

patterns ↴

pattern sums ↴

9 18 15 16 22 16 15 15 14 19 19

'9' '-3' 'I' '6' '6' '-1' '0' '-1' '5' '0'

— sums

— sum intervals

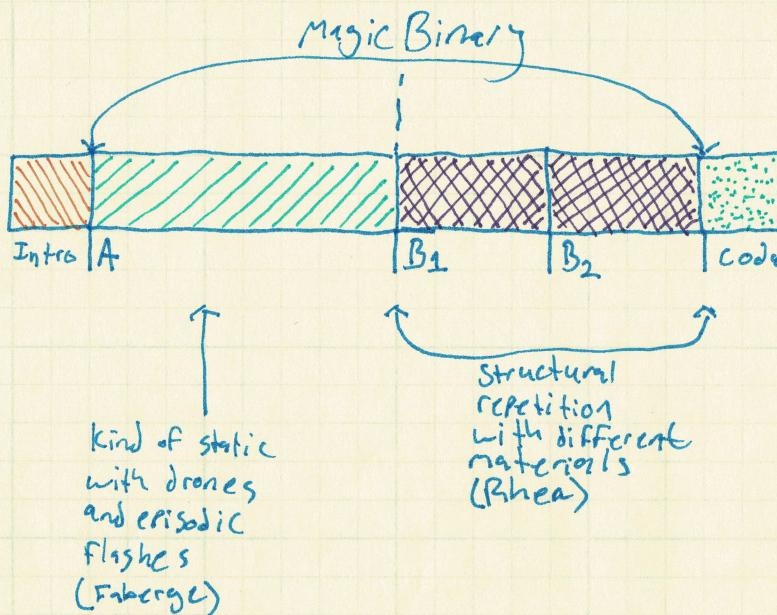
forward, repetition free: 1 2 3 4 9 5 6 7 8 [sums by index: 6, 15, 15, 16, 15, 18, 15, 24, 15]

backward, repetition free: 1 6 5 4 3 2 9 7 8 5 2 [sums by index: 6, 15, 15, 15, 15, 24, 15, 18, 15]

enchainged patterns: 3 2 4 9 4 5 3 7 3 6 9 6 7 2 7 8 2 5 1 9 1 4 7 4 8 3 8 3 8

*4 bit (1↔1) (2↔3)
 grey-code
 Permutation (4 5 6 7)
 8 10 12 16 9 11 13 14

forward partitions 1 2 3 2 4 9 4 5 6 5 3 7 3 6 9 6 7 2 7 8 9 8 2 5 5 1 9 1 4 7 4 8 3 8 6 1



$$\text{Props} = [1, \frac{8 \cdot 2}{\phi}, 8, 8, \frac{(8 \cdot 2) \div \phi}{\phi}]$$

20 minutes (1200")

$$D_1 = \frac{1 \cdot 1200}{33.25} = 36" = 0.6' \quad (\text{9mm of } \frac{4}{\phi} \text{ at } \phi=60)$$

$$D_2 = \frac{10 \cdot 1200}{33.25} = 361" = 6' \quad (90mm " ")$$

$$D_3 = \frac{8 \cdot 1200}{33.25} = 289" = 4.8' \quad (72mm " ")$$

$$D_4 = " " " "$$

$$D_5 = \frac{6.25 \cdot 1200}{33.25} = 226" = 3.8' \quad (56mm " ")$$

B₁¹² Sub divisions

$$d_1 = \frac{1 \cdot 289}{33.25} = 9" = 0.15' \quad (2mm of \frac{4}{\phi} \text{ at } \phi=60)$$

$$d_2 = \frac{10 \cdot 289}{33.25} = 87" = 1.45' \quad (22mm " ")$$

$$d_3 = \frac{8 \cdot 289}{33.25} = 70" = 1.167' \quad (17mm " ")$$

$$d_4 = " " " "$$

$$d_5 = \frac{6.25 \cdot 289}{33.25} = 54" = 0.9' \quad (13mm " ")$$

9mm + 46\frac{2}{3} = 7mm, 90mm + 87\frac{1}{2} = 131mm, 2mm + 122\frac{1}{2} = 14mm,
22mm + 105 = 127mm, 18mm + 87\frac{1}{2} = 105mm, 18mm + 70 = 21mm,
14mm + 105 = 119mm, 56mm + 70 = 65mm
total: 429mm

