |
|   | 7  |    |    |   |   |   |    |    |    |   |   |   |    |    | 2  |   |   |   |   |
|   | 7  |    | 7  |   |   |   | 15 |    |    |   | 8 |   | 3  |    |    |   |   |   |   |
|   | 7  |    | 7  |   | 7 |   |    |    | 7  |   | 1 |   | 4  |    |    |   |   |   |   |
|   | 6  | 1  | 6  | 1 | 6 | 1 | 6  | 1  | 6  | 1 | 1 | 1 | 7  |    |    |   |   |   |   |
|   | 5  | 1  | 1  | 5 | 1 | 1 | 5  | 1  | 1  | 5 | 1 | 1 | 1  | 10 |    |   |   |   |   |
|   | 4  | 1  | 1  | 1 | 4 | 1 | 1  | 1  | 4  | 1 | 1 | 1 | 1  | 13 |    |   |   |   |   |
|   | 3  | 1  | 1  | 1 | 1 | 3 | 1  | 1  | 1  | 1 | 3 | 1 | 1  | 1  | 16 |   |   |   |   |
|   | 2  | 1  | 1  | 1 | 1 | 2 | 1  | 1  | 1  | 1 | 2 | 1 | 1  | 1  | 19 |   |   |   |   |

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|   |   |   |   |    |   |   |    |   |   |    |   |   |   |    |   |
|---|---|---|---|----|---|---|----|---|---|----|---|---|---|----|---|
| 0 | 9 | 5 | 1 | 10 | 6 | 2 | 11 | 7 | 3 | 12 | 8 | 4 | 0 |    |   |
|   | 5 |   |   |    |   |   |    |   |   |    |   |   |   |    | 2 |
|   | 5 |   | 5 |    |   |   | 12 |   |   |    |   |   | 3 |    |   |
|   | 5 |   | 5 |    | 5 |   |    |   | 7 |    |   |   | 4 |    |   |
|   | 5 |   | 5 |    | 5 |   |    |   | 5 |    | 2 |   | 5 |    |   |
|   | 3 | 2 | 3 | 2  | 3 | 2 | 3  | 2 | 3 | 2  | 2 | 2 | 9 |    |   |
|   | 1 | 2 | 2 | 1  | 2 | 2 | 1  | 2 | 2 | 1  | 2 | 2 | 2 | 13 |   |



# Moments of Symmetry

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|   |   |   |   |    |    |    |   |   |   |    |    |    |    |   |   |   |    |     |    |     |       |      |  |     |
|---|---|---|---|----|----|----|---|---|---|----|----|----|----|---|---|---|----|-----|----|-----|-------|------|--|-----|
| 0 | 3 | 6 | 9 | 12 | 15 | 18 | 1 | 4 | 7 | 10 | 13 | 16 | 19 | 2 | 5 | 8 | 11 | 14  | 17 | 0   | Scale |      |  |     |
| 8 |   |   |   |    |    | 15 |   |   |   |    |    |    |    |   |   |   |    |     |    | 1/2 |       |      |  |     |
| 8 |   |   |   |    |    | 8  |   |   |   |    |    | 7  |    |   |   |   |    | 1/3 |    |     |       |      |  |     |
| 7 |   |   |   |    |    | 7  |   |   |   |    |    | 7  |    |   |   |   |    | 2/5 |    |     |       |      |  |     |
| 1 |   |   | 1 |    |    | 6  |   |   | 1 |    |    | 1  |    |   | 6 |   |    | 1   |    |     | 6     |      |  | 3/8 |
| 1 |   | 1 |   | 1  |    | 5  |   | 1 |   | 1  |    | 1  |    | 5 |   | 1 |    | 1   |    | 5   |       | 4/11 |  |     |
| 1 |   | 1 |   | 1  |    | 4  |   | 1 |   | 1  |    | 1  |    | 4 |   | 1 |    | 1   |    | 4   |       | 5/14 |  |     |
| 1 |   | 1 |   | 1  |    | 3  |   | 1 |   | 1  |    | 1  |    | 3 |   | 1 |    | 1   |    | 3   |       | 6/17 |  |     |
| 1 |   | 1 |   | 1  |    | 2  |   | 1 |   | 1  |    | 1  |    | 2 |   | 1 |    | 1   |    | 2   |       | 7/20 |  |     |

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|   |    |   |   |   |    |    |   |   |    |   |   |   |   |       |   |   |  |     |  |      |     |      |
|---|----|---|---|---|----|----|---|---|----|---|---|---|---|-------|---|---|--|-----|--|------|-----|------|
| 0 | 10 | 7 | 4 | 1 | 11 | 8  | 5 | 2 | 12 | 9 | 6 | 3 | 0 | Scale |   |   |  |     |  |      |     |      |
| 7 |    |   |   |   |    | 16 |   |   |    |   |   |   |   |       |   |   |  | 1/2 |  |      |     |      |
| 7 |    |   |   |   |    | 7  |   |   |    |   |   | 9 |   |       |   |   |  | 1/3 |  |      |     |      |
| 7 |    |   |   |   |    | 7  |   |   |    |   |   | 7 |   |       |   |   |  | 1/4 |  |      |     |      |
| 5 |    |   | 2 |   |    | 5  |   |   | 2  |   |   | 5 |   |       | 2 |   |  | 2   |  |      | 2/7 |      |
| 3 |    | 2 |   | 2 |    | 3  |   | 2 |    | 2 |   | 3 |   | 2     |   | 2 |  | 2   |  | 3/10 |     |      |
| 1 |    | 2 |   | 2 |    | 2  |   | 1 |    | 2 |   | 2 |   | 2     |   | 1 |  | 2   |  | 2    |     | 4/13 |

Generator 6/23

|   |   |   |    |    |   |    |   |    |    |   |   |    |    |    |   |   |    |     |   |       |  |      |  |     |
|---|---|---|----|----|---|----|---|----|----|---|---|----|----|----|---|---|----|-----|---|-------|--|------|--|-----|
| 0 | 4 | 8 | 12 | 16 | 1 | 5  | 9 | 13 | 17 | 2 | 6 | 10 | 14 | 18 | 3 | 7 | 11 | 15  | 0 | Scale |  |      |  |     |
| 6 |   |   |    |    |   | 17 |   |    |    |   |   |    |    |    |   |   |    |     |   | 1/2   |  |      |  |     |
| 6 |   |   |    |    |   | 6  |   |    |    |   |   | 11 |    |    |   |   |    | 1/3 |   |       |  |      |  |     |
| 6 |   |   |    |    |   | 6  |   |    |    |   |   | 6  |    |    |   |   |    | 5   |   |       |  |      |  | 1/4 |
| 1 |   | 5 |    | 1  |   | 5  |   | 1  |    | 5 |   | 5  |    | 1  |   | 5 |    | 5   |   | 2/7   |  |      |  |     |
| 1 |   | 1 |    | 4  |   | 1  |   | 1  |    | 4 |   | 1  |    | 1  |   | 4 |    | 1   |   | 4     |  | 3/11 |  |     |
| 1 |   | 1 |    | 3  |   | 1  |   | 1  |    | 3 |   | 1  |    | 1  |   | 3 |    | 1   |   | 3     |  | 4/15 |  |     |
| 1 |   | 1 |    | 2  |   | 1  |   | 1  |    | 2 |   | 1  |    | 1  |   | 2 |    | 1   |   | 2     |  | 5/19 |  |     |

