|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Threshold** | **0.4** | **0.5** | **0.6** | **0.7** | **0.8** | **0.9** |
| **Entropy** | **26.465301434466074** | **23.89666980907274** | **22.54314068540978** | **15.93057332745606** | **109.24550059193739** | **4.072705189392156** |
| **Avg Cos-Sim** | **1.4994378248367468e-05** | **-0.030143519827050103** | **-0.013385716882354959** | **-0.012503819653527063** | **0.016750307737075178** | **0.013288817633789668** |

**LEAN GRAPHS**

**THRESHOLD**

**0.8**

[(16, 17), (91, 92), (66, 67), (53, 62), (73, 74), (108, 109), (93, 95)]

[1, 2, 3, 4, 6, 5, 7, 8, 9, 10, 11, 12, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 27, 28, 29, 30, 34, 32, 33, 60, 59, 85, 89, 39, 35, 36, 37, 38, 40, 41, 42, 43, 44, 45, 31, 47, 48, 49, 50, 51, 111]

62.684601002272196

[13, 91, 92]

0.4948771028489406

[52, 56, 67, 65, 66, 69, 68, 54, 55, 57, 70, 71, 72]

5.732394779810236

[53, 61, 62, 63, 64]

0.7312994908893472

[73, 74, 112]

0.32699589457860445

[75, 94, 106, 107, 108, 109, 110]

2.5691794283893556

[76, 79, 80, 82, 83, 86, 84, 87, 88, 77, 78, 93, 90, 95, 96, 97, 99, 98, 100, 101, 102, 103, 104, 105, 113]

36.70615289314871

**Entropy 109.24550059193739**

[0.0767246600962882, 0.02913363673834579, -0.002776279252672209, -0.00041085920898020767, -0.022726245679558943, -0.03857491414767433, 0.19746326273136605, -0.03932361762282244, 1.4994378248367468e-05, -0.104995099476753, -0.1517097714250657, -0.16818104128331268, 0.005368421764364917, -0.4505170287096887, -0.660446785397558, 0.0004988292692172935, 0.5996960977148811, 0.2874555872430786, -0.0016625431014882786, -0.004012093795013882, 0.8007372516433766]

**AVG COS-SIM 0.016750307737075178**

**0.9**

14

[(1, 4), (9, 10), (16, 17), (28, 29), (41, 50), (47, 48), (66, 67), (53, 62), (54, 55), (73, 74), (108, 109), (93, 95), (79, 80), (82, 83)]

[1, 2, 4]

0.06688197066776191

[6, 7, 10, 9, 8, 11, 12, 15, 14]

0.48117880763020193

[16, 17, 18, 19, 20, 21, 22, 23, 24, 89, 25]

0.5132410330336757

[28, 29, 30]

0.07121963561351766

[37, 38, 39, 40, 41, 42, 50, 49, 43, 44, 51]

0.869486678618289

[47, 48]

0.01648703147827832

[52, 65, 66, 67]

0.25142478790393535

[53, 61, 62]

0.04484691864014247

[54, 55]

0.08835729504510544

[73, 74]

0.06863028401164831

[75, 94, 106, 109, 108, 107]

0.2805736117256386

[77, 78, 103, 102, 101, 99, 96, 93, 95, 97, 100, 98, 113, 104, 105]

0.915531608146256

[79, 80]

0.1162247766942433

[82, 83, 86, 84, 88, 90, 87]

0.28862075018346234

**Entropy 4.072705189392156**

[-0.015525458150140503, -0.05432096510705042, 0.02913363673834579, 0.12529293637531347, 0.005036874906498956, -0.002776279252672209, -0.00041085920898020767, -0.022726245679558943, 0.04346174677985348, 0.00515902144983893, 0.0018809983591331347, 0.000930053044390089, 0.016338371933366957, -0.024579591351562735, 0.10680915969114313, 0.1042188976878149, -0.012952359028530314, -0.013155278965745199, 0.0008440783103476068, -0.043975462014929745, 0.06490847457274973, 0.005105339816856236, 0.0006557169696259635, -0.006061267228827161, 0.017060489921823185, -0.13659974342196035, -0.060971511701574554, -0.00018163564372009056, 0.028045693390073567, -5.119792886310037e-06, 0.07321639531604851, -0.08460853804095203, -0.0003008819806362695, -0.003897291282612292, 0.010282864224108734, -0.01843493021362219, 0.015589171939360602, 0.023411612618241873, -0.16818104128331268, 0.005368421764364917, -0.4505170287096887, 0.5538683372958327, -0.0032655040443898553, 0.017081020539757685, -0.03946095627423918, 0.1537664084564534, 0.008953331789642416, -0.01964659101144428, -0.0015238894014861781, -0.02306923107317327, -0.0071449470803748305, 0.0071344262033399275, 0.002564391445470493, 0.0032928699495429203, -0.0018092436309589122, -0.03284521127204454, 0.0011718933939612874, -0.06655181986658709, 0.06313671538190313, -0.0053102966116573835, 0.005089059384109973, -0.010506736838027386, 0.03734737954974432, 0.0004988292692172935, 0.5996960977148811, 0.2361648573593671, -0.0014891794958444837, -0.21441626409146575, 0.06451535246242157, 0.12999263252559912, -0.0016625431014882786, 0.005606254073881711, -0.09191794602197345, -0.0006295832367260168, 3.990100802342411e-05, 0.000640350396623135, -0.0929783701228648, -0.0014778264986050615, -0.17820644138658848, 0.22581012048577342, 0.15238986452185632, -0.0023816373304224037, -0.09986533549150534, -0.3140097529868884, 0.192076136176777, 0.005319374056165005, -0.0013951730236860804, 0.007792452711494313, 0.07369765384952476, -0.019140688193012956, 0.329773395008614]

