

Less than <  
Equal to =  
Greater than >

Hello SeqFans,

We want a sequence S of terms a(n) such that:

- 1) a(1)=1
- 2) any three consecutive digits d, e and f of S don't show d < e < f
- 3) S is extended with the smallest integer not yet present in S.

I guess S starts like this:

S = 1, 2, 10, 3, 11, 4, 12, 13, 14, 15, 5, 6, 16, 17, 7, 8, 18, 19, 20-120, 200, 201, 121, 122, 130, 202, 131, 132, 133, 140, 203, 141, 142, 143, 144, 150, 204, 151, 152, 153, 154, 155, 160, 205, ...

[20-120, above, meaning "all integers from 20 to 120, including 20 and 120"]

Playing with the signs <, =, > to be put between d, e and f, one could compute the sequences S to Z with:

S NOT showing d < e < f  
T d <= e < f  
U d < e <= f  
V d <= e <= f  
W d > e > f  
X d >= e > f  
Y d > e >= f  
Z d >= e >= f

Best,  
É.

[Lars Blomberg]:

Hello Eric!

Here is what I found, using all 25 combinations of the 5 relations GT, GE, LT, LE, EQ.  
[GT = greater; GE = greater or equal; LT = littler; LE = littler or equal; EQ = equal]

A thousand terms were computed and then compressed.

Some sequences seem to stop, and some continue with all 1's or all 9's.

Your sequence [Sa] is the first one: LT LT.

/Lars

[September 29th, 2013]

Relations: LT LT [3 digits in Sa are NOT such that d < e < f] - [1000 terms and 68 compressions]:

[Sa] = 1, 2, 10, 3, 11, 4, 12-15, 5, 6, 16, 17, 7, 8, 18, 19, 9, 20-120, 200, 201, 121, 122, 130, 202, 131-133, 140, 203, 141-144, 150, 204, 151-155, 160, 205, 161-166, 170, 206, 171-177, 180, 207, 181-188, 190, 208, 191-199, 209-230, 300, 301, 1000, 302, 231, 303, 232, 233, 240, 304, 241, 305, 242-244, 250, 306, 251, 307, 252-255, 260, 308, 261, 309, 262-266, 270, 310-312, 271, 313, 272-277, 280, 314, 281, 315, 282-288, 290, 316, 291, 317, 292-299, 318-340, 400, 401, 1001-1003, 341, 402, 1004, 342, 403, 343, 344, 350, 404, 351, 405, 352, 406, 353-355, 360, 407, 361, 408, 362, 409, 363-366, 370, 410-412, 1005, 371, 413, 372, 414, 373-377, 380, 415, 381, 416, 382, 417, 383-388, 390, 418, 391, 419, 392, 420-423, 393-399, 424-450, 500, 501, 1006, 451, 502, 1007, 452, 503, 1008, 453, 504, 454, 455, 460, 505, 461, 506, 462, 507, 463, 508, 464-466, 470, 509, 471, 510-512, 1009, 472, 513, 1010, 514, 473, 515, 474-477, 480, 516, 481, 517, 482, 518, 483, 519, 484-488, 490, 520-523, 1011, 524, 491, 525, 492, 526, 493, 527, 494-499, 528-534, 1020, 535-560, 600, 601, 1021, 602, 1022, 603, 1030, 604, 1031, 605, 561, 606, 562, 607, 563, 608, 564, 609, 565, 566, 570, 610-612, 1032, 613, 1033, 614, 1040, 615, 571, 616, 572, 617, 573, 618, 574, 619, 575-577, 580, 620-623, 1041, 624, 1042, 625, 581, 626, 582, 627, 583, 628, 584, 629, 585-588, 590, 630-634, 1043, 635, 591, 636, 592, 637, 593, 638, 594, 639, 595-599, 640-645, 1044, 646-670, 700, 701, 1050, 702, 1051, 703, 1052, 704, 1053, 705, 1054, 706, 671, 707, 672, 708, 673, 709, 674, 710-712, 1055, 713, 1060, 714, 1061, 715, 1062, 716, 675, 717, 676, 677, 680, 718, 681, 719, 682, 720-723, 1063, 724, 1064, 725, 1065, 726, 683, 727, 684, 728, 685, 729, 686-688, 690, 730-734, 1066, 691, 735, 1070, 736, 692, 737, 693, 738, 694, 739, 695, 740-745, 1071, 746, 696-699, 747-756, 1072, 757-780, 800, 801, 1073, 802, 1074, 803, 1075, 804, 1076, 805, 1077, 781, 806, 1080, 807, 782, 808, 783, 809, 784, 810-812, 1081, 813, 1082, 814, 1083, 815, 1084, 816, 1085, 817, 785, 818, 786, 819, 787, 788, 790, 820-823, 1086, 824, 1087, 791, 825, 1088, 792, 826, 1090, 827, 793, 828, 794, 829, 795, 830-834, 1091, 835, 1092, 836, 1093, 837, 796, 838, 797-799, 839-845, 1094, 846, 1095, 847, 1096, 848-856, 1097, 857, 1098, 858-867, 1099, 868-890, 900, 901, 1100, 902, 1101-1108, 891, 903, 1109, 892, 904, 1110, 905, 1111, 906, 1112-1118, 893, 907, 1119, 894, 908, 895, 909, 896, 910-912, 1120, 913, 1121, 914, 1122, 915, 1130, 916, 1131, 917, 1132, 918, 897, 919, 898, 899, 920-923, 1133, 924, 1140, 925, 1141, 926, 1142, 927, 1143, 928, 1144, 929-934, 1150, 935, 1151, 936, 1152, 937, 1153, 938, 1154, 939-945, 1155, 946, 1160, 947, 1161, 948, 1162, 949-956, 1163, 957, 1164, 958, 1165, 959-967, 1166, 968, 1170, 969-974, ...