adjusted
for
tempo

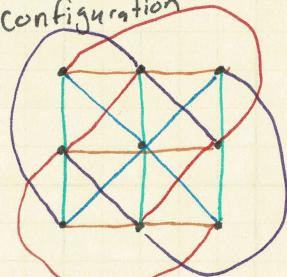
8/29/23

GRE

Patterns

P3

Hesse configuration



$$\begin{array}{c}
 (1\ 2\ 3)\ (1\ 4\ 7) \\
 (4\ 5\ 6)\ (2\ 5\ 8) \\
 (7\ 8\ 9)\ (3\ 6\ 9)
 \end{array}
 \quad
 \begin{array}{c}
 (1\ 5\ 9)\ (1\ 6\ 8) \\
 (6\ 2\ 7) \\
 (3\ 5\ 7)\ (2\ 4\ 9) \\
 (4\ 8\ 3)
 \end{array}$$

Affine Plane: order 3; 9 points, 12 lines

21	3	4	12	25
15	17	6	19	8
10	24	13	2	16
18	7	20	9	11
1	14	12	23	5

$$\begin{array}{c}
 \text{Saturn} = 15 \\
 \begin{array}{|c|c|c|} \hline
 4 & 1 & 2 \\ \hline
 3 & 5 & 7 \\ \hline
 8 & 1 & 6 \\ \hline
 \end{array}
 \end{array}$$

$$\begin{array}{c}
 \text{most perfect} \\
 \begin{array}{|c|c|c|c|} \hline
 7 & 12 & 1 & 14 \\ \hline
 2 & 13 & 8 & 11 \\ \hline
 16 & 3 & 10 & 5 \\ \hline
 9 & 6 & 15 & 4 \\ \hline
 \end{array}
 \end{array}$$

$$\begin{array}{c}
 \text{mers} = 65 \\
 \begin{array}{|c|c|c|c|c|} \hline
 11 & 24 & 7 & 20 & 3 \\ \hline
 4 & 12 & 25 & 8 & 16 \\ \hline
 17 & 5 & 13 & 21 & 9 \\ \hline
 10 & 18 & 1 & 14 & 22 \\ \hline
 23 & 6 & 19 & 2 & 15 \\ \hline
 \end{array}
 \end{array}$$

multiplicative

$$\begin{array}{|c|c|c|} \hline
 2 & 9 & 12 \\ \hline
 36 & 6 & 1 \\ \hline
 3 & 4 & 18 \\ \hline
 \end{array}$$

$$\begin{array}{|c|c|c|} \hline
 17 & 89 & 71 \\ \hline
 113 & 59 & 5 \\ \hline
 47 & 29 & 16 \\ \hline
 \end{array}$$

LoShu square

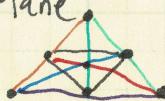
$$\begin{array}{|c|c|c|} \hline
 4 & 9 & 2 \\ \hline
 3 & 5 & 7 \\ \hline
 8 & 1 & 6 \\ \hline
 \end{array}$$

even numbers in corners
odd numbers form a cross

columns, rows, diagonals sum = 15

all opposites sum = 10
because 5 is in center1 = ☰ or Kǎn (water)
9 = ☷ or Lí (fire)OR when rotated
☰ or Kūn (earth)
☷ or Qīán (heaven) - metal

Fano Plane



$$\begin{array}{c}
 (1\ 2\ 5)\ (1\ 3\ 6)\ (1\ 4\ 7) \\
 (2\ 3\ 7)\ (5\ 3\ 4)\ (5\ 6\ 7)
 \end{array}
 \quad
 \begin{array}{c}
 (2\ 4\ 6)
 \end{array}$$

3-bit grey-code permutation $(1 \leftrightarrow 1)$ $2 \leftrightarrow 3$
 $6 \rightarrow 5 \rightarrow 7 \rightarrow 4$

$$\begin{array}{c}
 (1\ 3\ 7)\ (1\ 2\ 5)\ (1\ 6\ 4) \\
 (3\ 2\ 4)\ (7\ 2\ 6)\ (7\ 5\ 4)
 \end{array}
 \quad
 \begin{array}{c}
 (3\ 6\ 5)
 \end{array}$$