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|   |   |    |   |   |    |   |   |    |   |    |    |   |   |   |       |   |  |     |  |   |     |      |
|---|---|----|---|---|----|---|---|----|---|----|----|---|---|---|-------|---|--|-----|--|---|-----|------|
| 0 | 5 | 10 | 1 | 6 | 11 | 2 | 7 | 12 | 3 | 8  | 13 | 4 | 9 | 0 | Scale |   |  |     |  |   |     |      |
| 5 |   |    |   |   | 18 |   |   |    |   |    |    |   |   |   |       |   |  | 1/2 |  |   |     |      |
| 5 |   |    |   |   | 5  |   |   |    |   | 13 |    |   |   |   |       |   |  | 1/3 |  |   |     |      |
| 5 |   |    |   |   | 5  |   |   |    |   | 5  |    |   |   |   | 8     |   |  | 1/4 |  |   |     |      |
| 5 |   |    |   |   | 5  |   |   |    |   | 5  |    |   |   |   | 5     |   |  | 3   |  |   | 1/5 |      |
| 2 |   | 3  |   | 2 |    | 3 |   | 2  |   | 3  |    | 2 |   | 3 |       | 3 |  | 3   |  |   | 2/9 |      |
| 2 |   | 2  |   | 1 |    | 2 |   | 2  |   | 1  |    | 2 |   | 2 |       | 1 |  | 2   |  | 1 |     | 3/14 |

(5/23)

## Moments-of-Symetry

Generator 4/23

|        |   |        |   |        |   |        |   |         |   |      |   |     |      |      |
|--------|---|--------|---|--------|---|--------|---|---------|---|------|---|-----|------|------|
| 0 6 12 |   | 1 7 13 |   | 2 8 14 |   | 3 9 15 |   | 4 10 16 |   | 5 11 |   | 0   |      |      |
| 4      |   | 19     |   |        |   |        |   |         |   |      |   | 1/2 |      |      |
| 4      |   | 4      |   | 15     |   |        |   |         |   |      |   | 1/3 |      |      |
| 4      |   | 4      |   | 4      |   | 11     |   |         |   |      |   | 1/4 |      |      |
| 4      |   | 4      |   | 4      |   | 4      |   | 7       |   |      |   | 1/5 |      |      |
| 4      |   | 4      |   | 4      |   | 4      |   | 4       |   | 3    |   | 1/6 |      |      |
| 1      | 3 | 1      | 3 | 1      | 3 | 1      | 3 | 1       | 3 | 1    | 3 | 3   | 2/11 |      |
| 1      | 1 | 2      | 1 | 1      | 2 | 1      | 1 | 2       | 1 | 1    | 2 | 1   | 2    | 3/17 |

(4/23)

Generator 3/23

|     |   |     |   |      |   |      |   |      |   |      |   |      |   |     |   |     |      |
|-----|---|-----|---|------|---|------|---|------|---|------|---|------|---|-----|---|-----|------|
| 0 8 |   | 1 9 |   | 2 10 |   | 3 11 |   | 4 12 |   | 5 13 |   | 6 14 |   | 7   |   | 0   |      |
| 3   |   | 20  |   |      |   |      |   |      |   |      |   | 1/2  |   |     |   |     |      |
| 3   |   | 3   |   | 17   |   |      |   |      |   |      |   | 1/3  |   |     |   |     |      |
| 3   |   | 3   |   | 3    |   | 14   |   |      |   |      |   | 1/4  |   |     |   |     |      |
| 3   |   | 3   |   | 3    |   | 3    |   | 11   |   |      |   | 1/5  |   |     |   |     |      |
| 3   |   | 3   |   | 3    |   | 3    |   | 3    |   | 8    |   |      |   | 1/6 |   |     |      |
| 3   |   | 3   |   | 3    |   | 3    |   | 3    |   | 3    |   | 5    |   | 1/7 |   |     |      |
| 3   |   | 3   |   | 3    |   | 3    |   | 3    |   | 3    |   | 3    |   | 2   |   | 1/8 |      |
| 1   | 2 | 1   | 2 | 1    | 2 | 1    | 2 | 1    | 2 | 1    | 2 | 1    | 2 | 1   | 2 | 2   | 2/15 |

(3/23)

Generator 11/24

|      |   |    |   |   |   |   |   |   |   |      |   |     |   |     |   |     |   |     |   |      |   |      |
|------|---|----|---|---|---|---|---|---|---|------|---|-----|---|-----|---|-----|---|-----|---|------|---|------|
| 0 11 |   | 9  |   | 7 |   | 5 |   | 3 |   | 1 12 |   | 10  |   | 8   |   | 6   |   | 4   |   | 2    |   | 0    |
| 11   |   | 13 |   |   |   |   |   |   |   |      |   | 1/2 |   |     |   |     |   |     |   |      |   |      |
| 11   |   | 11 |   |   |   |   |   |   |   | 2    |   | 1/3 |   |     |   |     |   |     |   |      |   |      |
| 9    |   | 2  |   | 9 |   |   |   |   |   | 2    |   | 2   |   | 2/5 |   |     |   |     |   |      |   |      |
| 7    |   | 2  |   | 2 |   | 7 |   |   |   | 2    |   | 2   |   | 2   |   | 3/7 |   |     |   |      |   |      |
| 5    |   | 2  |   | 2 |   | 2 |   | 5 |   | 2    |   | 2   |   | 2   |   | 2   |   | 4/9 |   |      |   |      |
| 3    |   | 2  |   | 2 |   | 2 |   | 3 |   | 2    |   | 2   |   | 2   |   | 2   |   | 2   |   | 5/11 |   |      |
| 1    | 2 | 2  | 2 | 2 | 2 | 2 | 2 | 1 | 2 | 2    | 2 | 2   | 2 | 2   | 2 | 2   | 2 | 2   | 2 | 2    | 2 | 6/13 |

(11/24)

Generator 7/24

|     |   |      |   |        |   |      |   |        |   |      |   |         |   |      |      |
|-----|---|------|---|--------|---|------|---|--------|---|------|---|---------|---|------|------|
| 0 7 |   | 14 4 |   | 11 1 8 |   | 15 5 |   | 12 2 9 |   | 16 6 |   | 13 3 10 |   | 0    |      |
| 7   |   | 17   |   |        |   |      |   |        |   |      |   | 1/2     |   |      |      |
| 7   |   | 7    |   |        |   | 10   |   |        |   |      |   | 1/3     |   |      |      |
| 7   |   | 7    |   |        |   | 7    |   |        |   | 3    |   | 1/4     |   |      |      |
| 4   |   | 3    |   | 4      |   | 3    |   | 4      |   | 3    |   | 3       |   | 2/7  |      |
| 1   | 3 | 3    | 1 | 3      | 3 | 1    | 3 | 3      | 1 | 3    | 3 | 3       | 3 | 3/10 |      |
| 1   | 1 | 2    | 1 | 2      | 1 | 1    | 2 | 1      | 2 | 1    | 1 | 2       | 1 | 2    | 5/17 |

(7/24)

(means 7 intervals in 8ve; generator subtends 2 intervals)



## Moments-of-Symetry

Generator 5/24

|   |   |    |    |    |   |    |    |    |   |    |    |   |   |    |    |     |   |    |   |            |     |      |   |      |
|---|---|----|----|----|---|----|----|----|---|----|----|---|---|----|----|-----|---|----|---|------------|-----|------|---|------|
| 0 | 5 | 10 | 15 | 1  | 6 | 11 | 16 | 2  | 7 | 12 | 17 | 3 | 8 | 13 | 18 | 4   | 9 | 14 | 0 | Scale<br>↓ |     |      |   |      |
| 5 |   |    |    | 19 |   |    |    |    |   |    |    |   |   |    |    | 1/2 |   |    |   |            |     |      |   |      |
| 5 |   |    |    | 5  |   |    |    | 14 |   |    |    |   |   |    |    | 1/3 |   |    |   |            |     |      |   |      |
| 5 |   |    |    | 5  |   |    |    | 5  |   |    |    | 9 |   |    |    | 1/4 |   |    |   |            |     |      |   |      |
| 5 |   |    |    | 5  |   |    |    | 5  |   |    |    | 5 |   |    |    | 4   |   |    |   | 1/5        |     |      |   |      |
| 1 | 1 | 1  | 1  | 4  | 1 | 1  | 1  | 4  | 1 | 1  | 1  | 4 | 1 | 1  | 1  | 4   | 1 | 1  | 1 | 4          | 2/9 |      |   |      |
| 1 | 1 | 1  | 3  | 1  | 1 | 1  | 3  | 1  | 1 | 1  | 3  | 1 | 1 | 1  | 3  | 1   | 1 | 1  | 3 | 1          | 3   | 3/14 |   |      |
| 1 | 1 | 1  | 1  | 2  | 1 | 1  | 1  | 2  | 1 | 1  | 1  | 2 | 1 | 1  | 1  | 2   | 1 | 1  | 1 | 2          | 1   | 1    | 2 | 4/19 |