Relations: LT LE [3 digits in Sb are NOT such that d < e <= f] - [1000 terms and 86 compressions]:

[Sb] = 1, 2, 10, 3, 11, 4, 12-16, 5, 6, 17, 18, 7, 8, 19, 20, 9, 21, 30-32, 22-29, 33-43, 50-54, 44-49, 55-65, 70-76, 66-69, 77-87, 90-98, 88, 89, 100, 102-110, 200, 202, 111-120, 203, 121, 130, 204, 131, 132, 140, 205, 141-143, 150, 206, 151-154, 160, 207, 161-165, 170, 208, 171-176, 180, 209, 181-187, 190, 210, 211, 191-198, 212, 1000, 213-220, 300, 302, 1002, 1003, 221, 303, 222-230, 304, 231, 305, 232, 240, 306, 241, 307, 242, 243, 250, 308, 251, 309, 252-254, 260, 310-312, 1004, 261, 313, 262-265, 270, 314, 271, 315, 272-276, 280, 316, 281, 317, 282-287, 290, 318, 291, 319, 292-298, 320-323, 1005, 324-330, 400, 402, 1006, 331, 403, 1007, 332, 404, 333-340, 405, 341, 406, 342, 407, 343, 350, 408, 351, 409, 352, 410-412, 1008, 353, 354, 360, 413, 1009, 361, 414, 362, 415, 363-365, 370, 416, 371, 417, 372, 418, 373-376, 380, 419, 381, 420-423, 1010, 424, 382, 425, 383-387, 390, 426, 391, 427, 392, 428, 393-398, 429-434, 1020, 435-440, 500, 502, 1021, 503, 1030, 504, 1031, 505, 441, 506, 442, 507, 443, 508, 444-450, 509, 451, 510-512, 1032, 513, 1040, 514, 1041, 515, 452, 516, 453, 517, 454, 460, 518, 461, 519, 462, 520-523, 1042, 524, 1043, 525, 463, 526, 464, 465, 470, 527, 471, 528, 472, 529, 473, 530-534, 1050, 535, 474-476, 480, 536, 481, 537, 482, 538, 483, 539, 484-487, 490, 540-544, 491, 545, 492, 546, 493, 547, 494-498, 548-550, 600, 602, 1051, 603, 1052, 604, 1053, 605, 1054, 606, 551, 607, 552, 608, 553, 609, 554, 610-612, 1060, 613, 1061, 614, 1062, 615, 1063, 616, 555-560, 617, 561, 618, 562, 619, 563, 620-623, 1064, 624, 1065, 564, 625, 1070, 626, 565, 570, 627, 571, 628, 572, 629, 573, 630-634, 1071,