Steiner(2,3,9) \rightarrow (0 1 3)(0 4 5)(0 6 7)(1 2 7)(1 4 6)(2 3 5)(2 4 8)(3 7 8)(5 6 8)Steiner(3,4,8) \rightarrow (0 1 2 3)(0 2 4 6)(0 3 4 7)(0 5 6 7)(1 2 4 7)(1 3 4 5)(1 3 6 7)(2 3 5 6)

Materials

A tapping/chiseling/carving

B drone/pedal-point/unison chords

C glissandi
takka

D scraping/white noise
helicithated rhythm

E trills/tremolos/vibrato/frullato

F piano solo
even division with fractures
destructive pitch generation

G Arachne threads/bunchings
takka with preamble and end counts

H repeated notes?
even divisions

I Bass clarinet overblow

decorated ideas

1 Any statement can begin with a flourish

descriptions

- scrapes - cutting stone/engraving letters
- rubs - Polishing/scraping stone over time
- strikes - chiseling stone into the shape of monograms
- bubbles - water overstone
- expansion - lichens growing
- pedal point - leaving a stain
- rising glissando
- takka repetitions
- dissonant unison - immediate or drift away

[(A) (B) (C)] - ABC

[(AB) (AC) (BC)]

[(ABC)]

{A-B-A-BC-A}

[(B) (D) (I) (E) (F)] - BDI - DEF

[(BD) (BI) (BE) (BF) (DI) (DE) (DF) (IE) (IF) (EF)]

[(BDI) (BDE) (BDF) (BIE) (BIF) (BEF) (DIE) (DIF) (DEF) (IEF)]

[(BDIE) (BDIF) (BDEF) (BIEF) (DIEF)]

{B-BD-BIE-BDEF-BF}

[(E) (C) (G) (F) (I) (B)] ECG - CGI - FGB

[(EC) (EG) (EF) (EI) (EB) (CG) (CF) (CI) (CB) (GF) (GI) (GB) (FI) (FB) (IB)]

[(ECG) (ECF) (ECI) (ECB) (EGF) (EGI) (EGB) (EFI) (EFB) (EIB) (CGF) (CGI) (CGB) (CFI) (CFB) (CIB) (GFI) (GFB) (GIB) (FIB)]

[(ECGF) (ECGI) (ECGB) (ECFI) (ECFB) (ECIB) (EGFI) (EGFB) (EGIB) (EFIB) (CGFI) (CGFB) (CGIB) (CFIB) (GFIB)]

{CF-C-CGI-CB-ECFB-C}

[(G) (H) (I) (B) (E) (A)] GHI - HBE - EAI

[(GH) (GI) (GB) (GE) (GA) (HI) (HB) (HE) (HA) (IB) (IE) (IA) (BE) (BA) (EA)]

[(GHI) (GHB) (GHE) (GHA) (GIB) (GIE) (GIA) (GBE) (GBA) (GEA) (HIB) (HIE) (HIA) (HBE) (HBA) (HEA) (IBE) (IBA) (IEA) (BEA)]

[(GHIB) (GHIE) (GHIA) (GHBE) (GHBA) (GHEA) (GIBE) (GIBA) (GIEA) (GBEA) (HIBE) (HIBA) (HIEA) (HBEA) (IBE)]

{HB-H-HIE-HA-GHBA-H} (maps materials from previous)

[(H) (F) (A) (D) (C) (G)] ADG - DHC - HFA

[(HF) (HA) (HD) (HC) (HG) (FA) (FD) (FC) (FG) (AD) (AC) (AG) (DC) (DG) (CG)]

[(HFA) (HFD) (HFC) (HFG) (HAD) (HAC) (HAG) (HDC) (HDG) (HCG) (FAD) (FAC) (FAG) (FDC) (FDG) (FCG) (ADC) (ADG) (ACG) (DCG)]

[(HFAD) (HFAC) (HFAG) (HFDC) (HFDG) (HFCG) (HADC) (HADG) (HACG) (HDCG) (FADC) (FADG) (FACG) (FDCG) (ADCG)]

{A-AC-HADC-G-GC-GCD-GCDA-A}

A-B-A-BC-A-B-BD-BIE-BDEF-BF-CF-C-CGI-CB-ECFB-C-HB-H-HIE-HA-GHBA-H-A-AC-HADC-G-GC-GCD-GCDA-A

tempo $\lambda=46$
meter

87

flute -
 oboe -
 clar -
 basson -
 horn -
 trumpet -
 trombone -
 tuba -
 PC 1 -
 PC 2 -
 piano -

51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 70 91 92 93 94 95 96 97 98 99 100
44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93

102

105

101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150
94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131

B1

87

151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180
9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 | 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20

Made in U.S.A.

