Diagonals 1 thru 79
Of Recurrent Sequences
In Pascals Triangle (Meru)

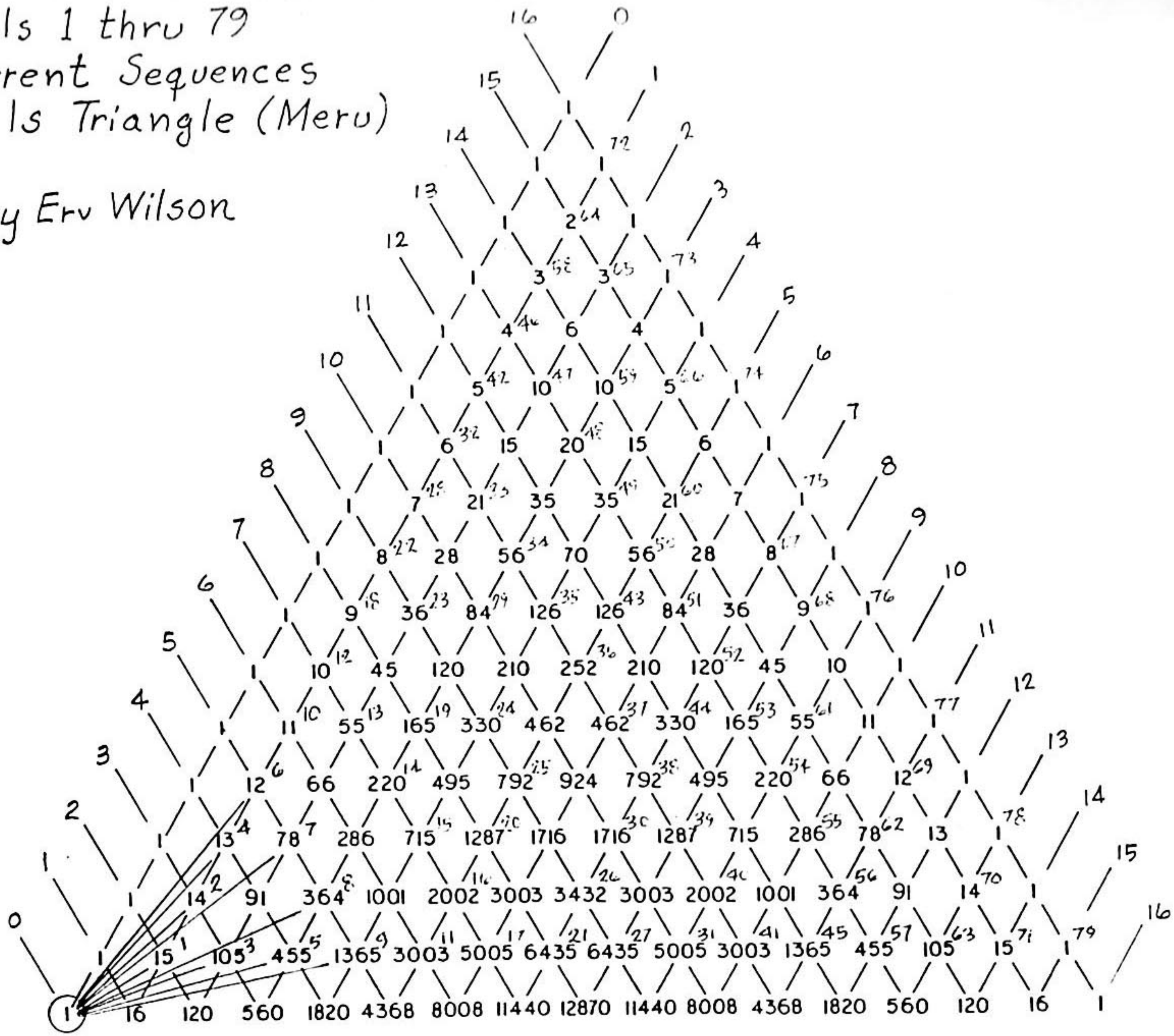


Fig 10

Recurrent Sequences From Enumerated Diagonals in Pascals Triangle (Meru)

Fig 11

1. $H_n = H_{n-2} + H_{n-1}$
2. $H_n = H_{n-3} + H_{n-1}$
3. $H_n = H_{n-3} + H_{n-2}$
4. $H_n = H_{n-4} + H_{n-1}$
5. $H_n = H_{n-4} + H_{n-3}$
6. $H_n = H_{n-5} + H_{n-1}$
7. $H_n = H_{n-5} + H_{n-2}$
8. $H_n = H_{n-5} + H_{n-3}$
9. $H_n = H_{n-5} + H_{n-4}$
10. $H_n = H_{n-6} + H_{n-1}$
11. $H_n = H_{n-6} + H_{n-5}$
12. $H_n = H_{n-7} + H_{n-1}$
13. $H_n = H_{n-7} + H_{n-2}$
14. $H_n = H_{n-7} + H_{n-3}$
15. $H_n = H_{n-7} + H_{n-4}$
16. $H_n = H_{n-7} + H_{n-5}$
17. $H_n = H_{n-7} + H_{n-6}$
18. $H_n = H_{n-8} + H_{n-1}$
19. $H_n = H_{n-8} + H_{n-3}$
20. $H_n = H_{n-8} + H_{n-5}$
21. $H_n = H_{n-8} + H_{n-7}$
22. $H_n = H_{n-9} + H_{n-1}$
23. $H_n = H_{n-9} + H_{n-2}$
24. $H_n = H_{n-9} + H_{n-4}$
25. $H_n = H_{n-9} + H_{n-5}$
26. $H_n = H_{n-9} + H_{n-7}$
27. $H_n = H_{n-9} + H_{n-8}$
28. $H_n = H_{n-10} + H_{n-1}$
29. $H_n = H_{n-10} + H_{n-3}$
30. $H_n = H_{n-10} + H_{n-7}$
31. $H_n = H_{n-10} + H_{n-9}$
32. $H_n = H_{n-11} + H_{n-1}$
33. $H_n = H_{n-11} + H_{n-2}$
34. $H_n = H_{n-11} + H_{n-3}$
35. $H_n = H_{n-11} + H_{n-4}$
36. $H_n = H_{n-11} + H_{n-5}$
37. $H_n = H_{n-11} + H_{n-6}$
38. $H_n = H_{n-11} + H_{n-7}$
39. $H_n = H_{n-11} + H_{n-8}$
40. $H_n = H_{n-11} + H_{n-9}$
41. $H_n = H_{n-11} + H_{n-10}$
42. $H_n = H_{n-12} + H_{n-1}$
43. $H_n = H_{n-12} + H_{n-5}$
44. $H_n = H_{n-12} + H_{n-7}$
45. $H_n = H_{n-12} + H_{n-11}$
46. $H_n = H_{n-13} + H_{n-1}$
47. $H_n = H_{n-13} + H_{n-2}$
48. $H_n = H_{n-13} + H_{n-3}$
49. $H_n = H_{n-13} + H_{n-4}$
50. $H_n = H_{n-13} + H_{n-5}$
51. $H_n = H_{n-13} + H_{n-6}$
52. $H_n = H_{n-13} + H_{n-7}$
53. $H_n = H_{n-13} + H_{n-8}$
54. $H_n = H_{n-13} + H_{n-9}$
55. $H_n = H_{n-13} + H_{n-10}$
56. $H_n = H_{n-13} + H_{n-11}$
57. $H_n = H_{n-13} + H_{n-12}$
58. $H_n = H_{n-14} + H_{n-1}$
59. $H_n = H_{n-14} + H_{n-3}$
60. $H_n = H_{n-14} + H_{n-5}$
61. $H_n = H_{n-14} + H_{n-9}$
62. $H_n = H_{n-14} + H_{n-11}$
63. $H_n = H_{n-14} + H_{n-13}$
64. $H_n = H_{n-15} + H_{n-1}$
65. $H_n = H_{n-15} + H_{n-2}$
66. $H_n = H_{n-15} + H_{n-4}$
67. $H_n = H_{n-15} + H_{n-7}$
68. $H_n = H_{n-15} + H_{n-8}$
69. $H_n = H_{n-15} + H_{n-11}$
70. $H_n = H_{n-15} + H_{n-13}$
71. $H_n = H_{n-15} + H_{n-14}$
72. $H_n = H_{n-16} + H_{n-1}$
73. $H_n = H_{n-16} + H_{n-3}$
74. $H_n = H_{n-16} + H_{n-5}$
75. $H_n = H_{n-16} + H_{n-7}$
76. $H_n = H_{n-16} + H_{n-9}$
77. $H_n = H_{n-16} + H_{n-11}$
78. $H_n = H_{n-16} + H_{n-13}$
79. $H_n = H_{n-16} + H_{n-15}$
80. $H_n = H_{n-17} + H_{n-1}$
81. $H_n = H_{n-17} + H_{n-2}$
82. $H_n = H_{n-17} + H_{n-3}$
83. $H_n = H_{n-17} + H_{n-4}$
84. $H_n = H_{n-17} + H_{n-5}$
85. $H_n = H_{n-17} + H_{n-6}$
86. $H_n = H_{n-17} + H_{n-7}$
87. $H_n = H_{n-17} + H_{n-8}$
88. $H_n = H_{n-17} + H_{n-9}$
89. $H_n = H_{n-17} + H_{n-10}$
90. $H_n = H_{n-17} + H_{n-11}$
91. $H_n = H_{n-17} + H_{n-12}$
92. $H_n = H_{n-17} + H_{n-13}$
93. $H_n = H_{n-17} + H_{n-14}$
94. $H_n = H_{n-17} + H_{n-15}$
95. $H_n = H_{n-17} + H_{n-16}$

Figure 12. Limit (H_n / H_{n-1}) = Generator (G)

	Recurrence	G=	decimal	Log 2
1.	$H_n=H_{n-2}+H_{n-1}$	$(1+G)^{(\frac{1}{2})}$	1.61803398875···	.694241913631···
2.	$H_n=H_{n-3}+H_{n-1}$	$(1+G^2)^{(\frac{1}{3})}$	1.46557123188···	.551463089748···
3.	$H_n=H_{n-3}+H_{n-2}$	$(1+G)^{(\frac{1}{3})}$	1.32471795725···	.405685231382···
4.	$H_n=H_{n-4}+H_{n-1}$	$(1+G^3)^{(\frac{1}{4})}$	1.38027756909···	.464958417209···
5.	$H_n=H_{n-4}+H_{n-3}$	$(1+G)^{(\frac{1}{4})}$	1.22074408461···	.287760787088···
6.	$H_n=H_{n-5}+H_{n-1}$	$(1+G^4)^{(\frac{1}{5})}$	1.32471795724···	.405685231370··
7.	$H_n=H_{n-5}+H_{n-2}$	$(1+G^3)^{(\frac{1}{5})}$	1.23650570339···	.306268894183··
8.	$H_n=H_{n-5}+H_{n-3}$	$(1+G^2)^{(\frac{1}{5})}$	1.19385911132··	.255632592555···
9.	$H_n=H_{n-5}+H_{n-4}$	$(1+G)^{(\frac{1}{5})}$	1.16730397826··	.223180302967···
10.	$H_n=H_{n-6}+H_{n-1}$	$(1+G^5)^{(\frac{1}{6})}$	1.28519903326	.361991800713
11.	$H_n=H_{n-6}+H_{n-5}$	$(1+G)^{(\frac{1}{6})}$	1.13472413840	.182341608058
12.	$H_n=H_{n-7}+H_{n-1}$	$(1+G^6)^{(\frac{1}{7})}$	1.25542287107	.328173397034
13.	$H_n=H_{n-7}+H_{n-2}$	$(1+G^5)^{(\frac{1}{7})}$	1.19071270709	.251825364457
14.	$H_n=H_{n-7}+H_{n-3}$	$(1+G^4)^{(\frac{1}{7})}$	1.15855189310	.212322665905
15.	$H_n=H_{n-7}+H_{n-4}$	$(1+G^3)^{(\frac{1}{7})}$	1.13818186107	.186731092883
16.	$H_n=H_{n-7}+H_{n-5}$	$(1+G^2)^{(\frac{1}{7})}$	1.12373282100	.168299060792
17.	$H_n=H_{n-7}+H_{n-6}$	$(1+G)^{(\frac{1}{7})}$	1.11277568428	.154162800414
18.	$H_n=H_{n-8}+H_{n-1}$	$(1+G^7)^{(\frac{1}{8})}$	1.23205463142	.301066229029
19.	$H_n=H_{n-8}+H_{n-3}$	$(1+G^5)^{(\frac{1}{8})}$	1.14613894966	.196781956689
20.	$H_n=H_{n-8}+H_{n-5}$	$(1+G^3)^{(1/8)}$	1.11479780585	.156782068038
21.	$H_n=H_{n-8}+H_{n-7}$	$(1+G)^{(1/8)}$	1.09698155780	.133539271690
22.	$H_n=H_{n-9}+H_{n-1}$	$(1+G^8)^{(1/9)}$	1.21314972305	.278757614244
23.	$H_n=H_{n-9}+H_{n-2}$	$(1+G^7)^{(1/9)}$	1.16185205479	.216426373898
24.	$H_n=H_{n-9}+H_{n-4}$	$(1+G^5)^{(1/9)}$	1.11925266658	.162535755416
34 Et 5/3 25.	$H_n=H_{n-9}+H_{n-5}$	$(1+G^4)^{(\frac{1}{9})}$	1.10735199067	.147113880183
26.	$H_n=H_{n-9}+H_{n-7}$	$(1+G^2)^{(\frac{1}{9})}$	1.09102447048	.125683460089
27.	$H_n=H_{n-9}+H_{n-8}$	$(1+G)^{(\frac{1}{9})}$	1.08507024549	.117788443167
28.	$H_n=H_{n-10}+H_{n-1}$	$(1+G^9)^{(\frac{1}{10})}$	1.19749143357	.278757614233
29.	$H_n=H_{n-10}+H_{n-3}$	$(1+G^7)^{(\frac{1}{10})}$	1.13588834613	.183821029912
30.	$H_n=H_{n-10}+H_{n-7}$	$(1+G^3)^{(\frac{1}{10})}$	1.08593791264	.118941620926
31.	$H_n=H_{n-10}+H_{n-9}$	$(1+G)^{(\frac{1}{10})}$	1.07576606609	.105364384459