Generator 12/25

|    |    |    |    |    |    |    |   |   |   |   |    |    |    |    |    |    |    |    |   |   |   |   |       |            |
|----|----|----|----|----|----|----|---|---|---|---|----|----|----|----|----|----|----|----|---|---|---|---|-------|------------|
| 0  | 21 | 19 | 17 | 15 | 13 | 11 | 9 | 7 | 5 | 3 | 1  | 22 | 20 | 18 | 16 | 14 | 12 | 10 | 8 | 6 | 4 | 2 | 0     | Scale<br>↓ |
| 12 |    |    |    |    |    |    |   |   |   |   | 13 |    |    |    |    |    |    |    |   |   |   |   | 1/2   |            |
| 12 |    |    |    |    |    |    |   |   |   |   | 12 |    |    |    |    |    |    |    |   |   |   |   | 1/3   |            |
| 11 |    |    |    |    |    |    |   |   |   |   | 11 |    |    |    |    |    |    |    |   |   |   |   | 2/5   |            |
| 10 |    |    |    |    |    |    |   |   |   |   | 10 |    |    |    |    |    |    |    |   |   |   |   | 3/7   |            |
| 9  |    |    |    |    |    |    |   |   |   |   | 9  |    |    |    |    |    |    |    |   |   |   |   | 4/9   |            |
| 8  |    |    |    |    |    |    |   |   |   |   | 8  |    |    |    |    |    |    |    |   |   |   |   | 5/11  |            |
| 7  |    |    |    |    |    |    |   |   |   |   | 7  |    |    |    |    |    |    |    |   |   |   |   | 6/13  |            |
| 6  |    |    |    |    |    |    |   |   |   |   | 6  |    |    |    |    |    |    |    |   |   |   |   | 7/15  |            |
| 5  |    |    |    |    |    |    |   |   |   |   | 5  |    |    |    |    |    |    |    |   |   |   |   | 8/17  |            |
| 4  |    |    |    |    |    |    |   |   |   |   | 4  |    |    |    |    |    |    |    |   |   |   |   | 9/19  |            |
| 3  |    |    |    |    |    |    |   |   |   |   | 3  |    |    |    |    |    |    |    |   |   |   |   | 10/21 |            |
| 2  |    |    |    |    |    |    |   |   |   |   | 2  |    |    |    |    |    |    |    |   |   |   |   | 11/23 |            |

(12/25)

Generator 11/25

|    |   |    |   |    |   |    |    |   |    |   |    |   |    |   |     |      |            |
|----|---|----|---|----|---|----|----|---|----|---|----|---|----|---|-----|------|------------|
| 0  | 7 | 14 | 5 | 12 | 3 | 10 | 1  | 8 | 15 | 6 | 13 | 4 | 11 | 2 | 9   | 0    | Scale<br>↓ |
| 11 |   |    |   |    |   |    | 14 |   |    |   |    |   |    |   |     | 1/2  |            |
| 11 |   |    |   |    |   |    | 11 |   |    |   |    |   |    |   |     | 1/3  |            |
| 8  |   |    |   | 3  |   |    |    | 8 |    |   |    | 3 |    |   |     | 2/5  |            |
| 5  |   |    | 3 |    |   | 3  |    |   | 5  |   |    | 3 |    |   | 3/7 |      |            |
| 2  | 3 | 3  | 3 | 2  | 3 | 3  | 3  | 2 | 3  | 3 | 3  | 2 | 3  | 3 | 3   | 4/9  |            |
| 2  | 2 | 1  | 2 | 1  | 2 | 1  | 2  | 2 | 1  | 2 | 1  | 2 | 1  | 2 | 1   | 7/16 |            |

(11/25)

Generator 9/25

|   |   |   |   |    |   |   |    |    |    |   |   |   |    |     |            |
|---|---|---|---|----|---|---|----|----|----|---|---|---|----|-----|------------|
| 0 | 3 | 6 | 9 | 12 | 1 | 4 | 7  | 10 | 13 | 2 | 5 | 8 | 11 | 0   | Scale<br>↓ |
| 9 |   |   |   |    |   |   | 16 |    |    |   |   |   |    |     | 1/2        |
| 9 |   |   |   |    |   |   | 9  |    |    |   |   |   |    |     | 1/3        |
| 2 |   |   | 7 |    |   |   | 2  |    |    | 7 |   |   |    | 2/5 |            |
| 2 | 2 | 5 | 2 | 2  | 5 | 2 | 2  | 5  | 2  | 2 | 5 | 2 | 2  | 5   | 3/8        |
| 2 | 2 | 2 | 3 | 2  | 2 | 2 | 3  | 2  | 2  | 2 | 3 | 2 | 2  | 3   | 4/11       |
| 2 | 2 | 2 | 2 | 1  | 2 | 2 | 2  | 2  | 1  | 2 | 2 | 2 | 2  | 1   | 5/14       |

(9/25)

### Moments of Symetry

Gen 8/25

Scale

|   |    |    |    |    |   |   |   |    |    |    |    |   |   |   |    |    |    |    |   |   |   |   |  |  |   |   |
|---|----|----|----|----|---|---|---|----|----|----|----|---|---|---|----|----|----|----|---|---|---|---|--|--|---|---|
| 0 | 19 | 16 | 13 | 10 | 7 | 4 | 1 | 20 | 17 | 14 | 11 | 8 | 5 | 2 | 21 | 18 | 15 | 12 | 9 | 6 | 3 | 0 |  |  |   |   |
|   | 8  |    |    |    |   |   |   |    | 17 |    |    |   |   |   |    |    |    |    |   |   |   |   |  |  |   |   |
|   | 8  |    |    |    |   |   |   |    | 8  |    |    |   |   |   |    |    | 9  |    |   |   |   |   |  |  |   |   |
|   | 8  |    |    |    |   |   |   |    | 8  |    |    |   |   |   |    |    | 8  |    |   |   |   |   |  |  | 1 |   |
|   | 7  |    |    |    |   |   |   |    | 7  |    |    |   |   |   |    |    | 7  |    |   |   |   |   |  |  | 1 | 1 |
|   | 6  |    |    | 1  |   |   |   | 1  |    |    |    | 6 |   |   | 1  |    |    |    | 1 |   |   | 1 |  |  |   |   |
|   | 5  |    |    | 1  |   |   |   | 1  |    |    |    | 5 |   |   | 1  |    |    |    | 1 |   |   | 1 |  |  |   |   |
|   | 4  |    |    | 1  |   |   |   | 1  |    |    |    | 4 |   |   | 1  |    |    |    | 1 |   |   | 1 |  |  |   |   |
|   | 3  |    |    | 1  |   |   |   | 1  |    |    |    | 3 |   |   | 1  |    |    |    | 1 |   |   | 1 |  |  |   |   |
|   | 2  |    |    | 1  |   |   |   | 1  |    |    |    | 2 |   |   | 1  |    |    |    | 1 |   |   | 1 |  |  |   |   |