National® Brand
42-391 50 SHEETS EEE-EASE® 5 SQUARE
42-392 100 SHEETS EEE-EASE® 5 SQUARE
42-393 200 SHEETS EEE-EASE® 5 SQUARE
42-399 200 RECYCLED WHITE 5 SQUARE

17 DEC
2023

P10
AFK

70

105

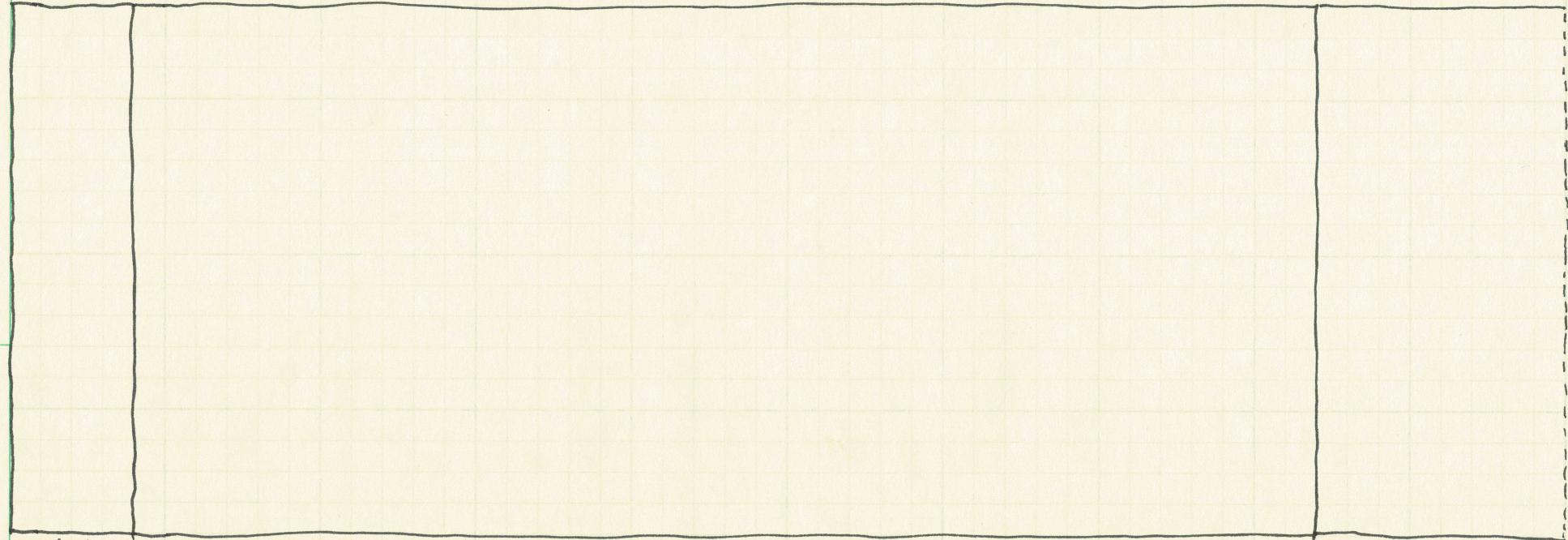
70

2	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151
1	12	13	14	15	16	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

122

105

87



252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301

1 2 3 4 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 32 33 34 35 36 37 38 1 2 3 4 5 6 7 8