.260015335

	$G =$		
32. $H_n = H_{n-11} + H_{n-1}$	$(1+G^{10})^{(\frac{1}{11})}$	1.18427632233	.244005738352
33. $H_n = H_{n-11} + H_{n-2}$	$(1+G^{9})^{(\frac{1}{11})}$	1.14168557901	.191165386200
34. $H_n = H_{n-11} + H_{n-3}$	$(1+G^{8})^{(\frac{1}{11})}$	1.11984287665	.163296324265
35. $H_n = H_{n-11} + H_{n-4}$	$(1+G^{7})^{(\frac{1}{11})}$	1.10572820369	.144996803857
36. $H_n = H_{n-11} + H_{n-5}$	$(1+G^{6})^{(\frac{1}{11})}$	1.09556688270	.131677561365
37. $H_n = H_{n-11} + H_{n-6}$	$(1+G^{5})^{(\frac{1}{11})}$	1.08777020052	.121373808806
38. $H_n = H_{n-11} + H_{n-7}$	$(1+G^{4})^{(\frac{1}{11})}$	1.08152908669	.113072465724
39. $H_n = H_{n-11} + H_{n-8}$	$(1+G^{3})^{(\frac{1}{11})}$	1.07637950368	.106186824686
40. $H_n = H_{n-11} + H_{n-9}$	$(1+G^{2})^{(\frac{1}{11})}$	1.07203255224	.100348713857
41. $H_n = H_{n-11} + H_{n-10}$	$(1+G)^{(\frac{1}{11})}$	1.06829718892	.0953130452823
42. $H_n = H_{n-12} + H_{n-1}$	$(1+G^{11})^{(\frac{1}{12})}$	1.17295075001	.230142438595
43. $H_n = H_{n-12} + H_{n-5}$	$(1+G^{7})^{(\frac{1}{12})}$	1.09079559659	.125380781392
44. $H_n = H_{n-12} + H_{n-7}$	$(1+G^{5})^{(\frac{1}{12})}$	1.07766033457	.107902529807
45. $H_n = H_{n-12} + H_{n-11}$	$(1+G)^{(\frac{1}{12})}$	1.06216916786	.0870135572876
46. $H_n = H_{n-13} + H_{n-1}$	$(1+G^{12})^{(\frac{1}{13})}$	1.16311979065	.217999688795
47. $H_n = H_{n-13} + H_{n-2}$	$(1+G^{11})^{(\frac{1}{13})}$	1.12665248354	.172042584199
48. $H_n = H_{n-13} + H_{n-3}$	$(1+G^{10})^{(\frac{1}{13})}$	1.10776045680	.147645945332
49. $H_n = H_{n-13} + H_{n-4}$	$(1+G^{9})^{(\frac{1}{13})}$	1.09547157459	.131552049613
50. $H_n = H_{n-13} + H_{n-5}$	$(1+G^{8})^{(\frac{1}{13})}$	1.08658059655	.1197951189642
51. $H_n = H_{n-13} + H_{n-6}$	$(1+G^{7})^{(\frac{1}{13})}$	1.07973135192	.110672399921
52. $H_n = H_{n-13} + H_{n-7}$	$(1+G^{6})^{(\frac{1}{13})}$	1.07423032258	.103303350511
53. $H_n = H_{n-13} + H_{n-8}$	$(1+G^{5})^{(\frac{1}{13})}$	1.06967836633	.0971770685379
54. $H_n = H_{n-13} + H_{n-9}$	$(1+G^{4})^{(\frac{1}{13})}$	1.06582624405	.0919722624125
55. $H_n = H_{n-13} + H_{n-10}$	$(1+G^{3})^{(\frac{1}{13})}$	1.06250870523	.0874746614296
56. $H_n = H_{n-13} + H_{n-11}$	$(1+G^{2})^{(\frac{1}{13})}$	1.05961102145	.0835347549626
57. $H_n = H_{n-13} + H_{n-12}$	$(1+G)^{(\frac{1}{13})}$	1.05705057522	.0800444049832
58. $H_n = H_{n-14} + H_{n-1}$	$(1+G^{13})^{(\frac{1}{14})}$	1.15449355069	.207260113853
59. $H_n = H_{n-14} + H_{n-3}$	$(1+G^{11})^{(\frac{1}{14})}$	1.10274870438	.141104065408
60. $H_n = H_{n-14} + H_{n-5}$	$(1+G^{9})^{(\frac{1}{14})}$	1.08282308428	.114797549242
61. $H_n = H_{n-14} + H_{n-9}$	$(1+G^{5})^{(\frac{1}{14})}$	1.06320772373	.0884234903010
62. $H_n = H_{n-14} + H_{n-11}$	$(1+G^{3})^{(\frac{1}{14})}$	1.05731321162	.0804028146723
63. $H_n = H_{n-14} + H_{n-13}$	$(1+G)^{(\frac{1}{14})}$	1.05271192015	.0741093192475

			$(H_n/H_{n-1}) =$ $\underline{G =}$	
	64. $H_n = H_{n-15} + H_{n-1}$	$(1+G^{14})^{(\frac{1}{15})}$	1.14685404218	.197681794124
	65. $H_n = H_{n-15} + H_{n-2}$	$(1+G^{13})^{(\frac{1}{15})}$	1.11493572263	.156960539459
	66. $H_n = H_{n-15} + H_{n-4}$	$(1+G^{11})^{(\frac{1}{15})}$	1.08736583498	.120837404502
	67. $H_n = H_{n-15} + H_{n-7}$	$(1+G^{8})^{(\frac{1}{15})}$	1.068397797799	.0954491506976
	68. $H_n = H_{n-15} + H_{n-8}$	$(1+G^{7})^{(\frac{1}{15})}$	1.06430970756	.0899180272907
	69. $H_n = H_{n-15} + H_{n-11}$	$(1+G^{4})^{(\frac{1}{15})}$	1.05523431651	.0775633873042
	70. $H_n = H_{n-15} + H_{n-13}$	$(1+G^{2})^{(\frac{1}{15})}$	1.05084892116	.0715552702892
	71. $H_n = H_{n-15} + H_{n-14}$	$(1+G)^{(\frac{1}{15})}$	1.04898493476	.0689939584652
	72. $H_n = H_{n-16} + H_{n-1}$	$(1+G^{15})^{(\frac{1}{16})}$	1.14003393745	.189076772339
	73. $H_n = H_{n-16} + H_{n-3}$	$(1+G^{13})^{(\frac{1}{16})}$	1.09422958583	.129915469015
	74. $H_n = H_{n-16} + H_{n-5}$	$(1+G^{11})^{(\frac{1}{16})}$	1.07639339947	.106205449397
	75. $H_n = H_{n-16} + H_{n-7}$	$(1+G^{9})^{(\frac{1}{16})}$	1.06589026920	.0920589238106
	76. $H_n = H_{n-16} + H_{n-9}$	$(1+G^{7})^{(\frac{1}{16})}$	1.05869316086	.0822845161959
	77. $H_n = H_{n-16} + H_{n-11}$	$(1+G^{5})^{(\frac{1}{16})}$	1.05334164715	.0749734446319
	78. $H_n = H_{n-16} + H_{n-13}$	$(1+G^{3})^{(\frac{1}{16})}$	1.04915147912	.0692229928799
	79. $H_n = H_{n-16} + H_{n-15}$	$(1+G)^{(\frac{1}{16})}$	1.04575102416	.0645394108911
	80. $H_n = H_{n-17} + H_{n-1}$	$(1+G^{16})^{(\frac{1}{17})}$	1.13390249031	.181296581378
4:11:18	81. $H_n = H_{n-17} + H_{n-2}$	$(1+G^{15})^{(\frac{1}{17})}$	1.10550108570	.144700442009
	82. $H_n = H_{n-17} + H_{n-3}$	$(1+G^{14})^{(\frac{1}{17})}$	1.09057033955	.125082823851
	83. $H_n = H_{n-17} + H_{n-4}$	$(1+G^{13})^{(\frac{1}{17})}$	1.08076298477	.112050169522
	84. $H_n = H_{n-17} + H_{n-5}$	$(1+G^{12})^{(\frac{1}{17})}$	1.07361455787	.102476139267
	85. $H_n = H_{n-17} + H_{n-6}$	$(1+G^{11})^{(\frac{1}{17})}$	1.06807451013	.0950122946336
	86. $H_n = H_{n-17} + H_{n-7}$	$(1+G^{10})^{(\frac{1}{17})}$	1.06360241213	.0889589541811
	87. $H_n = H_{n-17} + H_{n-8}$	$(1+G^{9})^{(\frac{1}{17})}$	1.05988567187	.0839086520320
	88. $H_n = H_{n-17} + H_{n-9}$	$(1+G^{8})^{(\frac{1}{17})}$	1.05672824728	.0796044148392
	89. $H_n = H_{n-17} + H_{n-10}$	$(1+G^{7})^{(\frac{1}{17})}$	1.05399965816	.0758743990709
	90. $H_n = H_{n-17} + H_{n-11}$	$(1+G^{6})^{(\frac{1}{17})}$	1.05160900235	.0725983973826
	91. $H_n = H_{n-17} + H_{n-12}$	$(1+G^{5})^{(\frac{1}{17})}$	1.04949061371	.0696892637100
	92. $H_n = H_{n-17} + H_{n-13}$	$(1+G^{4})^{(\frac{1}{17})}$	1.04759563668	.0670819558728
	93. $H_n = H_{n-17} + H_{n-14}$	$(1+G^{3})^{(\frac{1}{17})}$	1.04588682209	.0647267425564
	94. $H_n = H_{n-17} + H_{n-15}$	$(1+G^{2})^{(\frac{1}{17})}$	1.04433517699	.0625848159064
	95. $H_n = H_{n-17} + H_{n-16}$	$(1+G)^{(\frac{1}{17})}$	1.04291773230	.0606253593114

	$G =$			
96. $H_n = H_{n-18} + H_{n-1}$	$(1+G^{17})^{(\frac{1}{18})}$	1.12835593967	.17422237412	
97. $H_n = H_{n-18} + H_{n-5}$	$(1+G^{13})^{(\frac{1}{18})}$	1.07107250654	.0990561470209	
98. $H_n = H_{n-18} + H_{n-7}$	$(1+G^{11})^{(\frac{1}{18})}$	1.06150446026	.0861104332136	
99. $H_n = H_{n-18} + H_{n-11}$	$(1+G^{7})^{(\frac{1}{18})}$	1.05001509362	.0704100663049	
100. $H_n = H_{n-18} + H_{n-13}$	$(1+G^{5})^{(\frac{1}{18})}$	1.04616271563	.0651072595922	
101. $H_n = H_{n-18} + H_{n-17}$	$(1+G)^{(\frac{1}{18})}$	1.04041494778	.0571590319340	
102. $H_n = H_{n-19} + H_{n-1}$	$(1+G^{18})^{(\frac{1}{19})}$	1.12331080622	.167757158864	
103. $H_n = H_{n-19} + H_{n-2}$	$(1+G^{17})^{(\frac{1}{19})}$	1.09771228418	.134499966383	
104. $H_n = H_{n-19} + H_{n-3}$	$(1+G^{16})^{(\frac{1}{19})}$	1.08418008378	.116604410196	
105. $H_n = H_{n-19} + H_{n-4}$	$(1+G^{15})^{(\frac{1}{19})}$	1.07525800225	.104682868101	
106. $H_n = H_{n-19} + H_{n-5}$	$(1+G^{14})^{(\frac{1}{19})}$	1.06873610454	.0959056625327	
107. $H_n = H_{n-19} + H_{n-6}$	$(1+G^{13})^{(\frac{1}{19})}$	1.06366974044	.0890502769759	
108. $H_n = H_{n-19} + H_{n-7}$	$(1+G^{12})^{(\frac{1}{19})}$	1.05957187998	.0834814615875	
109. $H_n = H_{n-19} + H_{n-8}$	$(1+G^{11})^{(\frac{1}{19})}$	1.05616028916	.0788288032831	
110. $H_n = H_{n-19} + H_{n-9}$	$(1+G^{10})^{(\frac{1}{19})}$	1.05325767469	.0748584283111	
111. $H_n = H_{n-19} + H_{n-10}$	$(1+G^{9})^{(\frac{1}{19})}$	1.05074586261	.0714137757821	4 !
112. $H_n = H_{n-19} + H_{n-11}$	$(1+G^{8})^{(\frac{1}{19})}$	1.04854241545	.0683852222563	
113. $H_n = H_{n-19} + H_{n-12}$	$(1+G^{7})^{(\frac{1}{19})}$	1.04658770997	.0656932226651	
114. $H_n = H_{n-19} + H_{n-13}$	$(1+G^{6})^{(\frac{1}{19})}$	1.04483733715	.0632783574704	
115. $H_n = H_{n-19} + H_{n-14}$	$(1+G^{5})^{(\frac{1}{19})}$	1.04325740307	.0610951581613	
116. $H_n = H_{n-19} + H_{n-15}$	$(1+G^{4})^{(\frac{1}{19})}$	1.04182150095	.0591081166242	
117. $H_n = H_{n-19} + H_{n-16}$	$(1+G^{3})^{(\frac{1}{19})}$	1.04050869162	.0572890163032	
118. $H_n = H_{n-19} + H_{n-17}$	$(1+G^{2})^{(\frac{1}{19})}$	1.03930211633	.0556150944483	
119. $H_n = H_{n-19} + H_{n-18}$	$(1+G)^{(\frac{1}{19})}$	1.03818801944	.0540677444179	
120. $H_n = H_{n-20} + H_{n-1}$	$(1+G^{19})^{(\frac{1}{20})}$	1.11869910802	.161822052632	
121. $H_n = H_{n-20} + H_{n-3}$	$(1+G^{17})^{(\frac{1}{20})}$	1.08136930508	.112859310878	
122. $H_n = H_{n-20} + H_{n-7}$	$(1+G^{13})^{(\frac{1}{20})}$	1.05778435249	.0810455392627	
123. $H_n = H_{n-20} + H_{n-9}$	$(1+G^{11})^{(\frac{1}{20})}$	1.05171471628	.0727434182952	
124. $H_n = H_{n-20} + H_{n-11}$	$(1+G^{9})^{(\frac{1}{20})}$	1.04717641889	.0665045150644	
125. $H_n = H_{n-20} + H_{n-13}$	$(1+G^{7})^{(\frac{1}{20})}$	1.04360670427	.0615781173648	
126. $H_n = H_{n-20} + H_{n-17}$	$(1+G^{3})^{(\frac{1}{20})}$	1.03826715619	.0541777108629	
127. $H_n = H_{n-20} + H_{n-19}$	$(1+G)^{(\frac{1}{20})}$	1.03619371713	.0512937410720	