- 1/2
- 1/3
- 1/4
- 2/7
- 3/10
- 4/13
- 5/16
- 6/19
- 7/22

Generator 7/25

|   |    |   |    |   |   |    |   |    |    |   |    |   |    |   |    |   |    |  |  |  |  |  |  |  |   |
|---|----|---|----|---|---|----|---|----|----|---|----|---|----|---|----|---|----|--|--|--|--|--|--|--|---|
| 0 | 11 | 4 | 15 | 8 | 1 | 12 | 5 | 16 | 9  | 2 | 13 | 6 | 10 | 3 | 14 | 7 | 0  |  |  |  |  |  |  |  |   |
|   | 7  |   |    |   |   |    |   |    | 18 |   |    |   |    |   |    |   |    |  |  |  |  |  |  |  |   |
|   | 7  |   |    |   |   |    |   |    | 7  |   |    |   |    |   |    |   | 11 |  |  |  |  |  |  |  |   |
|   | 7  |   |    |   |   |    |   |    | 7  |   |    |   |    |   |    |   | 7  |  |  |  |  |  |  |  | 4 |
|   | 3  | 4 |    | 3 | 4 |    | 3 | 4  |    | 3 | 4  |   | 3  | 4 |    | 4 |    |  |  |  |  |  |  |  |   |
|   | 3  | 3 | 1  | 3 | 3 | 1  | 3 | 3  | 1  | 3 | 3  | 1 | 3  | 3 | 1  | 3 | 1  |  |  |  |  |  |  |  |   |
|   | 2  | 1 | 2  | 1 | 1 | 2  | 1 | 2  | 1  | 1 | 2  | 1 | 2  | 1 | 1  | 2 | 1  |  |  |  |  |  |  |  |   |

- 1/2
- 1/3
- 1/4
- 2/7
- 3/11
- 5/18
- (7/25)

Generator 6/25

|   |    |    |   |   |   |    |    |    |    |   |    |    |    |   |   |    |    |    |   |   |   |   |   |  |   |   |
|---|----|----|---|---|---|----|----|----|----|---|----|----|----|---|---|----|----|----|---|---|---|---|---|--|---|---|
| 0 | 17 | 13 | 9 | 5 | 1 | 18 | 14 | 10 | 6  | 2 | 19 | 15 | 11 | 7 | 3 | 20 | 16 | 12 | 8 | 4 | 0 |   |   |  |   |   |
|   | 6  |    |   |   |   |    |    |    | 19 |   |    |    |    |   |   |    |    |    |   |   |   |   |   |  |   |   |
|   | 6  |    |   |   |   |    |    |    | 6  |   |    |    |    |   |   |    | 13 |    |   |   |   |   |   |  |   |   |
|   | 6  |    |   |   |   |    |    |    | 6  |   |    |    |    |   |   |    | 6  |    |   |   |   |   |   |  | 7 |   |
|   | 6  |    |   |   |   |    |    |    | 6  |   |    |    |    |   |   |    | 6  |    |   |   |   |   |   |  | 6 | 1 |
|   | 5  |    |   | 1 |   |    |    | 5  |    |   |    | 1  |    |   |   | 5  |    |    | 1 |   |   |   | 1 |  |   |   |
|   | 4  |    |   | 1 |   |    |    | 1  |    |   |    | 4  |    |   | 1 |    |    |    | 1 |   |   | 1 |   |  |   |   |
|   | 3  |    |   | 1 |   |    |    | 1  |    |   |    | 3  |    |   | 1 |    |    |    | 1 |   |   | 1 |   |  |   |   |
|   | 2  |    |   | 1 |   |    |    | 1  |    |   |    | 2  |    |   | 1 |    |    |    | 1 |   |   | 1 |   |  |   |   |

- 1/2
- 1/3
- 1/4
- 1/5
- 2/9
- 3/13
- 4/17
- 5/21
- (6/25)

Generator 4/25

|   |    |   |   |    |   |   |    |   |    |    |    |   |    |    |   |    |    |   |   |  |  |   |   |  |  |
|---|----|---|---|----|---|---|----|---|----|----|----|---|----|----|---|----|----|---|---|--|--|---|---|--|--|
| 0 | 13 | 7 | 1 | 14 | 8 | 2 | 15 | 9 | 3  | 16 | 10 | 4 | 17 | 11 | 5 | 18 | 12 | 6 | 1 |  |  |   |   |  |  |
|   | 4  |   |   |    |   |   |    |   | 21 |    |    |   |    |    |   |    |    |   |   |  |  |   |   |  |  |
|   | 4  |   |   |    |   |   |    |   | 4  |    |    |   |    |    |   |    | 17 |   |   |  |  |   |   |  |  |
|   | 4  |   |   |    |   |   |    |   | 4  |    |    |   |    |    |   |    | 13 |   |   |  |  |   |   |  |  |
|   | 4  |   |   |    |   |   |    |   | 4  |    |    |   |    |    |   |    | 9  |   |   |  |  |   |   |  |  |
|   | 4  |   |   | 4  |   |   |    | 4 |    |    |    | 4 |    |    | 4 |    |    |   | 5 |  |  |   |   |  |  |
|   | 4  |   |   | 4  |   |   |    | 4 |    |    |    | 4 |    |    | 4 |    |    |   | 4 |  |  | 1 |   |  |  |
|   | 3  |   |   | 1  |   |   |    | 3 |    |    |    | 1 |    |    |   | 3  |    |   | 1 |  |  |   | 1 |  |  |
|   | 2  |   |   | 1  |   |   |    | 2 |    |    |    | 1 |    |    |   | 2  |    |   | 1 |  |  |   | 1 |  |  |

- Scale
- 1/2
- 1/3
- 1/4
- 1/5
- 1/6
- 1/7
- 2/13
- 3/19
- (4/25)





# Moments of Symetry

## Generator 11/27

|    |   |    |    |    |    |   |    |    |   |   |    |    |     |      |     |    |    |         |   |    |    |   |
|----|---|----|----|----|----|---|----|----|---|---|----|----|-----|------|-----|----|----|---------|---|----|----|---|
| 0  | 5 | 10 | 15 | 20 | 3  | 8 | 13 | 18 | 1 | 6 | 11 | 16 | 21  | 4    | 9   | 14 | 19 | 2       | 7 | 12 | 17 | 0 |
| 11 |   |    |    |    | 16 |   |    |    |   |   |    |    |     |      | 1/2 |    |    |         |   |    |    |   |
| 11 |   |    |    |    | 11 |   |    |    |   | 5 |    |    |     |      | 1/3 |    |    |         |   |    |    |   |
| 6  |   |    | 5  |    | 6  |   |    | 5  |   | 5 |    |    | 2/5 |      |     |    |    |         |   |    |    |   |
| 1  | 5 |    |    |    | 1  | 5 |    |    |   | 1 | 5  |    |     |      | 3/7 |    |    |         |   |    |    |   |
| 1  | 1 | 4  |    |    | 1  | 4 |    |    | 1 | 1 | 4  |    |     | 5/12 |     |    |    |         |   |    |    |   |
| 1  | 1 | 1  | 3  |    | 1  | 1 | 3  |    | 1 | 1 | 1  | 3  |     | 7/17 |     |    |    |         |   |    |    |   |
| 1  | 1 | 1  | 1  | 2  | 1  | 1 | 1  | 2  | 1 | 1 | 1  | 1  | 2   | 9/22 |     |    |    |         |   |    |    |   |
|    |   |    |    |    |    |   |    |    |   |   |    |    |     |      |     |    |    | (11/27) |   |    |    |   |