82

70

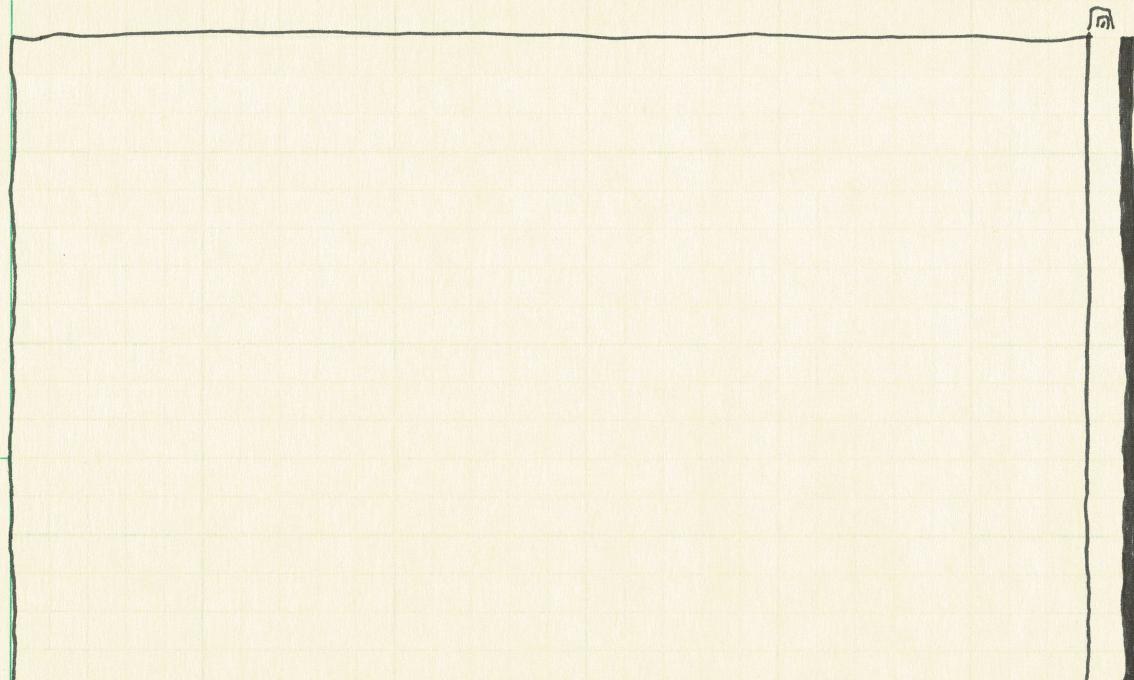
165

302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 | 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351
9 16 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 | 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 | 1 2 3 4 5 6 7 8 9 10 11

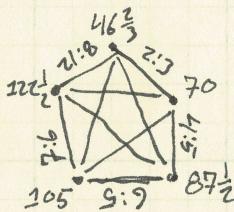
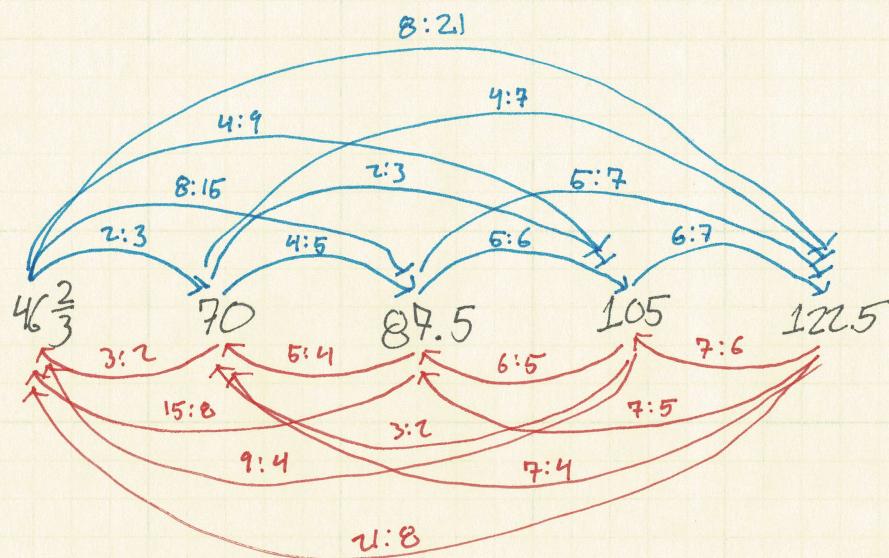
70

12 13 14 15 16 17 18 19 20 21 22 23 24 | 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 32 33 34 35 36 37

Codq



402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430
38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65



Percussion 1:

4 wood blocks

3 car springs

1 lion's roar

Percussion 2:

4 log drums/slit drums

1 shell windchime

1 bass drum