dated 23, July 97, Erv Wilson

		$G=$			
128.	$H_n=H_{n-21}+H_{n-1}$	$(1+G^{20})^{(\frac{1}{21})}$	1.11446487992	.156351153733	
129.	$H_n=H_{n-21}+H_{n-2}$	$(1+G^{19})^{(\frac{1}{21})}$	1.09115426488	.125855080987	
130.	$H_n=H_{n-21}+H_{n-4}$	$(1+G^{17})^{(\frac{1}{21})}$	1.07058312813	.0983968217717	
131.	$H_n=H_{n-21}+H_{n-5}$	$(1+G^{16})^{(\frac{1}{21})}$	1.06458163720	.0902865867724	
132.	$H_n=H_{n-21}+H_{n-8}$	$(1+G^{13})^{(\frac{1}{21})}$	1.05296889721	.0744628224001	
133.	$H_n=H_{n-21}+H_{n-10}$	$(1+G^{11})^{(\frac{1}{21})}$	1.04795064911	.0675707779816	74
134.	$H_n=H_{n-21}+H_{n-11}$	$(1+G^{10})^{(\frac{1}{21})}$	1.04590489630	.0647516738848	
135.	$H_n=H_{n-21}+H_{n-13}$	$(1+G^{8})^{(\frac{1}{21})}$	1.04246006703	.0599921201676	50
136.	$H_n=H_{n-21}+H_{n-16}$	$(1+G^{5})^{(\frac{1}{21})}$	1.03842717347	.0544000412593	
137.	$H_n=H_{n-21}+H_{n-17}$	$(1+G^{4})^{(\frac{1}{21})}$	1.03730134918	.0528350762250	
138.	$H_n=H_{n-21}+H_{n-19}$	$(1+G^{2})^{(\frac{1}{21})}$	1.03529605930	.0500433882143	20
139.	$H_n=H_{n-21}+H_{n-20}$	$(1+G)^{(\frac{1}{21})}$	1.03439739613	.0487905485950	
140.	$H_n=H_{n-22}+H_{n-1}$	$(1+G^{21})^{(\frac{1}{22})}$	1.11056159809	.151289415212	
141.	$H_n=H_{n-22}+H_{n-3}$	$(1+G^{19})^{(\frac{1}{22})}$	1.07636568450	.106168302417	
142.	$H_n=H_{n-22}+H_{n-5}$	$(1+G^{17})^{(\frac{1}{22})}$	1.06272406461	.0877670509648	
143.	$H_n=H_{n-22}+H_{n-7}$	$(1+G^{15})^{(\frac{1}{22})}$	1.05457914241	.0766673683209	
144.	$H_n=H_{n-22}+H_{n-9}$	$(1+G^{13})^{(\frac{1}{22})}$	1.04894204264	.0689349666609	29
145.	$H_n=H_{n-22}+H_{n-13}$	$(1+G^{9})^{(\frac{1}{22})}$	1.04138831772	.0585081277982	
146.	$H_n=H_{n-22}+H_{n-15}$	$(1+G^{7})^{(\frac{1}{22})}$	1.03867167386	.0547396875907	
147.	$H_n=H_{n-22}+H_{n-17}$	$(1+G^{5})^{(\frac{1}{22})}$	1.03639729664	.0515771574802	
148.	$H_n=H_{n-22}+H_{n-19}$	$(1+G^{3})^{(\frac{1}{22})}$	1.03445529581	.0488713001938	
149.	$H_n=H_{n-22}+H_{n-21}$	$(1+G)^{(\frac{1}{22})}$	1.03277096644	.0465203488621	43
150.	$H_n=H_{n-23}+H_{n-1}$	$(1+G^{22})^{(\frac{1}{23})}$	1.10695024499	.146590377567	
151.	$H_n=H_{n-23}+H_{n-2}$	$(1+G^{21})^{\frac{1}{23}}$	1.08554363709	.118417721115	
152.	$H_n=H_{n-23}+H_{n-3}$	$(1+G^{20})^{(\frac{1}{23})}$	1.07412658867	.103164028784	
153.	$H_n=H_{n-23}+H_{n-4}$	$(1+G^{19})^{(\frac{1}{23})}$	1.06655341115	.0929562151597	
154.	$H_n=H_{n-23}+H_{n-5}$	$(1+G^{18})^{(\frac{1}{23})}$	1.06099159767	.0854132311370	
155.	$H_n=H_{n-23}+H_{n-6}$	$(1+G^{17})^{(\frac{1}{23})}$	1.05665444367	.0795036511652	
156.	$H_n=H_{n-23}+H_{n-7}$	$(1+G^{16})^{(\frac{1}{23})}$	1.05313493325	.0746902939697	
157.	$H_n=H_{n-23}+H_{n-8}$	$(1+G^{15})^{(\frac{1}{23})}$	1.05019649883	.0706592910959	
158.	$H_n=H_{n-23}+H_{n-9}$	$(1+G^{14})^{(\frac{1}{23})}$	1.04769014601	.0672121034098	
159.	$H_n=H_{n-23}+H_{n-10}$	$(1+G^{13})^{(\frac{1}{23})}$	1.04551633144	.0642155976554	

		$G=$		
160.	$H_n = H_{n-23} + H_{n-11}$	$(1+G^{12})^{(\frac{1}{23})}$	1.04360546721	.0615764072367
161.	$H_n = H_{n-23} + H_{n-12}$	$(1+G^{11})^{(\frac{1}{23})}$	1.04190712585	.0592266835211
162.	$H_n = H_{n-23} + H_{n-13}$	$(1+G^{10})^{(\frac{1}{23})}$	1.04038368022	.0571156740107
163.	$H_n = H_{n-23} + H_{n-14}$	$(1+G^{9})^{(\frac{1}{23})}$	1.03900636449	.0552044915761
164.	$H_n = H_{n-23} + H_{n-15}$	$(1+G^{8})^{(\frac{1}{23})}$	1.03775273217	.0534627302387
165.	$H_n = H_{n-23} + H_{n-16}$	$(1+G^{7})^{(\frac{1}{23})}$	1.03660495829	.0518661995522
166.	$H_n = H_{n-23} + H_{n-17}$	$(1+G^{6})^{(\frac{1}{23})}$	1.03554867151	.0503953628254
167.	$H_n = H_{n-23} + H_{n-18}$	$(1+G^{5})^{(\frac{1}{23})}$	1.03457213036	.0490342333903
168.	$H_n = H_{n-23} + H_{n-19}$	$(1+G^{4})^{(\frac{1}{23})}$	1.03366562916	.0477695771741
169.	$H_n = H_{n-23} + H_{n-20}$	$(1+G^{3})^{(\frac{1}{23})}$	1.03282106126	.0465903254572
170.	$H_n = H_{n-23} + H_{n-21}$	$(1+G^{2})^{(\frac{1}{23})}$	1.03203159238	.0454871349785
171.	$H_n = H_{n-23} + H_{n-22}$	$(1+G)^{(\frac{1}{23})}$	1.03129141248	.0444520533026
172.	$H_n = H_{n-24} + H_{n-1}$	$(1+G^{23})^{(\frac{1}{24})}$	1.10359783531	.142214531983
173.	$H_n = H_{n-24} + H_{n-5}$	$(1+G^{19})^{(\frac{1}{24})}$	1.05937114612	.0832081198868
174.	$H_n = H_{n-24} + H_{n-7}$	$(1+G^{17})^{(\frac{1}{24})}$	1.05178181615	.0728354599489
175.	$H_n = H_{n-24} + H_{n-11}$	$(1+G^{13})^{(\frac{1}{24})}$	1.04256118015	.0601320471800
176.	$H_n = H_{n-24} + H_{n-13}$	$(1+G^{11})^{(\frac{1}{24})}$	1.03943946852	.0558057456818
177.	$H_n = H_{n-24} + H_{n-17}$	$(1+G^{7})^{(\frac{1}{24})}$	1.03475002543	.0492822840239
178.	$H_n = H_{n-24} + H_{n-19}$	$(1+G^{5})^{(\frac{1}{24})}$	1.03292206396	.0467314040770
179.	$H_n = H_{n-24} + H_{n-23}$	$(1+G)^{(\frac{1}{24})}$	1.02993969667	.0425598695813
180.	$H_n = H_{n-25} + H_{n-1}$	$(1+G^{24})^{(\frac{1}{25})}$	1.10047627900	.138128047966
181.	$H_n = H_{n-25} + H_{n-2}$	$(1+G^{23})^{(\frac{1}{25})}$	1.08067967600	.1119389577550
182.	$H_n = H_{n-25} + H_{n-3}$	$(1+G^{22})^{(\frac{1}{25})}$	1.07008302693	.0977227385826
183.	$H_n = H_{n-25} + H_{n-4}$	$(1+G^{21})^{(\frac{1}{25})}$	1.06303651145	.0881911490639
184.	$H_n = H_{n-25} + H_{n-6}$	$(1+G^{19})^{(\frac{1}{25})}$	1.05380162239	.0756033059401
185.	$H_n = H_{n-25} + H_{n-7}$	$(1+G^{18})^{(\frac{1}{25})}$	1.05051078861	.0710909783786
186.	$H_n = H_{n-25} + H_{n-8}$	$(1+G^{17})^{(\frac{1}{25})}$	1.04775999937	.0673082899941
187.	$H_n = H_{n-25} + H_{n-9}$	$(1+G^{16})^{(\frac{1}{25})}$	1.04541121213	.0640705375284
188.	$H_n = H_{n-25} + H_{n-11}$	$(1+G^{14})^{(\frac{1}{25})}$	1.04157811174	.0587710363966
189.	$H_n = H_{n-25} + H_{n-12}$	$(1+G^{13})^{(\frac{1}{25})}$	1.03998236582	.0565590659051
190.	$H_n = H_{n-25} + H_{n-13}$	$(1+G^{12})^{(\frac{1}{25})}$	1.03854989695	.0545705318812
191.	$H_n = H_{n-25} + H_{n-14}$	$(1+G^{11})^{(\frac{1}{25})}$	1.03725394604	.0527691456854

192. $H_n = H_{n-25} + H_{n-16}$ $\underline{G=}$ $(1+G^9)^{(\frac{1}{25})}$ 1.03499231367 .0496200536461

193.

work in Progress E.W. 28 July 1997

$$G = (1+G^2)^{\left(\frac{1}{3}\right)} = \underline{1.465571231 87}\cdots$$

28 Jul 97 E.W.
P. 26

$$\mathrm{Log}_2 = .551463089738\cdots$$

<u>1/N Pattern</u>

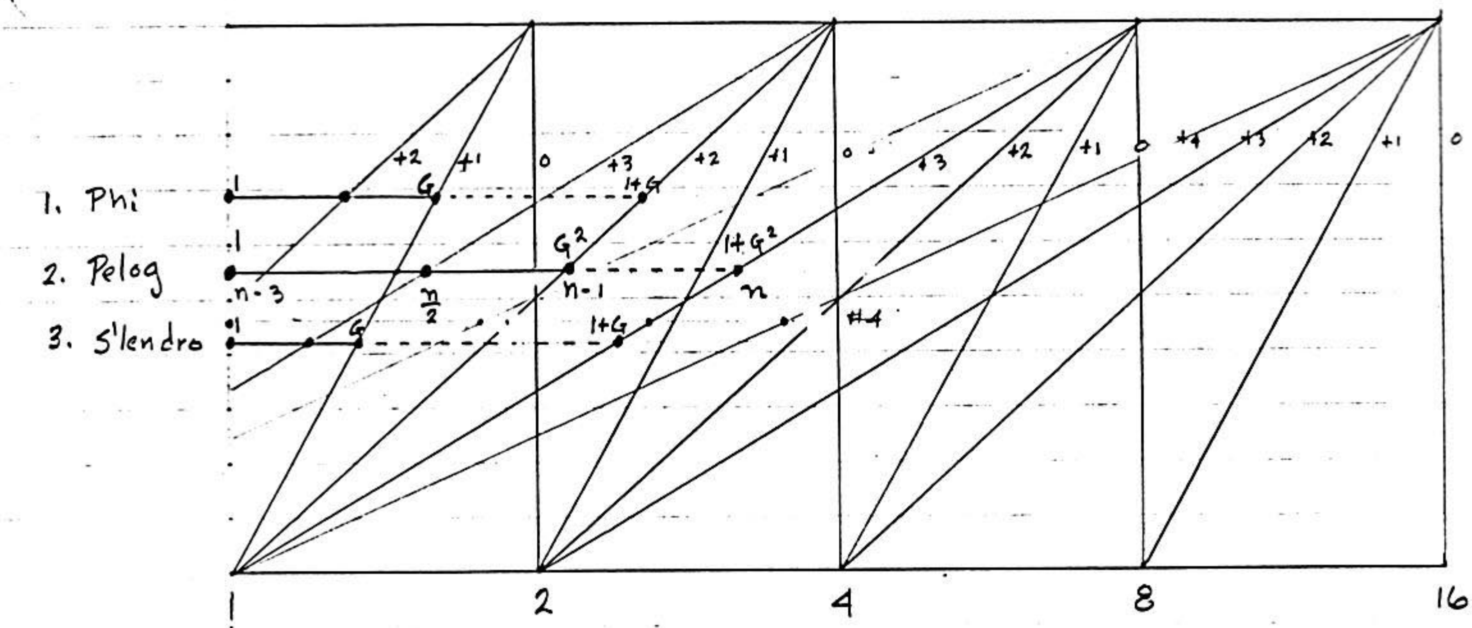
		.551...	0/1
←	1	.813	
→	1	.229	
←	4	.357	
→	2	.794	
←	1	.258	
→	3	.865	
←	1	.155	
	6	.423	
	2	.361	
	2	.765	