## Generator 10/27

|    |    |   |   |   |    |   |   |    |   |    |   |    |    |     |      |   |    |         |   |
|----|----|---|---|---|----|---|---|----|---|----|---|----|----|-----|------|---|----|---------|---|
| 0  | 11 | 3 | 4 | 6 | 17 | 9 | 1 | 12 | 4 | 15 | 7 | 18 | 10 | 2   | 13   | 5 | 16 | 8       | 0 |
| 10 |    |   |   |   | 17 |   |   |    |   |    |   |    |    |     | 1/2  |   |    |         |   |
| 10 |    |   |   |   | 10 |   |   |    |   | 7  |   |    |    |     | 1/3  |   |    |         |   |
| 3  |    |   | 7 |   | 3  |   |   | 7  |   | 3  |   |    | 7  |     | 2/5  |   |    |         |   |
| 3  | 3  | 4 |   |   | 3  | 3 | 4 |    |   | 3  | 4 |    |    | 3/8 |      |   |    |         |   |
| 3  | 3  | 3 | 1 | 3 | 3  | 3 | 1 | 3  | 3 | 3  | 1 | 3  | 3  | 1   | 4/11 |   |    |         |   |
| 2  | 1  | 2 | 1 | 2 | 2  | 1 | 2 | 1  | 2 | 2  | 1 | 2  | 1  | 2   | 7/19 |   |    |         |   |
|    |    |   |   |   |    |   |   |    |   |    |   |    |    |     |      |   |    | (10/27) |   |

## Generator 8/27

|   |   |   |   |    |    |   |    |   |    |    |   |    |   |    |       |    |   |        |
|---|---|---|---|----|----|---|----|---|----|----|---|----|---|----|-------|----|---|--------|
| 0 | 7 | 4 | 4 | 11 | 1  | 8 | 15 | 5 | 12 | 2  | 9 | 16 | 6 | 13 | 3     | 10 | 0 |        |
| 8 |   |   |   |    | 19 |   |    |   |    |    |   |    |   |    | scale |    |   |        |
| 8 |   |   |   |    | 8  |   |    |   |    | 11 |   |    |   |    | 1/2   |    |   |        |
| 8 |   |   |   |    | 8  |   |    |   |    | 8  |   |    |   |    | 1/3   |    |   |        |
| 5 |   |   | 3 |    | 5  |   |    | 3 |    | 5  |   |    | 3 |    | 1/4   |    |   |        |
| 2 | 3 | 3 |   |    | 2  | 3 | 3  |   |    | 2  | 3 | 3  |   |    | 2/7   |    |   |        |
| 2 | 2 | 1 | 2 | 1  | 2  | 2 | 1  | 2 | 1  | 2  | 2 | 1  | 2 | 1  | 3/10  |    |   |        |
|   |   |   |   |    |    |   |    |   |    |    |   |    |   |    |       |    |   | 5/17   |
|   |   |   |   |    |    |   |    |   |    |    |   |    |   |    |       |    |   | (8/27) |

## Generator 7/27

|   |   |   |    |    |    |   |   |   |    |    |    |   |   |      |      |    |    |        |   |    |    |    |   |
|---|---|---|----|----|----|---|---|---|----|----|----|---|---|------|------|----|----|--------|---|----|----|----|---|
| 0 | 4 | 8 | 12 | 16 | 20 | 1 | 5 | 9 | 13 | 17 | 21 | 2 | 6 | 10   | 14   | 18 | 22 | 3      | 7 | 11 | 15 | 19 | 0 |
| 7 |   |   |    |    | 20 |   |   |   |    |    |    |   |   |      | 1/2  |    |    |        |   |    |    |    |   |
| 7 |   |   |    |    | 7  |   |   |   |    | 7  |    |   |   |      | 1/3  |    |    |        |   |    |    |    |   |
| 7 |   |   |    |    | 7  |   |   |   |    | 6  |    |   |   |      | 1/4  |    |    |        |   |    |    |    |   |
| 1 | 6 |   |    |    | 1  | 6 |   |   |    | 1  | 6  |   |   |      | 2/7  |    |    |        |   |    |    |    |   |
| 1 | 1 | 5 |    |    | 1  | 1 | 5 |   |    | 1  | 1  | 5 |   |      | 3/11 |    |    |        |   |    |    |    |   |
| 1 | 1 | 1 | 4  |    | 1  | 1 | 4 |   | 1  | 1  | 1  | 4 |   | 4/15 |      |    |    |        |   |    |    |    |   |
| 1 | 1 | 1 | 1  | 3  | 1  | 1 | 1 | 3 | 1  | 1  | 1  | 1 | 3 | 5/19 |      |    |    |        |   |    |    |    |   |
| 1 | 1 | 1 | 1  | 2  | 1  | 1 | 1 | 2 | 1  | 1  | 1  | 1 | 2 | 6/23 |      |    |    |        |   |    |    |    |   |
|   |   |   |    |    |    |   |   |   |    |    |    |   |   |      |      |    |    | (7/27) |   |    |    |    |   |





# The Moments-of-Symetry of 31

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Generating interval; 15/31

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31/0

|  |  |  |  |  |  |  |    |  |  |  |  |  |  |   |    |  |  |  |  |  |    |  |  |  |  |  |  |   |   |      |   |   |    |    |    |    |    |    |
|--|--|--|--|--|--|--|----|--|--|--|--|--|--|---|----|--|--|--|--|--|----|--|--|--|--|--|--|---|---|------|---|---|----|----|----|----|----|----|
|  |  |  |  |  |  |  |    |  |  |  |  |  |  |   | 31 |  |  |  |  |  |    |  |  |  |  |  |  |   |   | 1    |   |   |    |    |    |    |    |    |
|  |  |  |  |  |  |  | 15 |  |  |  |  |  |  |   |    |  |  |  |  |  | 16 |  |  |  |  |  |  | 2 |   |      |   |   |    |    |    |    |    |    |
|  |  |  |  |  |  |  | 15 |  |  |  |  |  |  |   |    |  |  |  |  |  | 15 |  |  |  |  |  |  | 1 | 3 |      |   |   |    |    |    |    |    |    |
|  |  |  |  |  |  |  | 14 |  |  |  |  |  |  | 1 |    |  |  |  |  |  | 14 |  |  |  |  |  |  | 1 | 1 | 5    |   |   |    |    |    |    |    |    |
|  |  |  |  |  |  |  | 13 |  |  |  |  |  |  | 1 |    |  |  |  |  |  | 13 |  |  |  |  |  |  | 1 | 1 | 1    | 7 |   |    |    |    |    |    |    |
|  |  |  |  |  |  |  | 12 |  |  |  |  |  |  | 1 |    |  |  |  |  |  | 12 |  |  |  |  |  |  | 1 | 1 | 1    | 1 | 9 |    |    |    |    |    |    |
|  |  |  |  |  |  |  | 11 |  |  |  |  |  |  | 1 |    |  |  |  |  |  | 11 |  |  |  |  |  |  | 1 | 1 | 1    | 1 | 1 | 11 |    |    |    |    |    |
|  |  |  |  |  |  |  | 10 |  |  |  |  |  |  | 1 |    |  |  |  |  |  | 10 |  |  |  |  |  |  | 1 | 1 | 1    | 1 | 1 | 1  | 13 |    |    |    |    |
|  |  |  |  |  |  |  | 9  |  |  |  |  |  |  | 1 |    |  |  |  |  |  | 9  |  |  |  |  |  |  | 1 | 1 | 1    | 1 | 1 | 1  | 1  | 15 |    |    |    |
|  |  |  |  |  |  |  | 8  |  |  |  |  |  |  | 1 |    |  |  |  |  |  | 8  |  |  |  |  |  |  | 1 | 1 | 1    | 1 | 1 | 1  | 1  | 1  | 17 |    |    |
|  |  |  |  |  |  |  | 7  |  |  |  |  |  |  | 1 |    |  |  |  |  |  | 7  |  |  |  |  |  |  | 1 | 1 | 1    | 1 | 1 | 1  | 1  | 1  | 1  | 19 |    |
|  |  |  |  |  |  |  | 6  |  |  |  |  |  |  | 1 |    |  |  |  |  |  | 6  |  |  |  |  |  |  | 1 | 1 | 1    | 1 | 1 | 1  | 1  | 1  | 1  | 21 |    |
|  |  |  |  |  |  |  | 5  |  |  |  |  |  |  | 1 |    |  |  |  |  |  | 5  |  |  |  |  |  |  | 1 | 1 | 1    | 1 | 1 | 1  | 1  | 1  | 1  | 23 |    |
|  |  |  |  |  |  |  | 4  |  |  |  |  |  |  | 1 |    |  |  |  |  |  | 4  |  |  |  |  |  |  | 1 | 1 | 1    | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 25 |
|  |  |  |  |  |  |  | 3  |  |  |  |  |  |  | 1 |    |  |  |  |  |  | 3  |  |  |  |  |  |  | 1 | 1 | 1    | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 27 |
|  |  |  |  |  |  |  | 2  |  |  |  |  |  |  | 1 |    |  |  |  |  |  | 2  |  |  |  |  |  |  | 1 | 1 | 1    | 1 | 1 | 1  | 1  | 1  | 1  | 1  | 29 |
|  |  |  |  |  |  |  |    |  |  |  |  |  |  |   |    |  |  |  |  |  |    |  |  |  |  |  |  |   |   | (31) |   |   |    |    |    |    |    |    |