**AVG COS-SIM 0.013288817633789668**

**0.7**

6

[(17, 18), (66, 67), (53, 62), (93, 95), (108, 109), (82, 83)]

[1, 2, 3, 4, 5, 6, 7, 10, 9, 8, 23, 22, 21, 11, 12, 15, 14, 19, 18, 17, 16, 20, 39, 38, 37, 36, 35, 33, 43, 44, 45, 31, 47, 46, 48, 49, 50, 41, 40, 51, 42, 111, 24, 89, 25, 26, 85, 27, 32, 34, 28, 29, 30, 60, 59]

9.229173127233846

[52, 54, 55, 56, 57, 58, 68, 67, 66, 65, 70, 71, 72, 69]

3.0621418643615756

[53, 61, 62]

0.04484691864014247

[73, 74, 76, 77, 78, 103, 102, 101, 99, 96, 93, 92, 95, 97, 100, 98, 104, 79, 80, 81, 105, 113]

3.025217055311395

[75, 94, 106, 109, 108, 107]

0.2805736117256386

[82, 83, 86, 84, 88, 90, 87]

0.28862075018346234

**Entropy 15.93057332745606**

[-0.03932361762282244, 1.4994378248367468e-05, 0.005426467367581567, 0.001472392162574776, 0.02820249099143557, 0.0004988292692172935, -0.21441626409146575, -0.0014891794958444837, 0.12999263252559912, -0.0006295832367260168, -0.09191794602197345, 0.000640350396623135, 0.005319374056165005, -0.019140688193012956, 0.007792452711494313]

**AVG COS-SIM -0.012503819653527063**

**0.6**

4

[(17, 18), (93, 95), (53, 62), (108, 109)]

[1, 2, 3, 4, 5, 6, 7, 10, 9, 8, 23, 22, 21, 11, 12, 15, 14, 19, 18, 17, 16, 20, 39, 38, 37, 36, 24, 89, 25, 26, 33, 35, 85, 27, 32, 34, 28, 29, 30, 60, 59, 43, 44, 45, 31, 46, 47, 48, 58, 57, 56, 55, 54, 52, 65, 66, 67, 68, 69, 70, 71, 72, 112, 49, 50, 41, 40, 51, 42, 111]

15.06596457904612

[13, 80, 79, 76, 74, 73, 77, 78, 103, 102, 101, 99, 96, 93, 92, 88, 84, 86, 82, 81, 87, 91, 90, 98, 100, 104, 105, 113, 83, 95, 97]

7.1517555759978775

[53, 61, 62]

0.04484691864014247

[75, 94, 106, 109, 108, 107]

0.2805736117256386

**Entropy 22.54314068540978**

[0.005426467367581567, 1.4994378248367468e-05, 0.001472392162574776, -0.0006295832367260168, 0.005319374056165005, -0.09191794602197345]

**AVG COS-SIM -0.013385716882354959**

**0.5**

3

[(17, 18), (53, 62), (108, 109)]

[1, 2, 3, 4, 5, 6, 7, 10, 9, 8, 23, 22, 21, 11, 12, 15, 14, 19, 18, 17, 16, 20, 39, 38, 37, 36, 24, 89, 25, 26, 33, 35, 85, 27, 32, 31, 45, 44, 43, 49, 50, 41, 40, 51, 42, 111, 47, 46, 58, 57, 56, 55, 54, 52, 65, 66, 67, 68, 69, 112, 71, 70, 72, 73, 74, 76, 77, 78, 79, 80, 13, 113, 100, 98, 91, 87, 81, 82, 83, 86, 84, 88, 90, 92, 93, 95, 97, 96, 99, 101, 102, 103, 105, 104, 48, 34, 28, 29, 30, 60, 59]

23.571249278706958

[53, 61, 62]

0.04484691864014247

[75, 94, 106, 109, 108, 107]

0.2805736117256386

**Entropy 23.89666980907274**

[1.4994378248367468e-05, 0.001472392162574776, -0.09191794602197345]

**AVG COS-SIM -0.030143519827050103**

**0.4**

2

[(17, 18), (53, 62)]

[1, 2, 3, 4, 5, 6, 7, 10, 9, 8, 23, 22, 21, 11, 12, 15, 14, 19, 18, 17, 16, 20, 39, 38, 37, 36, 24, 89, 25, 26, 33, 35, 85, 27, 32, 31, 30, 29, 28, 34, 60, 59, 58, 46, 47, 45, 44, 43, 49, 50, 41, 40, 51, 42, 111, 48, 57, 56, 55, 54, 52, 65, 66, 67, 68, 69, 74, 73, 72, 71, 70, 112, 76, 77, 78, 79, 80, 13, 113, 100, 98, 91, 87, 81, 82, 83, 86, 84, 88, 90, 92, 93, 95, 97, 96, 99, 101, 102, 103, 105, 104, 110]

25.6113213674202

[53, 61, 62, 106, 75, 94, 109, 108, 107]

0.8539800670458756

**Entropy 26.465301434466074**

[1.4994378248367468e-05]

**AVG COS-SIM 1.4994378248367468e-05**