<u>Zig-Zag Pattern</u>

1/1 → 1/2 → 2/3 → 3/5 → 4/7 → 5/9 → 6/11 → 11/20 → 16/29 ← → 27/49 — 43/78 — 59/107 — 75/136 ← → 134/243 — 6 places

This is Meta-Pélog
Like "12:19:26" proportion
See; <u>The Scales of Mt Meru</u>
1993 by Erv Wilson

Diagram for Meta-Pelog $G = (1 + G^2)^{(\frac{1}{3})}$



Like "12:19:26" proportion

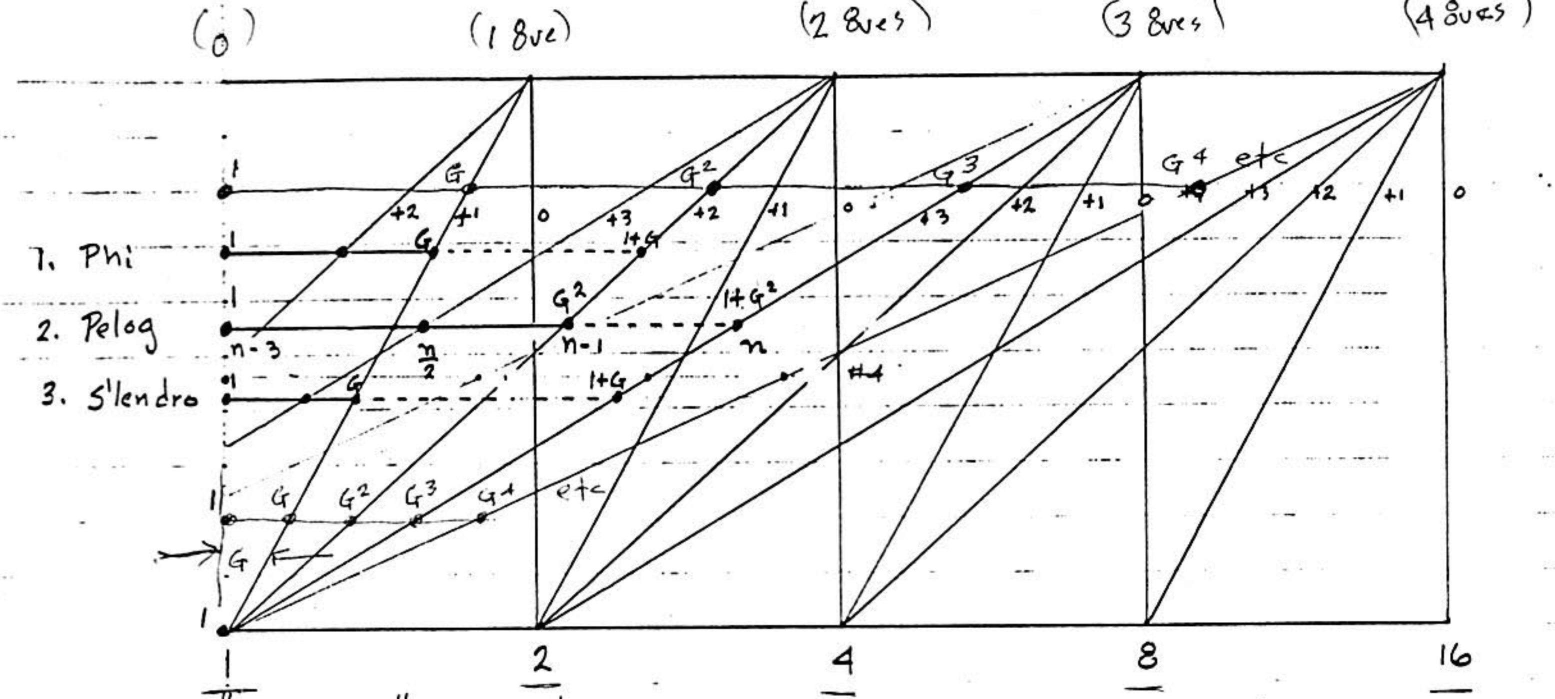
12:19:26

#4 5:9:13:(18)

Dear Warren Burt, Aug 1, 1997

Diagram for Meta-Pelog $G=(1+G^2)^{(\frac{1}{3})}$

and Phi; $G=(1+G)^{(\frac{1}{2})}$; and Meta-Slendro, $G=(1+G)^{(\frac{1}{3})}$



Like "12:19:26" proportion 12:19:26

#4 5:9:13:(18)

Ultimately – the respective recurrent sequences taken from the sums-of-the-diagonals thru Pascals Triangle (Meru Prāstara) converge upon a limit-chain of logarithmically equal intervals, designated here by generator (G). Fig 12 shows a sample ~~att~~ of the variability in magnitude of G. A continuum of the G-chain can be mapped to a straight-line pattern as shown. It is notable that discreet points, Φ-like in derivation, ~~are~~ along the continuum, are imbued with Fibonacci Triplets $[1, G, (1+G)]$, $[1, G^2, (1+G^2)]$ which the ear can perceive. As the diagonals are taken from larger and larger triangles G gets smaller and smaller. And as the triangle gets endlessly large the chain-of-G ~~can~~ reduc endlessly toward a point. G in a sense then is the meta-Phi (Continuum, which in the process of expansion produces a Chain-of-G whose imbedded Fibonacci triplets undulate dramatically between very simple and very complex Meta-Phi signatures. This shows up in the wave-form display. Great great stuff!

Regards, Erv Wilson

.414213562374 Sequence

 Dec 22, 1996

1/1

1/2

1/3

2/5

3/7

5/12

7/17

12/29

17/41

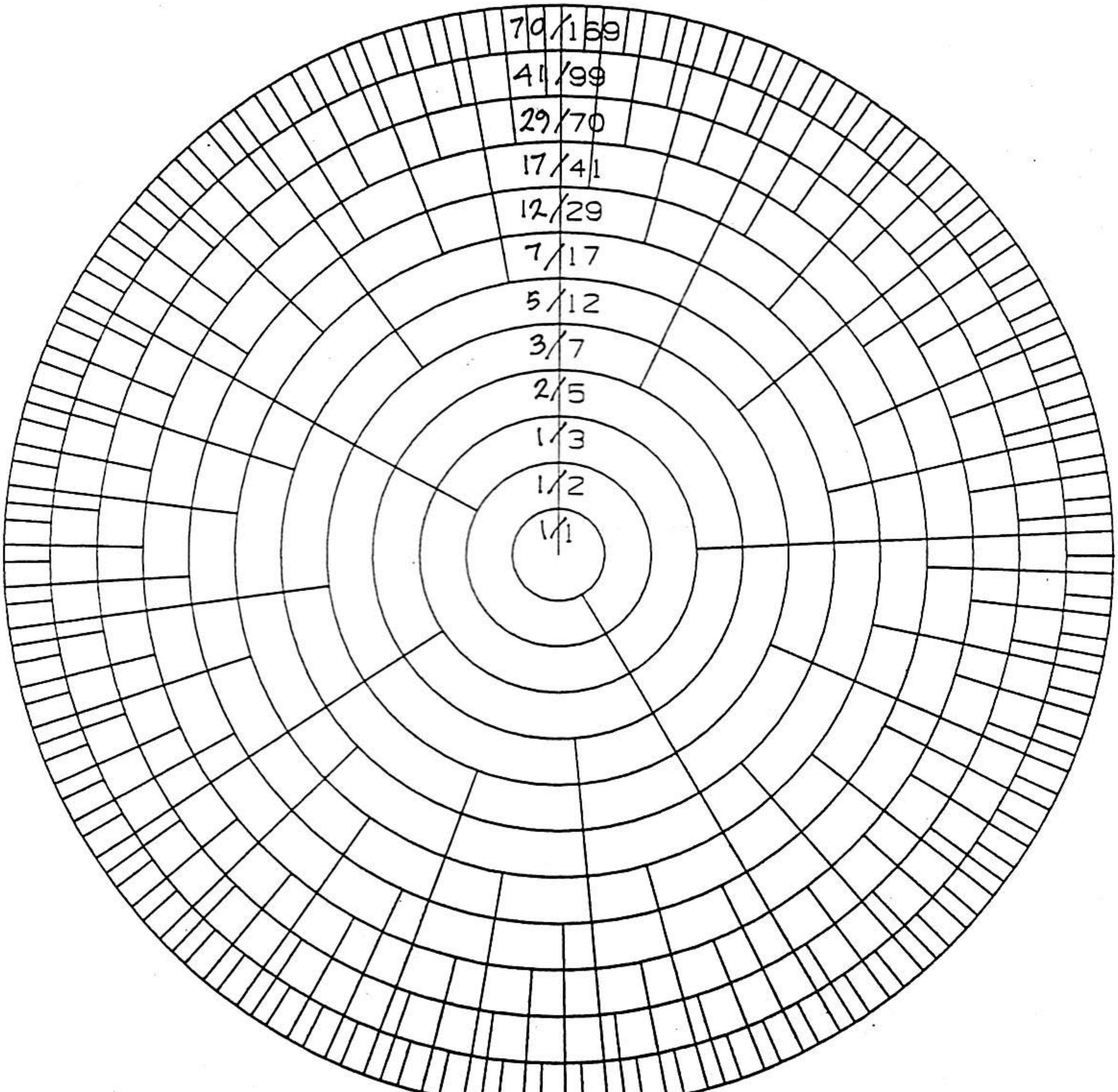
29/70

41/99

70/169

99/239

This progression was my answer to Yasser, at about 1950!

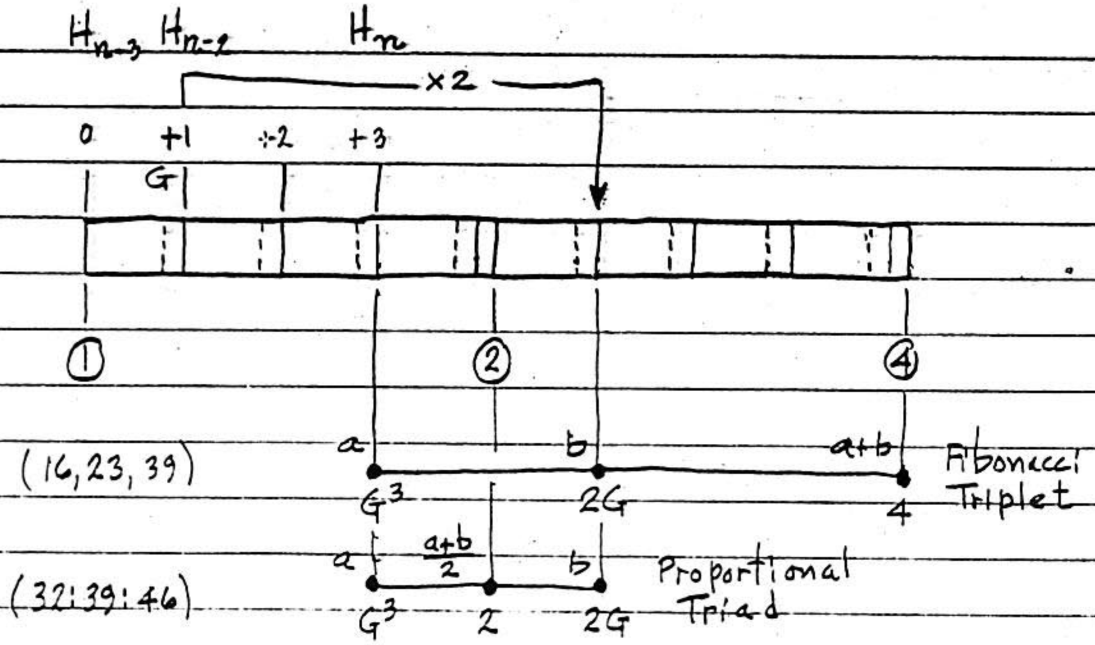


2-ZIG/2-ZAG

.414213563
(149.1168827)