Generating Interval; 14/31

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31/0

|  |  |  |  |  |  |  |    |  |  |  |  |  |  |   |    |  |  |  |  |  |    |  |  |  |  |  |  |   |   |      |   |   |    |   |   |   |    |
|--|--|--|--|--|--|--|----|--|--|--|--|--|--|---|----|--|--|--|--|--|----|--|--|--|--|--|--|---|---|------|---|---|----|---|---|---|----|
|  |  |  |  |  |  |  |    |  |  |  |  |  |  |   | 31 |  |  |  |  |  |    |  |  |  |  |  |  |   |   | 1    |   |   |    |   |   |   |    |
|  |  |  |  |  |  |  | 14 |  |  |  |  |  |  |   |    |  |  |  |  |  | 17 |  |  |  |  |  |  | 2 |   |      |   |   |    |   |   |   |    |
|  |  |  |  |  |  |  | 14 |  |  |  |  |  |  |   |    |  |  |  |  |  | 14 |  |  |  |  |  |  | 3 | 3 |      |   |   |    |   |   |   |    |
|  |  |  |  |  |  |  | 11 |  |  |  |  |  |  | 3 |    |  |  |  |  |  | 11 |  |  |  |  |  |  | 3 | 3 | 5    |   |   |    |   |   |   |    |
|  |  |  |  |  |  |  | 8  |  |  |  |  |  |  | 3 |    |  |  |  |  |  | 8  |  |  |  |  |  |  | 3 | 3 | 3    | 7 |   |    |   |   |   |    |
|  |  |  |  |  |  |  | 5  |  |  |  |  |  |  | 3 |    |  |  |  |  |  | 5  |  |  |  |  |  |  | 3 | 3 | 3    | 3 | 9 |    |   |   |   |    |
|  |  |  |  |  |  |  | 2  |  |  |  |  |  |  | 3 |    |  |  |  |  |  | 2  |  |  |  |  |  |  | 3 | 3 | 3    | 3 | 3 | 11 |   |   |   |    |
|  |  |  |  |  |  |  | 2  |  |  |  |  |  |  | 2 |    |  |  |  |  |  | 2  |  |  |  |  |  |  | 2 | 2 | 2    | 2 | 2 | 2  | 2 | 2 | 2 | 20 |
|  |  |  |  |  |  |  |    |  |  |  |  |  |  |   |    |  |  |  |  |  |    |  |  |  |  |  |  |   |   | (31) |   |   |    |   |   |   |    |

### Generating Interval; 13/31

0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30  $\frac{31}{0}$

|    |   |   |   |   |   |   |   |    |   |   |   |   |   |    |  |      |
|----|---|---|---|---|---|---|---|----|---|---|---|---|---|----|--|------|
| 31 |   |   |   |   |   |   |   |    |   |   |   |   |   |    |  | 1    |
| 13 |   |   |   |   |   |   |   | 18 |   |   |   |   |   |    |  | 2    |
| 13 |   |   |   |   |   |   |   | 5  |   |   |   |   |   |    |  | 3    |
| 8  |   |   |   | 5 |   |   |   | 8  |   |   |   | 5 |   |    |  | 5    |
| 3  | 5 |   |   | 5 |   |   | 3 | 5  |   |   | 5 |   |   | 7  |  |      |
| 3  | 3 | 2 | 3 | 2 | 3 | 3 | 2 | 3  | 2 | 3 | 2 | 3 | 2 | 12 |  |      |
| 1  | 2 | 1 | 2 | 2 | 1 | 2 | 2 | 1  | 2 | 2 | 1 | 2 | 2 | 19 |  |      |
|    |   |   |   |   |   |   |   |    |   |   |   |   |   |    |  | (31) |

### Generating Interval; 12/31

0 13 8 3 16 11 6 1 14 9 4 17 12 7 2 15 10 5 0  
 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30  $\frac{31}{0}$

|    |   |   |   |   |   |   |   |    |   |   |   |   |    |    |  |      |
|----|---|---|---|---|---|---|---|----|---|---|---|---|----|----|--|------|
| 31 |   |   |   |   |   |   |   |    |   |   |   |   |    |    |  | 1    |
| 12 |   |   |   |   |   |   |   | 19 |   |   |   |   |    |    |  | 2    |
| 12 |   |   |   |   |   |   |   | 7  |   |   |   |   |    |    |  | 3    |
| 5  |   |   |   | 7 |   |   |   | 5  |   |   |   | 7 |    |    |  | 5    |
| 5  | 5 |   |   | 2 |   |   | 5 | 5  |   |   | 2 |   |    | 8  |  |      |
| 3  | 2 | 3 | 2 | 2 | 3 | 2 | 3 | 2  | 2 | 3 | 2 | 2 | 13 |    |  |      |
| 1  | 2 | 2 | 1 | 2 | 2 | 2 | 1 | 2  | 2 | 1 | 2 | 2 | 2  | 18 |  |      |
|    |   |   |   |   |   |   |   |    |   |   |   |   |    |    |  | (31) |

### Generating Interval; 11/31

0 3 6 9 12 15 1 4 7 10 13 16 2 5 8 11 14 0  
 0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30  $\frac{31}{0}$

|    |   |   |   |   |   |   |   |    |   |   |   |   |   |   |   |      |    |
|----|---|---|---|---|---|---|---|----|---|---|---|---|---|---|---|------|----|
| 31 |   |   |   |   |   |   |   |    |   |   |   |   |   |   |   | 1    |    |
| 11 |   |   |   |   |   |   |   | 20 |   |   |   |   |   |   |   | 2    |    |
| 11 |   |   |   |   |   |   |   | 9  |   |   |   |   |   |   |   | 3    |    |
| 2  | 9 |   |   | 2 |   |   | 9 |    |   | 9 |   |   | 5 |   |   |      |    |
| 2  | 2 | 7 |   |   | 2 |   |   | 2  | 7 |   |   | 2 |   |   | 8 |      |    |
| 2  | 2 | 2 | 5 |   |   | 2 |   |    | 2 | 5 |   |   | 2 |   |   | 11   |    |
| 2  | 2 | 2 | 2 | 3 |   |   | 2 |    |   | 2 | 3 |   |   | 2 |   |      | 14 |
| 2  | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2  | 2 | 1 | 2 | 2 | 2 | 2 | 1 | 17   |    |
|    |   |   |   |   |   |   |   |    |   |   |   |   |   |   |   | (31) |    |