25 Aug. 97

P. 21 b



Please see below

$4 \cdot H_{n-3} - 2 \cdot H_{n-2} = H_n$

Please see below $G = (4 - 2G)^{(\frac{1}{3})}$

← converges left (64 − 2 × 46) / 4 $= 1.17950902460$

16 + 23 →

28 33 39 46 54 64 76 88 104 128 144 160 diverging

224 132 78 46 27 16

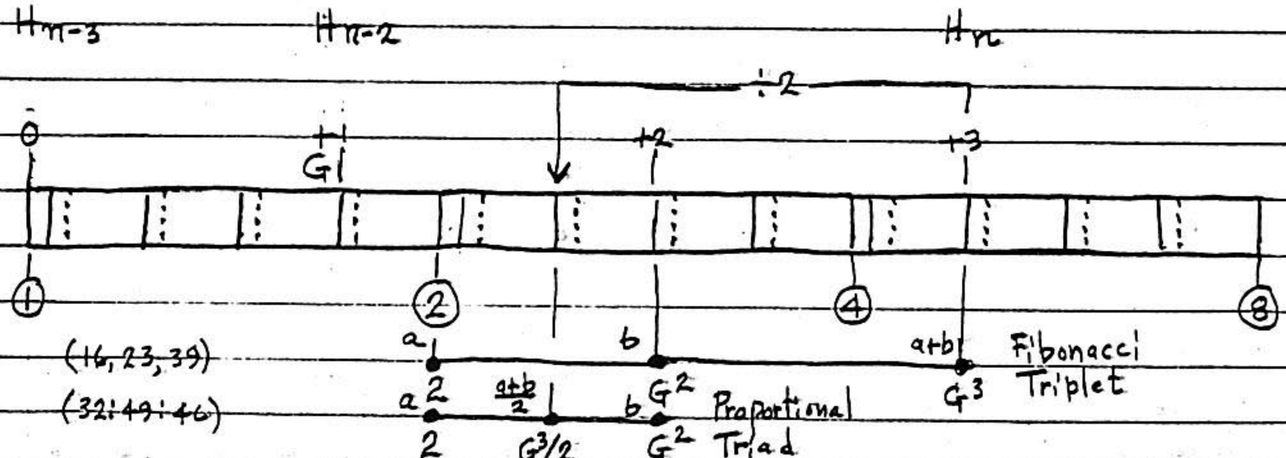
SAME THING – Converges right →

$2 \cdot H_{n-3} + H_{n-1} = H_n$ ⇨ $G = (2 + G^2)^{(1/3)}$

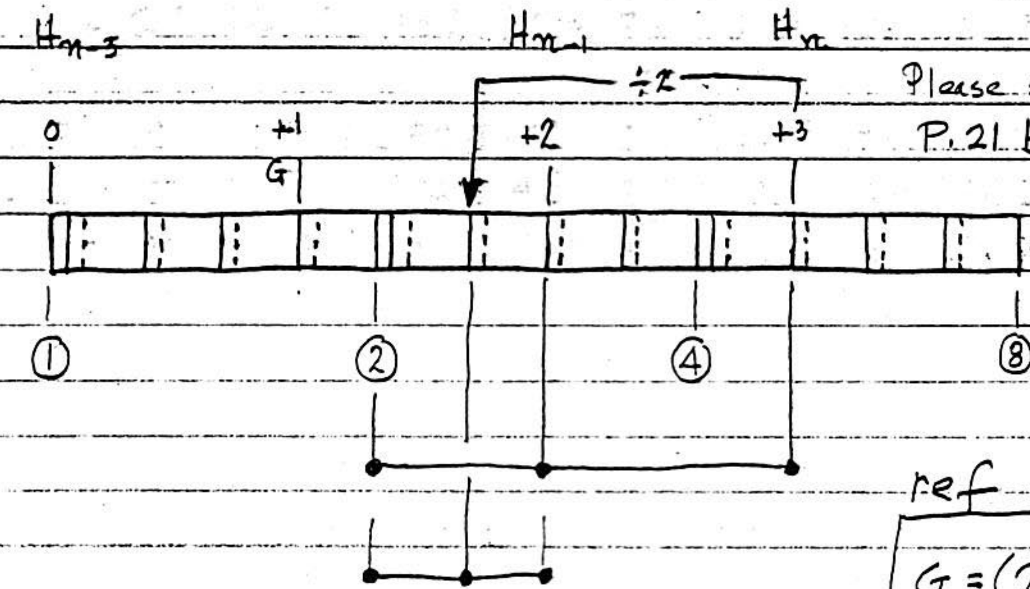
$= \underline{1.695620 76956} \cdots$

16 27 46 78 132 224 380 644 1,092 1852 3,140 5,324 9,028

15,308 25,956 44,012 74,628 126,540 214,564 363,820 616,900 1,046,028 1,773,668



25 Aug 97 E.W.
P.21c



Please see bottom of P.21 b

ref

$$\boxed{G = (2+G^2)^{(1/3)}}$$

$2 \cdot H_{n-3} + H_{n-1} = H_n$ See Sloane M2419 ! *

1 1 1 3 5 7 13 23 37 63 109 183 309 527 893
1511 2565 4351 7373

Difference Tones Series; (These are all ~~converging~~ approaching on the limit chain)!

1s	0 0 2 2 2 6 10 14 26 46	8ves of original series										
2s	0 2 4 4 8 16 24 40 72 120 200											
3s		2	4	6	10	18	30	56	86	146	246	418
÷ 2 =		1	2	3	5	9	15	25	43	73	123	209
4s		4	6	12	20	32	56	96	160	272	464	784
÷ 2 =		2	3	6	10	16	28	48	80	136	232	392
÷ 2 =		1	1.5	3	5	8	14	24	40	68	116	196
÷ 2 =						4	7	12	20	34	58	98
÷ 2 =								6	10	17	29	49
5s		6	12	22	34	58	102	170	286	496	830	1402
÷ 2 =		3	6	11	17	29	51	85	143	245	415	701

* The Encyclopedia of Integer Sequences, N.J.A. Sloane, Simon Plouffe
1995, Academic Press, Inc, ISBN 0-12-558630-2, Phone 1-800-321-5068
— for computer readable index

26 Aug 97 E.W.
P. 21d

orig	16	27	46	78	132	224	380	644	1092	1852	3140	5324
dif-tones by 1s =	11	19	32	54	92	156	264	448	760	1288	2184	3704
2s =	30	51	86	146	248	420	712	1208	2048	3472	5888	9984
3s =	62	105	178	302	512	868	1472	2496	4232	7176	12168	20632
4s =	116	197	334	566	960	1628	2760	4680	7936	13456	22816	38688
5s =	208	353	598	1014	1720	2916	4944	8384	14216	24104	40872	69304
6s =	364	617	1046	1774	3008	5100	8648	14664	24864	42160	71488	121216
7s =	628	1065	1806	3062	5192	8804	14928	25312	42920	72776	123400	209240

See $K_n = 8(K_{n-2}\ K_{n-3})$ (NO)

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Example:

	-3	-2	-1	0						↓		
31.625	39	48	59	72	88	104	128	128	192	0	512	−1,536

0 -1 -2 -3

maybe it runs backwards

$$\boxed{K_n = K_{n-1} - \left(\frac{K_{n-3}}{8}\right)}$$

Example: ⟶

-3	-2	-1	3=	2=	1=		(253)	(205)	(166)	(1,075) (134.375)
*128	104	88	72	59	48	39	31.625	25.625	20.75	16.796875

$\frac{K_{n-1}}{K_n}$ converges on 1.23606797750 (compl .618...) (× 1.618... = 2) (divide by 2, 1/x

Log2 = .305758086370

RCL1	cont		
−	=		
(	STO1₂		
RCL3	÷		
÷	RCL2	← 3	.270
8	=	→ 3	.696
)	1/x	← 1	.436
=	↱	→ 2	.289
STO3₂	RTN	3	.448
−	↰	2	.228
(	PRGM	4	.373
RCL2		2	.676
÷		1	.478
8			
)			
=			

0/1 1/1 1/2 1/3 1/4 2/7 3/10 4/13 7/23 11/36 15/49

STO2₂ * O.K. so I've rediscovered Phi – but this is not the Fibonacci series parked in the driveway. Or is it?

−

(

RCL1	128	72	39	88	48	104	59	128
÷	C	D	E	F♯	G	A♭	B♭	C
8	1	9	39	11	3	13	59	1
)								

For Kraig Grady

A meta-S'lendro Sequence after Kunst #2

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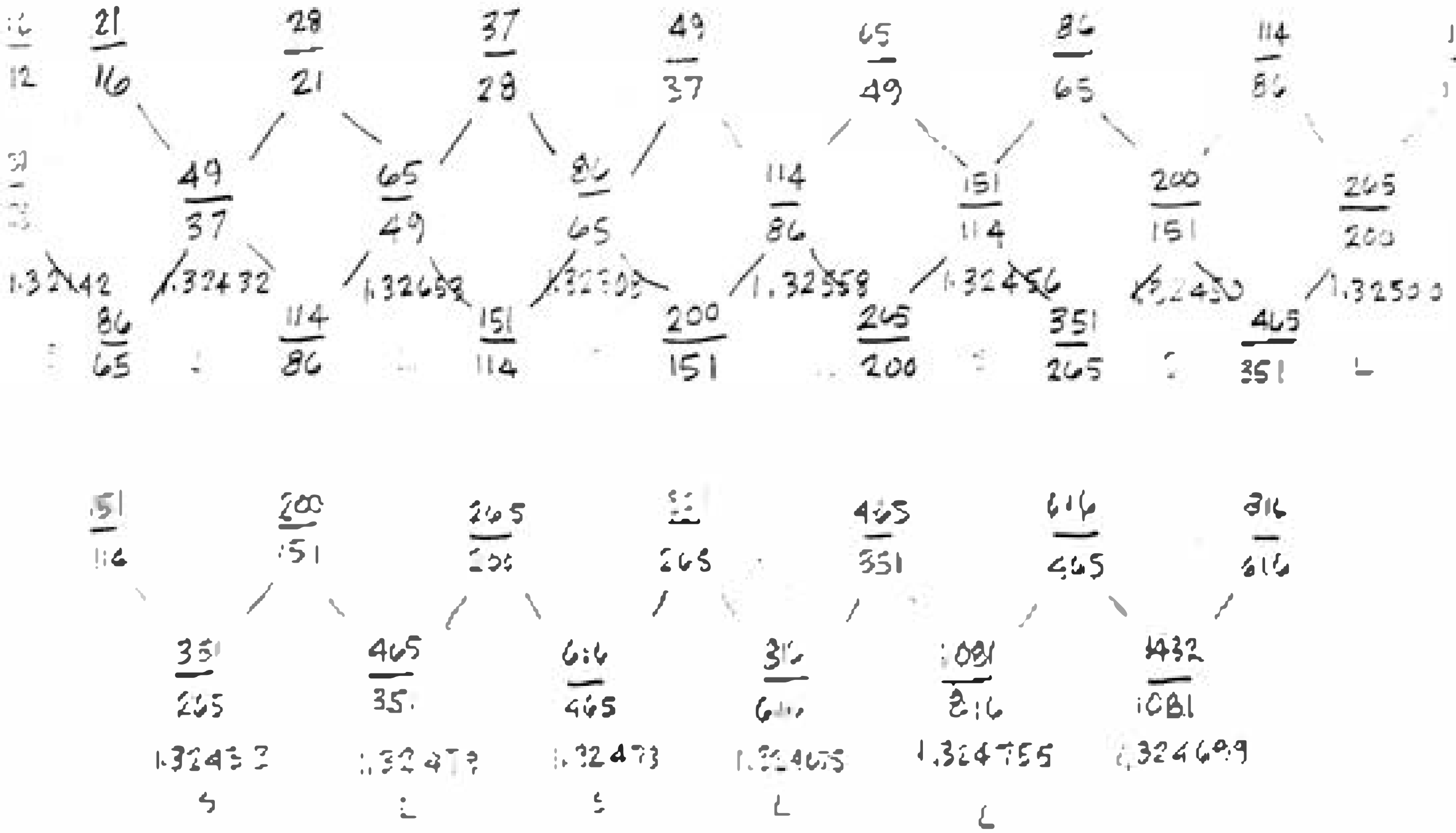
sheet lag[illegible]

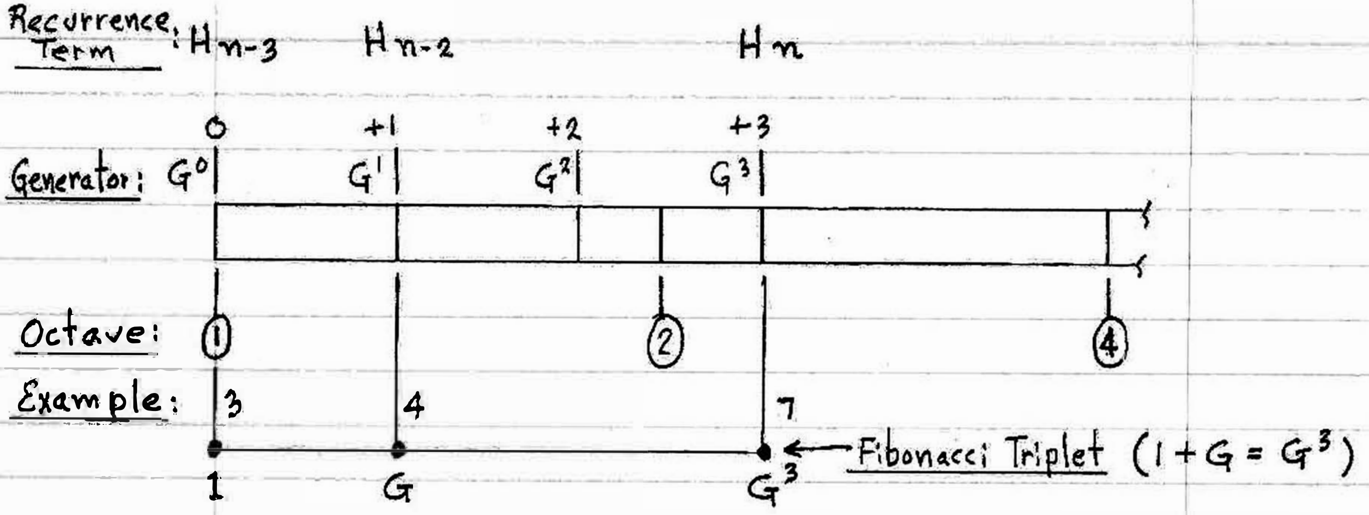


Variation

0 2 1 2 3 3 5 6 8 11 14 19 25 33 44 58 77 102 135 179 237 314 416 551 730 967 1281

$G = (1+G)^{(1/3)}$, Meta-S'lendro (1.32471795724...)

15 MAR 98 · EW



Recurrence Relation

$$H_{n-3} + H_{n-2} = H_n$$

G Paraphrase

$\Leftrightarrow$ $G = (1+G)^{(1/3)}$ (iterate)

$= 1.32471795724\cdots$

$\log_2 = .405685231370\cdots$

$(2/G = 1.50975533250\cdots)$

Sloan-M0284

Meta-S'lendro, the recurrent integer sequence

* 1 1 1 2 2 3 4 5 7 9 12 16 21 28 37 49 65 86 114 151 200 265 351

Reseed: example

2 1 1 3 2 4 5 6 9 11 15 20 26 35 46 61 81 107 142 188 249 330 437

1/x Pattern

	.405685231370···
← 2	.464
→ 2	.150
← 6	.635
→ 1	.572
← 1	.745 →
→ 1	.341
← 2	.929
→ 1	.075 →
13	.276

Zig-Zag Pattern (from the Scale-Tree)

0/1 - - - - - - - - - - - - 1/2 ← 1/1

1/3 ← 1/2

1/3 → 2/5 → 3/7

5/12 ← 3/7

7/17 ← 5/12

9/22 ← 7/17

11/27 ← 9/22

13/32 ← 11/27

15/37 ← 13/32

15/37 → 28/69

43/106 ← 28/69

43/106 → 71/175

114/281 ← 71/175

157/387 ← 114/281

157/387 → 271/668

* a.k.a. PADOVAN SEQUENCE Scientific American June 1996, p 102-103, by Ian Stewart

Ref.: The Scales of Mt. Meru, Fig. 3 & 12, 1993-97 Erv Wilson

Fibonacci Triplets of Meta-S'lendro ($C_{n-3} + C_{n-2} = C_n$)

9 + 12 = 21
12 + 16 = 28
16 + 21 = 37
21 + 28 = 49
28 + 37 = 65
37 + 49 = 86
49 + 65 = 114
65 + 86 = 151
86 + 114 = 200

9 12 16 21 28 37 49 65 86 114 151 200 (288)

4/3 4/3 21/16 4/3 37/28 49/37 65/49 86/65 57/43 151/114 200/151 72/25 Cycle 4ths

Good!

5-tone S'lendro

example of nested scales where each scale is contained within the next — 5 within 7, within 12 etc.

7-tone Scale

12-tone Scale

(Scale Series is; 5, 7, 12, 17, 22, 27, 32, 37 . . .)

Example of Re-Seed

15 20 26 35 46 61 81 107 142 188 249 330

15 + 20 = 35
20 + 26 = 46
26 + 35 = 61
35 + 46 = 81
46 + 61 = 107
81 + 81 = 142
81 + 107 = 188
107 + 142 = 249
142 + 188 = 330

good!

5-tone example

7-tone scale

12-tone scale

Meta-S'lendro Sequence
sheet 2 of 2

RCL 1	RCL 3
+	+
RCL 2	RCL 1,
=	=
STO 1,	STO 3,
RCL 2	÷
+	RCL 2,
RCL 3	=
=	STO 4
STO 2,	

(or) add this, for read every 3rd Fourth

(LOG_2)

.405685231 = 486.8222772

1/4	
2	.465
2	.150
6	.635
1	.572
1	.745
1	.341
2	.929
1	.075
13	.276

0/1, 1/2, 1/3, 2/5, 3/7, 5/12, 7/17, 9/22, 11/27, 13/32, 15/37, 28/69, 43/106, 71/175, 2PL

Converges on 1.3247179572.
dated Oct 15, 1993
Erv Wilson

(also see Proportional "6,7,8" from 1992)

A+B = D

0 1 1 1 2 2 3 4 5 7 9 12 16 21 28 37 49 65 86 114 151

(1) (2) (3) 1, 2, 3,

1, 2, 3,

variation:

0 1 2 1 3 3 4 6 7 10 13 17 23 30 40 53 70 93 123 163 216 286 379

RCL 1
+
RCL 2
STO 1,
=
STO 4
RCL 3
STO 2,
RCL 4
STO 3,
÷
RCL 2,
=
STO 4,
RCL 3,

$\frac{5}{4}$ (1) $\frac{7}{5}$ (3) (2) $\frac{9}{7}$ (4) $\frac{12}{9}$ $\frac{16}{12}$

$\frac{12}{9}$ (3)	$\frac{16}{12}$	$\frac{21}{16}$	$\frac{28}{21}$
1.3[illegible]	1.33333	1.31250	1.33333
L	–	S	L

Notes on Meta - S'lendro

17 JUL 97 E.W.
P. 10a
ABABB

① ② ④

0 +1 +2 | +3 (+4) |

0 1 2 3 4 5/0 1 2 3 4 5/0

|A |B |A |B |B |A |B |A |B |B |

| L* | L | L | | L | S |

a — b — a+b

a $\frac{a+b}{2}$ b

$*L = ((2+2L)/2)^{(\frac{1}{3})}$ ⇦ this

Please see P.10b

decimal approx. 1.3247179572 4 . . .

Log$_2$ .405685231370 . . .

Same as Meta-Slendro off Pascal's Triangle. Ref below

(
(
2
+
2
×
RCL 1
)
÷
2
)
y^x
(
1
÷
3
)
=
STO 1

(iterate)

1/x pattern

	.405 . . .
← 2	.464
→ 2	.150
← 6	.635
→ 1	.572
← 1	.745
→ 1	.341
← 2	.929
→ 1	.075
13	.276

Zig-Zag Pattern

0/1 1/1 1/2 1/3 2/5 3/7 5/12 7/17 9/22 11/27 13/32 15/37 28/69 43/106 71/175 114/281 → 157/387 271/668

13 places

Meta-Slendro ⇨ $\boxed{G = (1+G)^{(\frac{1}{3})}}$ →

use this; drops everything down an 8ve

(
1
+
RCL 1
)
y^x
(
1
÷
3
)
=
STO 1

---

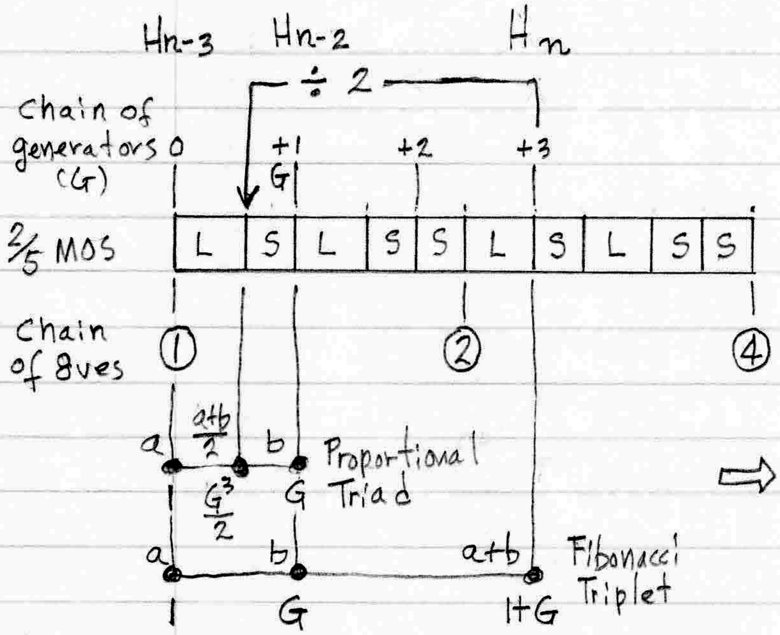
iterate

Reference: Recurrent Sequences and Pascal's Triangle, Thomas M. Green, Mathematics Magazine Vol 41, 1968

The Scales of Mt. Meru, Ervin M. Wilson, 1993

Notes on Meta-S'lendro

19 Aug 97 - E.W.
P. 10 b



$\Rightarrow\ G = (1+G)^{\left(\frac{1}{3}\right)}$

$= \underline{1.32471795724\cdots}$

$\mathrm{Log}_2 = \underline{.405685231370\cdots}$

Recurrence:

$H_{n-3} + H_{n-2} = H_n$

(also note: $H_{n-5} + H_{n-1} = H_n$)
where $G = (1+G^4)^{\left(\frac{1}{5}\right)}$

Seed: 9 12 16 21 28 37 49 65 86 114 151 200 265 351 465
616 816 1,081 1,432 1,897 2,513 3,329 4,410 5,842 7,739 10,252
13,581

Fibonacci-Triplets Display

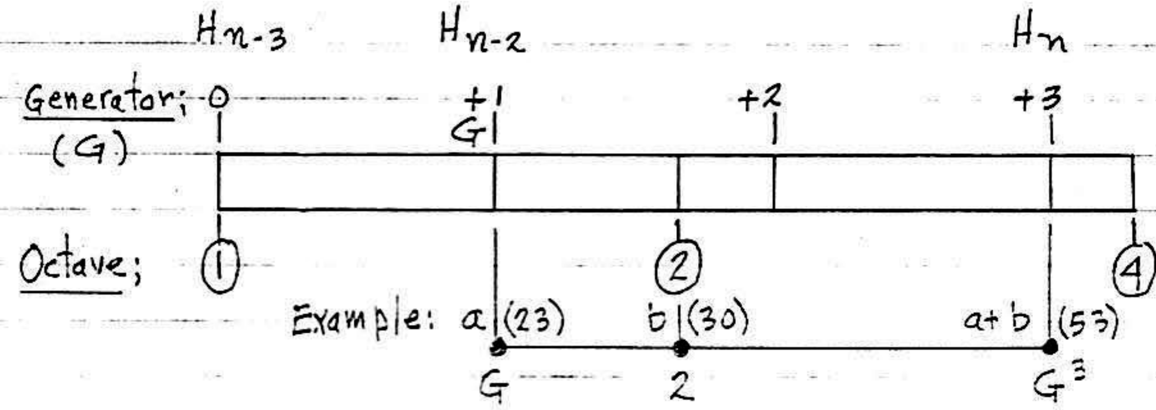
(5,482) 7,739 10,252 13,581
(2,513) 3,329 4,410 5,842 (7,739)
(1,081) 1,432 1,897 2,513 (3,329)
(465) 616 816 1,081 (1,432)
(200) 265 351 465 (616)
(86) 114 151 200 (265)
(37) 49 65 86 (114)
(16) 21 28 37 (49)
9 - - - - 12 - - - - 16 (21)

A 27-Tone Scale where; $H_{n-3} + H_{n-2} = H_n$

Nested MOS $\frac{1}{1}, \frac{1}{2}, \frac{1}{3}, \frac{2}{5}, \frac{3}{7}, \frac{5}{12}, \frac{7}{17}, \frac{9}{22}, \frac{11}{27} \left(\frac{13}{32}\right) \left(\frac{15}{37}\right) \left(\frac{28}{69}\right) \left(\frac{43}{106}\right)$

$G=(2+G)^{(\frac{1}{3})}$, (LLSLS - S'lendro)

 4 OCT97-E.W.



Recurrence Relation:

$2H_{n-3}+H_{n-2}=H_n$ $\Rightarrow$ $G=(2+G)^{(1/3)}$

1, 1, 1, 3, 3, 5, 9, 11, 19, 29, 41, 67, 99, 149, NLIS

$= 1.5213797068\cdots$

$\log_2 = .605380266640$

Re-Seed Example:

15, 23, 35, 53, 81, 123, 187, 285, 433

1/N Pattern

		.605···
←	1	.651
→	1	.534
←	1	.872
→	1	.146
←	6	.834
→	1	.198
←	5	.045
	22	.190
	5	.240

0/1

→ 23/38

→ 158/261 → 22 places

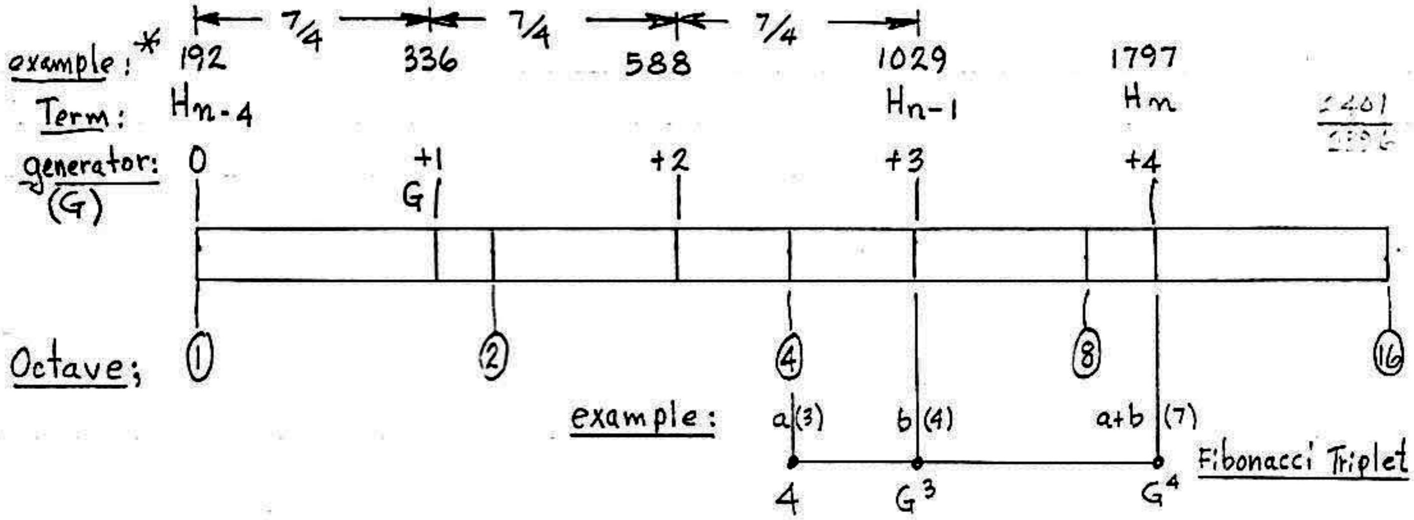
Zig-Zag Pattern

1/1

1/2, 2/3, 3/5, 5/8, 8/13, 11/18, 14/23, 17/28, 20/33, 23/38 → 43/71, 66/109, 89/147, 112/185, 135/223, 158/261

$G = (4 + G^3)^{(1/4)}$, (meta-s'lendro 2)

10·DEC·97 - E.W.