# 9-tone Pseudo-Pelog Cycle, in 15

| $\frac{15}{6}$ | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | $\frac{15}{6}$ |
|----------------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----------------|
|                | 5 |   |   | 1 | 2 |   |   |   | 5 |    |    | 2  |    |    |                |
|                | 5 |   |   | 1 |   |   | 5 |   |   | 2  |    | 2  |    |    |                |
|                |   | 2 | 1 |   |   | 5 |   |   | 2 |    |    | 5  |    |    |                |
|                |   | 2 |   |   | 5 |   |   | 1 | 2 |    |    | 5  |    |    |                |
|                | 2 | 2 |   |   | 5 |   |   | 1 |   | 5  |    |    |    |    |                |
|                | 2 |   | 5 |   |   |   | 2 | 1 |   | 5  |    |    |    |    |                |
|                | 2 |   | 5 |   |   |   | 2 |   | 5 |    |    |    |    | 1  |                |
|                |   | 5 |   |   | 2 |   | 2 |   | 5 |    |    |    |    | 1  |                |
|                |   | 5 |   |   | 2 |   |   | 5 |   | 2  |    |    |    | 1  |                |
| (              | 5 |   |   | 1 | 2 |   |   | 5 |   | 2  |    |    |    | )  |                |

← Same as starting scale

## Sequence of Fourths

|   |   |   |   |   |   |
|---|---|---|---|---|---|
| 7 | 6 | 7 | 7 |   |   |
| 6 | 7 | 7 | 6 |   |   |
| 7 | 7 | 6 | 7 |   |   |
| 7 | 6 | 7 | 7 |   |   |
| 6 | 7 | 7 | 6 |   |   |
| 7 | 7 | 6 | 7 |   |   |
| 7 | 6 | 7 | 7 |   |   |
| 6 | 7 | 7 | 6 |   |   |
| 7 | 7 | 6 | 7 |   |   |
| 7 | 7 | 6 | 7 |   |   |
| ( | 7 | 6 | 7 | 7 | ) |

# Consecutive Pentatonics in an iterated 2,5,2,5 Cycle, in 15

| $\frac{15}{6}$ | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | $\frac{15}{6}$ |
|----------------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----------------|
|                | 1 | 2 |   |   | 5 |   |   | 2 |   | 5  |    |    |    |    |                |
|                | 2 | 1 |   |   | 5 |   |   | 2 |   | 5  |    |    |    |    |                |
|                | 2 |   | 5 |   |   |   | 1 | 2 |   | 5  |    |    |    |    |                |
|                | 2 |   | 5 |   |   |   | 2 | 1 |   | 5  |    |    |    |    |                |
|                | 2 |   | 5 |   |   |   | 2 |   | 5 |    |    |    |    | 1  |                |
|                |   | 1 |   | 5 |   |   | 2 |   | 5 |    |    |    |    | 2  |                |
|                |   |   | 5 |   |   | 1 | 2 |   | 5 |    |    |    |    | 2  |                |
|                |   |   | 5 |   |   | 2 | 1 |   | 5 |    |    |    |    | 2  |                |
|                |   |   | 5 |   |   | 2 |   | 5 |   |    |    | 1  | 2  |    |                |
|                | 1 |   | 5 |   |   | 2 |   | 5 |   |    |    | 2  |    |    |                |
|                |   | 5 |   |   | 1 | 2 |   | 5 |   |    |    | 2  |    |    |                |
|                |   | 5 |   |   | 2 | 1 |   | 5 |   |    |    | 2  |    |    |                |
|                |   | 5 |   |   | 2 |   | 5 |   |   |    | 1  | 2  |    |    |                |
|                |   | 5 |   |   | 2 |   | 5 |   |   |    | 2  |    | 1  |    |                |
|                | 5 |   |   | 1 | 2 |   |   | 5 |   |    | 2  |    |    |    |                |
|                | 5 |   |   | 2 | 1 |   |   | 5 |   |    | 2  |    |    |    |                |
|                | 5 |   |   | 2 |   | 5 |   |   | 1 | 2  |    |    |    |    |                |
|                | 5 |   |   | 2 |   | 5 |   |   | 2 |    | 1  |    |    |    |                |
|                |   | 1 | 2 |   |   | 5 |   |   | 2 |    | 5  |    |    |    |                |
|                |   | 2 | 1 |   |   | 5 |   |   | 2 |    | 5  |    |    |    |                |
|                |   | 2 |   | 5 |   |   | 1 | 2 |   | 5  |    |    |    |    |                |
|                |   | 2 |   | 5 |   |   | 2 | 1 |   | 5  |    |    |    |    |                |
|                | 1 | 2 |   |   | 5 |   |   | 2 |   | 5  |    |    |    |    |                |
|                | 2 | 1 |   |   | 5 |   |   | 2 |   | 5  |    |    |    |    |                |
|                | 2 |   | 5 |   |   | 1 | 2 |   | 5 |    |    |    |    |    |                |
|                | 2 |   | 5 |   |   | 2 | 1 |   | 5 |    |    |    |    |    |                |
| (              | 1 | 2 |   |   | 5 |   |   | 2 |   | 5  |    |    |    | )  |                |

← same as beginning scale

|      |   |   |   |
|------|---|---|---|
| 2    | 5 | 2 | 5 |
| 5    | 2 | 5 | 2 |
| 2    | 5 | 2 | 5 |
| 5    | 2 | 5 | 2 |
| etc. |   |   |   |

# Moments-of-Symmetry based on 9/34 Octave

0 +4 +8 +12 +15+1 +5 +9 +13 +16+2 +6 +10 +14 +17+3 +7 +11 +18 0

|    |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   |      |    |    |    |
|----|---|---|---|----|---|---|---|---|---|---|---|---|---|---|---|------|----|----|----|
| 34 |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   | 1    |    |    |    |
| 9  |   |   |   | 25 |   |   |   |   |   |   |   |   |   |   |   | 2    |    |    |    |
| 9  |   |   |   |    |   |   |   | 7 |   |   |   |   |   |   |   | 3    |    |    |    |
| 7  |   |   |   | 7  |   |   |   | 7 |   |   |   | 4 |   |   |   |      |    |    |    |
| 2  | 7 |   |   | 2  | 7 |   |   | 2 | 7 |   |   | 7 |   |   | 7 |      |    |    |    |
| 2  | 2 | 5 |   |    | 2 | 2 | 5 |   |   | 2 | 2 | 5 |   |   | 2 | 5    |    | 11 |    |
| 2  | 2 | 2 | 3 | 2  | 2 | 2 | 3 | 2 | 2 | 2 | 3 | 2 | 2 | 3 |   |      | 15 |    |    |
| 2  | 2 | 2 | 2 | 1  | 2 | 2 | 2 | 2 | 1 | 2 | 2 | 2 | 2 | 1 | 2 | 2    | 2  | 1  | 19 |
|    |   |   |   |    |   |   |   |   |   |   |   |   |   |   |   | (34) |    |    |    |

## Moments-of-Symmetry based on 4/15 8ve

0 +4 +8 +1 +5 +9 +2 +6 +10 +3 +7 0

|    |   |    |   |   |   |   |   |   |   |      |    |
|----|---|----|---|---|---|---|---|---|---|------|----|
| 15 |   |    |   |   |   |   |   |   |   | 1    |    |
| 4  |   | 11 |   |   |   |   |   |   |   | 2    |    |
| 4  |   | 4  |   | 7 |   |   |   |   |   | 3    |    |
| 4  |   | 4  |   | 4 |   | 3 |   |   |   | 4    |    |
| 1  | 3 | 1  | 3 | 1 | 3 | 3 |   |   |   | 7    |    |
| 1  | 1 | 3  | 1 | 1 | 3 | 1 | 1 | 3 | 1 | 3    | 11 |
|    |   |    |   |   |   |   |   |   |   | (15) |    |