Recurrence Relation:

$4H_{n-4} + H_{n-1} = H_n$

G Paraphrase:

$\Rightarrow \; G = (4 + G^3)^{(1/4)}$

$= 1.748402881 25$

$\log_2 = .806037660702$

Examples of re-seed:

*	192	336	588	1029	1797	3141	5493	9609	16797	29361	51333	89769	156957	etc.	
NLIS	1	1	1	1	5	9	13	17	37	73	125	193	341	633	1133 etc.

1/n Pattern

		.80603···
←	1	.240
→	4	.155
←	6	.425
→	2	.352
←	2	.837
→	1	.194
	5	.135
	7	.404
	2	.469
	2	.131

Zig-Zag Pattern

0/1 1/1

1/2 → 2/3 – 3/4 – 4/5 – 5/6

† → 9/11 – 13/16 – 17/21 – 21/26 – 25/31 – 29/36

! → 29/36 → 54/67 – 79/98 → 133/165 – 187/232

→ 187/232 → 320/397

5 places ←

(29×8)

Ref: Straight Line Patterns and Proportional Triads, Erv Wilson 1992

The complementary generator, 1.14390111195.

† Life Tuning with Prima Sounds, Keyserling / Losey, 1993, School of Wisdom

Notes on $4H_{n-4} + H_{n-1} = H_n$ — 22·Dec·97 EW

(ref 10·Dec·97 EW)

$G = (4 + G^3)^{1/4}$, sht 2

Sto 1	2	3	4	Sto 1	2	3	4
1	1	1	1	5	9	13	17

Hewlett Packard 20S

Sto		examples	or
1	H_{n-4}	17	12
2	H_{n-3}	30	21
3	H_{n-2}	52	36
4	H_{n-1}	92	64

begin

— - —

(	(
4	4
×	×
RCL 1	RCL 4
)	)
+	+
RCL 4	RCL 3
=	=
STO 1	STO 4_b
(	— - —
4	2nd
×	
RCL 2	
)	
+	
RCL 1_b	
=	
STO 2_b	
(	
4	
×	
RCL 3	
)	
+	
RCL 2_b	
=	
STO 3_b	

Cont

Examples

Re-seed $(4 \times 17) + 92 = 160$

17 30 52 92
160 280 488 856
1,496 2,616 4,568 7,992
13,976 24,440 42,712 74,680
697,912 228,344 399,192 697,912
1,220,248 2,133,624 3,730,392 6,522,040
11,403,032 19,937,528 34,859,096 60,947,256
106,559,384 186,309,496 325,745,880 569,534,904

Re-seed $(4 \times 12) + 64 = 112$

12 21 36 64
112 196 340 596
1,044 1,828 3,188 5,572
9,748 17,060 29,812 52,100
91,092 159,332 278,580 486,980
851,348 1,488,676 2,602,996 4,550,916
7,956,308 13,911,012 24,322,996 42,526,660
74,351,892 129,995,940 227,287,924 397,394,564

For Kraig Grady

Proportional "4, 5, 6" Sequence ?

dated Oct 16, 1993
Erv Wilson

Meta-Meantone

ref John Harrison's scale

0	+1	+2	+3	+4
	3	4.5	6.75	10.125

$\frac{11}{7}$ $\frac{16}{11}$ $\frac{24}{16}$ $\frac{36}{24}$ $\frac{54}{36}$ $\frac{80}{54}$ $\frac{120}{80}$ $\frac{180}{120}$

$\frac{27}{18}$ $\frac{40}{27}$ $\frac{60}{40}$ $\frac{90}{60}$ $\frac{134}{90}$ $\frac{200}{134}$ $\frac{300}{200}$

(A+B) × 2 = E etc.

÷ 4 (67)

A	B			E											
1	2.5	3	5	7	11	16	24	36	54	80	120	180	268	400	600
		(1)	(2)			(1,)									
			(2)	(3)			(2,)								
				(3)	(4)			(3,)							
					(4)	(1,)			(4,)						

$\underbrace{54 \quad 80}_{\text{Proportional Triad(s)}}$

Converges on 1.4945301804 8
(See also proportional "4,5,6" 1992)

To get a quick convergence

```
(
RCL 1
+
RCL 2
)
×
2
=
STO 1,
(
RCL 2
+
RCL 3
)
×
2
=
STO 2,
```

```
(
RCL 3
+
RCL 4
)
×
2
=
STO 3,
(
RCL 4
+
RCL 1,
)
×
2
=
STO 4,
÷
RCL 3,
=
```

```
(
RCL 1
+
RCL 2
)
×
2
=
STO 1,
[ ÷
RCL 4
=
STO 5 ]
(
RCL 2
+
RCL 3
)
×
2     ÷RCL 1, = STO 6
=
STO 2,
```

```
(
RCL 3
+
RCL 4
)
×
2
=
STO 3,
[ ÷
RCL 2,
=
STO 7 ]
(
RCL 4
+
RCL 1,
)
×
2     ÷RCL 3, = STO 8
=
STO 4,
```

This stores the ratios for viewing at 5,6,7,8

$G=(8+8G)^{(1/6)}$

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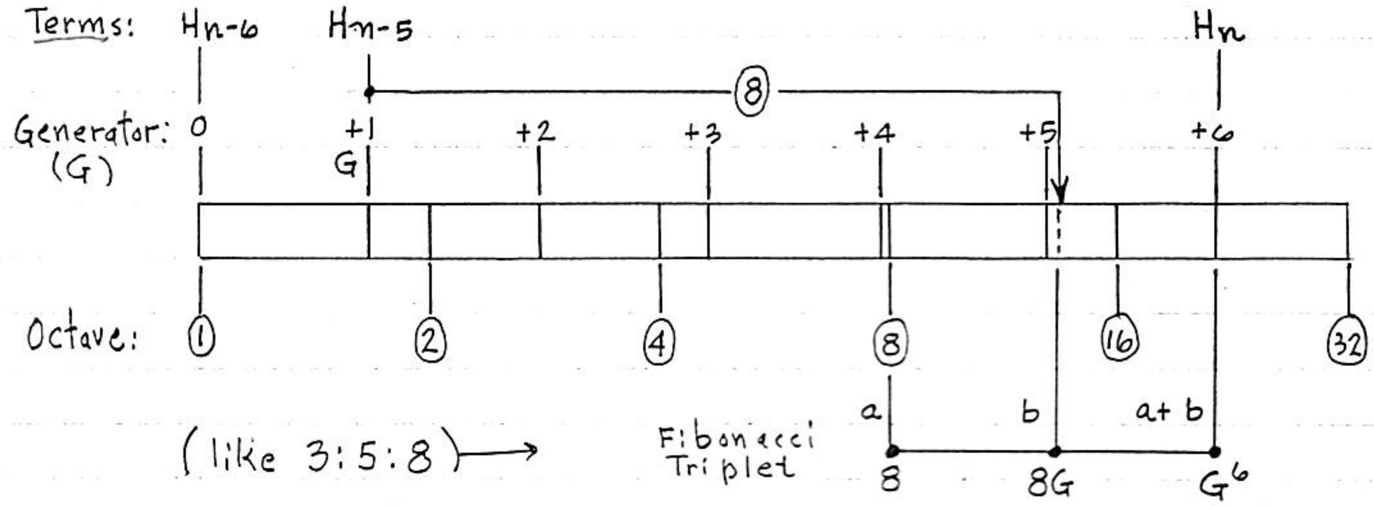
24 Sep 97 · EW

Recurrence



Recurrence relation:

$$8H_{n-6}+8H_{n-5}=H_n$$

1 1 1 1 1 1. 16 16

Example: $(8\cdot3+8\cdot5=64)$!

H_{n-6}	H_{n-5}					H_n	
243	405	675	1,125	1,875	3,125	5,184	8,640

G Paraphrase:

⇨ $G=(8+8G)^{(1/6)}$

$=1.66521524973\cdots$

$\log_2 = .735708675583$

(8 + 8 × RCL 1) y^x (1 / 6) = STO

Kraig

1/x pattern

		.735 ···
←	1	.359
→	2	.783
←	1	.275
→	3	.623
←	1	.604
→	1	.654
←	1	.527
→	1	.894
←	1	.118
	8	.472

0/1

Zig-Zag Pattern

1/1 → 1/2 → 2/3 → 3/4 → 5/7 – 8/11 – 11/15 – 14/19

25/34 – 39/53

64/87 – 103/140

167/227 – 270/367 → etc. 8pl.

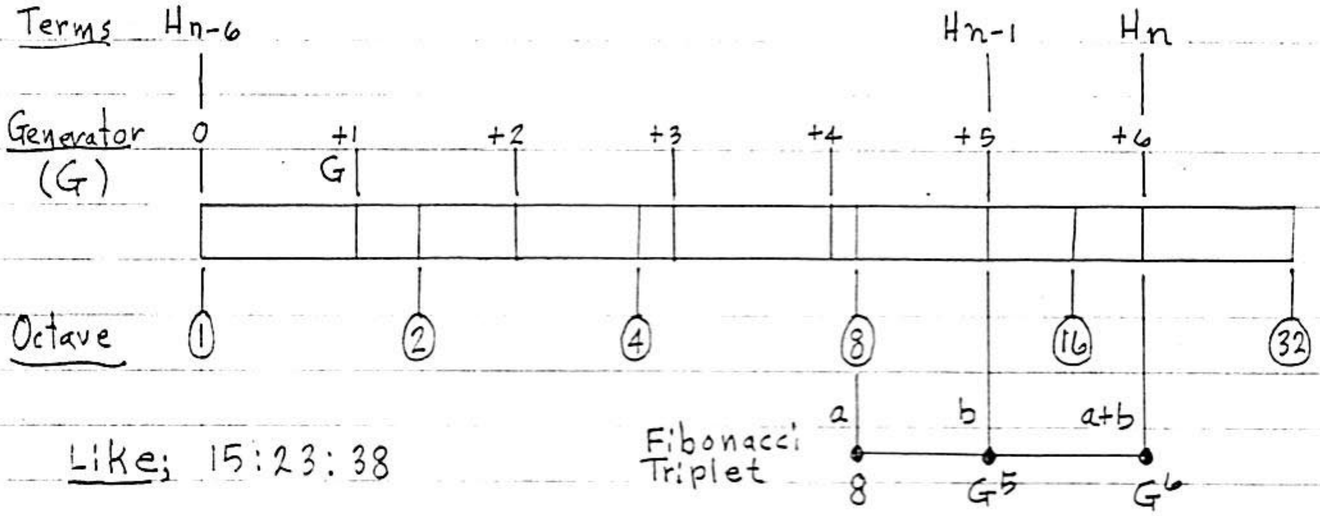
Compare w. log-Gold; .735691503280··· in Scale-Tree '94, EW

Ref: Development of a 53-tone Keyboard Layout, 1989, L.A. Hanson, Xenharmonikon 12, Frog Peak

$8(H_{n-6}+H_{n-5})=H_n$

$$G=(8+G^5)^{(1/6)}$$

25Sep97-EW



Like; 15:23:38

Recurrence relation;

$$8 \cdot H_{n-6} + H_{n-1} = H_n$$

$$\Rightarrow \quad G=(8+G^5)^{(1/6)}$$
$$=1.65139032696$$
$$\text{Log}_2 = .723681159751$$

1/N pattern 0/1

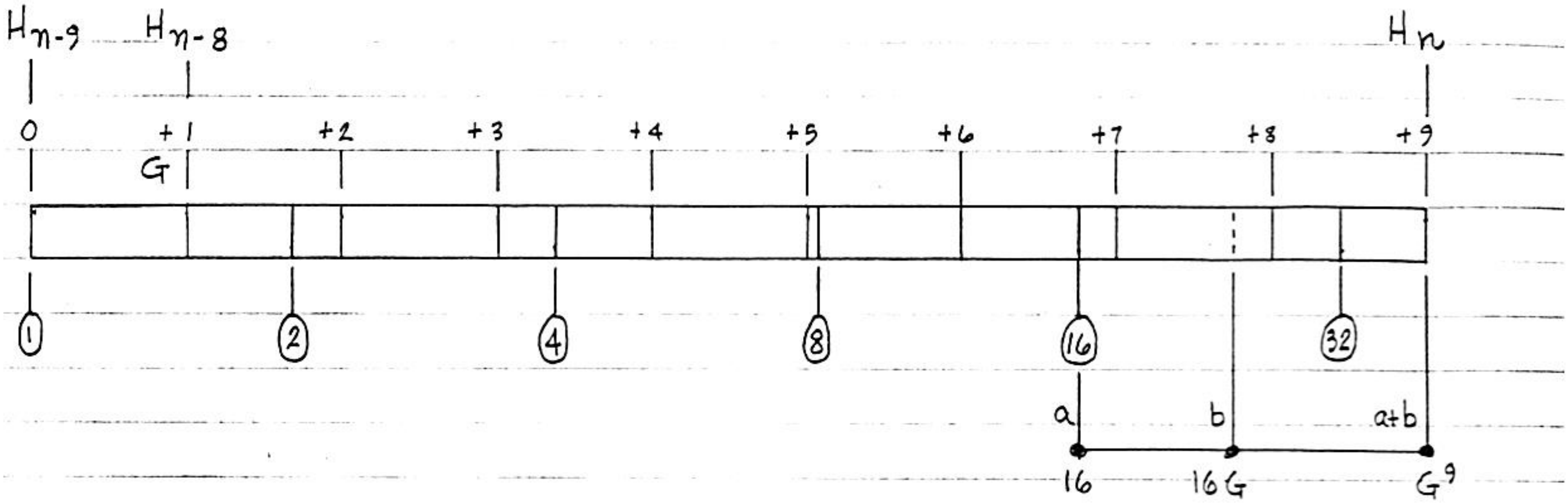
		.723...
←	1	.381
→	2	.619
	1	.615
	1	.624
	1	.600
	1	.664
	1	.504
	1	.982
	1	.017
	56	.131

Zig-Zag Pattern 1/1

1/2 → 2/3 → 3/4 → 5/7 → 8/11 → 13/18 → 21/29 → 34/47 → 55/76 → 89/123 → 56 places

$$G = (16 + 16G)^{(1/9)}$$

 18 Sep 97 E.W.



Recurrence Relation:

$$16H_{n-9} + 16H_{n-8} = H_n \quad \Rightarrow \quad G = (16+16G)^{(1/9)}$$

$$= 1.507105375 87 \cdots$$

$$\mathrm{Log}_2 = .591780292802$$

1/4 Pattern

	.59178 ···	0/1
← 1	.689	
→ 1	.449	
← 2	.223	
→ 4	.466	
← 2	.144	
→ 6	.930	
← 1	.075	
13	.320	
3	.121	
8	.244	

Zig-Zag Pattern

1/1 → 1/2 → 2/3 → 3/5 → 4/7 → 7/12 → 10/17 → 13/22 → 16/27 → 29/49 → 42/71 → 71/120

100/169

129/218

158/267

187/316

! → 216/365

403/681

→ 13 places

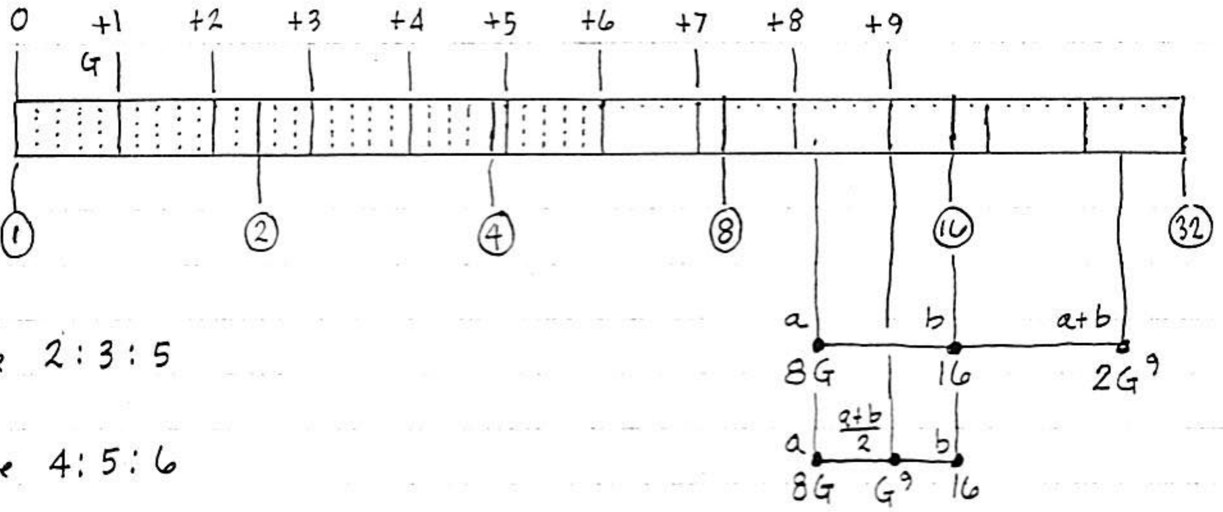
Ref: Linear Tuning of the 32-"40"-"48" Arithmetic Mean (+9 = 40), 1989, Erv Wilson

$G = (8 + 4G)^{(1/9)}$

16 Sep 97 E.W.

note:
(Please see simplified diagram at bottom of this page.)

H_{n-9} H_{n-8} H_n



like 2:3:5

like 4:5:6

$$G = ((16 + 8G)/2)^{(1/9)}$$

Recurrence relation:

$$8 \cdot H_{n-9} + 4 \cdot H_{n-8} = H_n \Rightarrow G = (8 + 4G)^{(1/9)}$$

$= 1.33350830845\ldots$

$\mathrm{Log}_2 = .415226813657\ldots$

example seed:

-9	-8	-7	-6	-5	-4	-3	-2	-1	n
19,683	26,244	34,992	46,656	62,208	82,944	110,592	147,456	196,608	262,440

(262144)

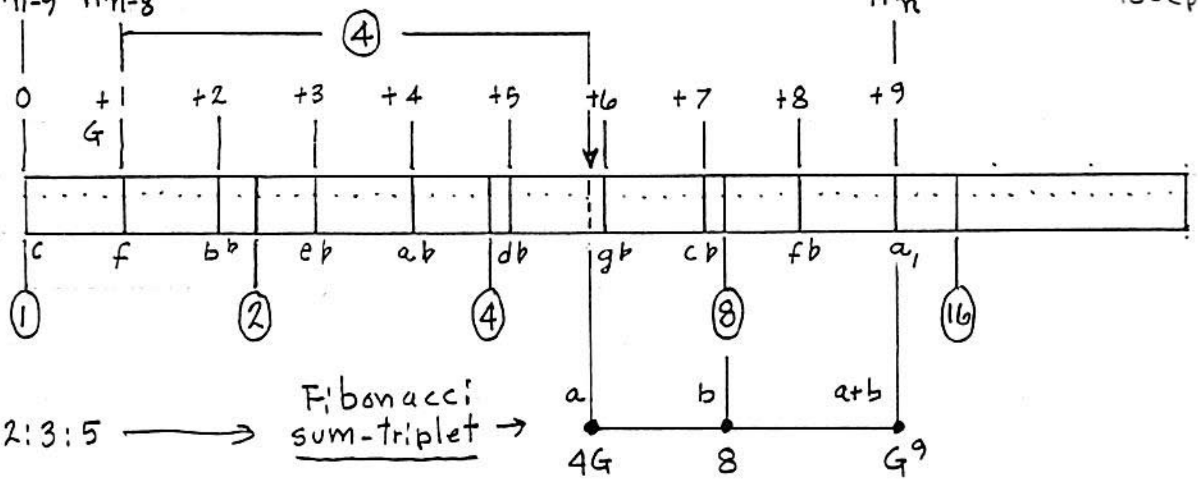
Simplified Diagram

18 Sep 97 E.W.

Terms; H_{n-9} H_{n-8} H_n

Generator; (G)

Octave;



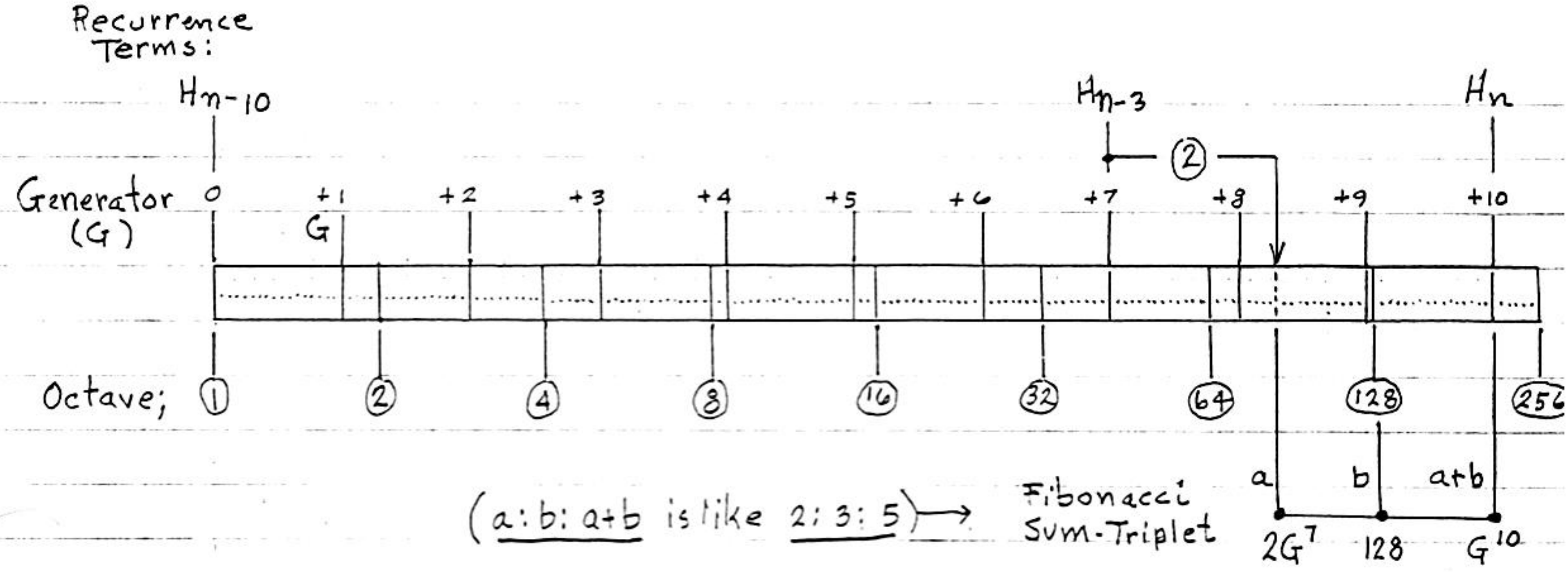
like 2:3:5 ⟶ Fibonacci sum-triplet →

Recurrence Relation: $8 \cdot H_{n-9} + 4 \cdot H_{n-8} = H_n \Rightarrow G = (8 + 4G)^{(1/9)}$

Ref: Linear Tuning of the 8-"10"-"12" Arithmetic Mean (-8="10"), 1989, Erv Wilson

$$G = \left(128 + 2G^7\right)^{(1/10)}$$

23Sep97·EW



Recurrence relation;

$$128 \cdot H_{n-10} + 2 \cdot H_{n-3} = H_n$$

$$\Rightarrow G = \left(128 + 2G^7\right)^{(1/10)}$$

$$= 1.7096994699$$

Log_2 .773743153781

1/x Pattern		
		.773...
←	1	.292
→	3	.419
←	2	.382
→	2	.615
←	1	.624
→	1	.600
←	1	.664
→	1	.504
←	1	.982
→	1	.017
?	56	.326

0/1

Zig-Zag Pattern

1/1

1/2 → 2/3 → 3/4 → 4/5

7/9 ←

10/13 ←

→ 17/22 → 24/31

41/53 ←

→ 65/84

106/137 ←

→ 171/221

! → 277/358 ←

→ 448/579

← 56 places

Ref: Scales of Mt. Meru, Fig. 12, Recurrence #29 (Wilson, 1993/1997)

Meta-Ptolemy

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dated Oct 16 1993 E.W.

A + B = E

A B E

3 $\frac{3}{3}$ $\frac{4}{3}$ $\frac{5}{4}$ $\frac{6}{5}$ $\frac{7}{6}$ $\frac{9}{7}$ $\frac{11}{9}$ 13 16 20 24 29 36

$\frac{7}{6}$ $\frac{9}{7}$ $\frac{11}{9}$ $\frac{13}{11}$ $\frac{16}{13}$ $\frac{20}{16}$

36 44 53 65 80 97 118 145 177 215 263

(1) (2) (3) (4)

(1_1) (2_1) (3_1) (4_1)

Converges on 1.22074408461

Log2 = .287760787077

1/x	Pattern
3	.475
2	.104
9	.543
1	.839
1	.191
5	.227

Zig-zag

0/1 1/1 1/2 1/3 1/4 2/7 3/10 5/17 7/24 9/31 11/38 13/45 15/52 17/59 19/66 21/73 40/139 61/212

RCL 1
+
RCL 2
=
STO 1_1
RCL 2
+
RCL 3
=
STO 2_1
RCL 3
+
RCL 4
=
STO 3_1
RCL 4
+
RCL 1_1
=
STO 4_1
÷
RCL 3_1
=
STO 5

10-40 = Ptolemy's Equal *

Try: 4 6 7 8 10 12 15 18 22 27 33 40 49 60 73