### Allusion to Harmonic Series in 15

|   |   |   |   |    |    |    |
|---|---|---|---|----|----|----|
| 3 | 3 | 3 | 2 | 2  | 2  |    |
| 6 | 7 | 8 | 9 | 10 | 11 | 12 |

### Allusion to Sub-harmonic Series in 15

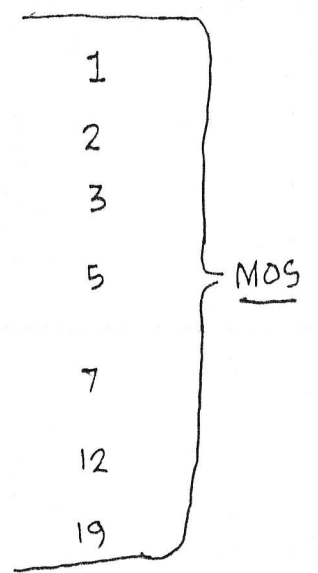
|                |                |                |                |                 |                 |                |
|----------------|----------------|----------------|----------------|-----------------|-----------------|----------------|
| 3              | 3              | 3              | 2              | 2               | 2               |                |
| $\frac{15}{3}$ | $\frac{15}{5}$ | $\frac{15}{7}$ | $\frac{15}{6}$ | $\frac{15}{11}$ | $\frac{15}{10}$ | $\frac{15}{9}$ |

Cycle of 7-tone MOS out of 15. (4/15) is generator.

|    |    |   |   |   |   |   |   |   |   |   |   |    |    |    |                         |    |                |  |  |
|----|----|---|---|---|---|---|---|---|---|---|---|----|----|----|-------------------------|----|----------------|--|--|
|    |    |   |   |   |   |   |   |   |   |   |   |    |    |    | $\frac{15}{6}$          |    |                |  |  |
| 13 | 14 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13                      | 14 | $\frac{15}{6}$ |  |  |
| 1  |    | 3 |   |   | 1 |   | 3 |   |   | 1 |   | 3  |    |    | 3                       |    |                |  |  |
| 3  |    | 3 |   |   | 1 |   | 3 |   |   | 1 |   | 3  |    |    | 1                       |    |                |  |  |
| 3  |    | 1 |   |   | 3 |   | 3 |   |   | 1 |   | 3  |    |    | 1                       |    |                |  |  |
| 3  |    | 1 |   |   | 3 |   | 1 |   |   | 3 |   |    | 3  |    | 1                       |    |                |  |  |
| 3  |    | 1 |   |   | 3 |   | 1 |   |   | 3 |   |    | 1  |    | 3                       |    |                |  |  |
| 3  |    | 3 |   |   | 1 |   | 3 |   |   | 1 |   | 3  |    |    | 1                       |    |                |  |  |
| 3  |    | 1 |   |   | 3 |   | 3 |   |   | 1 |   | 3  |    |    | 1                       |    |                |  |  |
| 3  |    | 1 |   |   | 3 |   | 1 |   |   | 3 |   |    | 1  |    | 3                       |    |                |  |  |
| 1  |    | 3 |   |   | 3 |   | 1 |   |   | 3 |   |    | 1  |    | 3                       |    |                |  |  |
| 1  |    | 3 |   |   | 1 |   | 3 |   |   | 3 |   |    | 1  |    | 3                       |    |                |  |  |
| 1  |    | 3 |   |   | 1 |   | 3 |   |   | 1 |   | 3  |    |    | 3                       |    | 3              |  |  |
|    |    |   |   |   |   |   |   |   |   |   |   |    |    |    | same as beginning scale |    |                |  |  |

7 7 6 7  
 7 6 7 7  
 6 7 7 6  
 7 7 6 7  
 7 6 7 7

| <u>Root</u> |    |           |   |    |           |   |                   |    |    |           |    |    |           |    |    |           |    |                   | <u>Generator</u> |   |    |           |   |    |           |   |                   |    |    |           |    |    |           |    |    |           |    | <u>Octave</u>     |    |   |   |
|-------------|----|-----------|---|----|-----------|---|-------------------|----|----|-----------|----|----|-----------|----|----|-----------|----|-------------------|------------------|---|----|-----------|---|----|-----------|---|-------------------|----|----|-----------|----|----|-----------|----|----|-----------|----|-------------------|----|---|---|
| 0           | 1  | 2         | 3 | 4  | 5         | 6 | 7                 | 8  | 9  | 10        | 11 | 12 | 13        | 14 | 15 | 16        | 17 | 18                | 19               | 0 | 1  | 2         | 3 | 4  | 5         | 6 | 7                 | 8  | 9  | 10        | 11 | 12 | 13        | 14 | 15 | 16        | 17 | 18                | 19 | 0 |   |
| 0           |    |           |   |    |           |   |                   |    |    |           | 1  |    |           |    |    |           |    |                   |                  | 0 | 0  |           |   |    |           |   |                   |    |    |           |    |    |           |    |    |           |    |                   | 0  | 0 |   |
| 0           |    | 2         |   |    |           |   |                   |    |    |           | 1  |    |           |    |    |           |    |                   |                  | 0 | 0  |           | 2 |    |           |   |                   |    |    |           |    |    |           |    |    |           |    |                   | 0  | 0 |   |
| 0           |    | 2         |   | 4  |           |   |                   |    |    |           | 1  |    | 3         |    |    |           |    |                   |                  | 0 | 0  |           | 2 |    | 4         |   |                   |    |    |           |    |    |           |    |    |           |    |                   | 0  | 0 |   |
| 0           |    | 2         |   | 4  |           | 6 |                   |    |    |           | 1  |    | 3         |    | 5  |           |    |                   |                  | 0 | 0  |           | 2 |    | 4         |   | 6                 |    |    |           |    |    |           |    |    |           |    |                   | 0  | 0 |   |
| 0           | 7  |           | 2 | 9  |           | 4 | 11                |    | 6  |           | 1  | 8  |           | 3  | 10 |           | 5  |                   |                  | 0 | 0  | 7         |   | 2  | 9         |   | 4                 | 11 |    | 6         |    | 1  | 8         |    | 3  | 10        |    | 5                 |    | 0 | 0 |
| 0           | 7  | 14        | 2 | 9  | 16        | 4 | 11                | 18 | 6  | 13        | 1  | 8  | 15        | 3  | 10 | 17        | 5  | 12                | 0                | 0 | 7  | 14        | 2 | 9  | 16        | 4 | 11                | 18 | 6  | 13        | 1  | 8  | 15        | 3  | 10 | 17        | 5  | 12                | 0  | 0 |   |
| C           | C# | D $\flat$ | D | D# | E $\flat$ | E | (E#)<br>F $\flat$ | F  | F# | G $\flat$ | G  | G# | A $\flat$ | A  | A# | B $\flat$ | B  | (B#)<br>C $\flat$ | C                | C | C# | D $\flat$ | D | D# | E $\flat$ | E | (E#)<br>F $\flat$ | F  | F# | G $\flat$ | G  | G# | A $\flat$ | A  | A# | B $\flat$ | B  | (B#)<br>C $\flat$ | C  | C |   |
| 0           | 1  | 2         | 3 | 4  | 5         | 6 | 7                 | 8  | 9  | 10        | 11 | 12 | 13        | 14 | 15 | 16        | 17 | 18                | 19               | 0 | 1  | 2         | 3 | 4  | 5         | 6 | 7                 | 8  | 9  | 10        | 11 | 12 | 13        | 14 | 15 | 16        | 17 | 18                | 19 | 0 |   |



Moments of Symmetry (MOS), where the Octave has 19 steps and the Generator has 11 steps

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Ref: [www.anaphoria.com](http://www.anaphoria.com) see wilson, Letter to John Chalmers 26 April, 1975  
 further: The Three Gap Theorem (Steinhaus Conjecture), Tony Van Ravenstiem 1988,  
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