635,1072,636,574,637,575,576,580,638,581,639,582,640-645,1073,646,583,647,584,648,  
585-587,590,649,591,650-655,592,656,593,657,594,658,595-598,659,660,700,702,1074,703,  
1075,704,1076,661,705,1080,706,1081,707,662,708,663,709,664,710-712,1082,713,1083,  
714,1084,715,1085,716,1086,665,717,666-670,718,671,719,672,720-723,1087,673,724,1090,  
725,1091,726,1092,727,674,728,675,729,676,680,730-734,1093,735,1094,736,1095,737,681,  
738,682,739,683,740-745,1096,684,746,1097,685,747,686,687,690,748,691,749,692,750-756,  
1098,693,757,694,758,695,759,696-698,760-767,1100,768-770,800,802,1102-1108,771,803,  
1109,772,804,1110,805,1111,806,1112-1118,773,807,1119,774,808,775,809,776,810-812,  
1120,813,1121,814,1130,815,1131,816,1132,817,1140,818,777-780,819,781,820-823,1141,  
824,1142,825,1143,826,1150,827,1151,828,782,829,783,830-834,1152,835,1153,836,1154,  
837,1160,838,784,839,785,840-845,1161,846,1162,847,1163,848,786,849,787,790,850-856,  
1164,857,1165,858,791,859,792,860-867,1170,868,793,869,794,870-877,795,878,796,879,  
797,798,880,900,902,1171,903,1172,904,1173,905,1174,906,1175,907,1176,908,1180,909,  
881,910-912,1181,913,1182,914,1183,915,1184,916,1185,917,1186,918,1187,919,882,920-923,  
1190,924,1191,925,1192,926,1193,927,1194,928,1195,929,883,930-934,1196,935,1197,936,  
1198,884,937,1200,938,1202-1209,885,939,886,940-945,1210,946,1211,947,1212-1219,887,  
948,1300,949,888-890,950-956,1302-1309,891,957,1310,958,1311,959,892,960-967,1312-1319,  
893,968,1320,969,894,970-978,...

Relations: LT GT [3 digits in Sc are NOT such that  $d < e > f$ ] - [1000 terms and 10 compressions]:

[Sc] = 1-9,90,11,10,12,20,13,30,14,40,15,50,16,60,17,70,18,80,19,91,22,21,23,31,24,41,  
25,51,26,61,27,71,28,81,29,32,33,32,34,42,35,52,36,62,37,72,38,82,39,93,44,43,45,53,  
46,63,47,73,48,83,49,94,55,54,56,64,57,74,58,84,59,95,66,65,67,75,68,85,69,96,77,76,  
78,86,79,97,88,87,89,98-100,110,111,101,102,200,112,201,103,300,113,301,104,400,114,  
401,105,500,115,501,106,600,116,601,107,700,117,701,108,800,118,801,109,900,119,901,  
122,123,302,202,203,303,304,402,204,403,305,502,205,503,306,602,206,603,307,702,207,  
703,308,802,208,803,309,902,209,903,310,124,404,405,504,406,604,407,704,408,804,409,  
904,410,125,505,506,605,507,705,508,805,509,905,510,126,606,607,706,608,806,609,906,  
610,127,707,708,807,709,907,710,128,808,809,908,810,129,909,910,133,134,411,135,511,  
136,611,137,711,138,811,139,911,144,145,512,210,146,612,211,147,712,212,213,311,148,  
812,214,412,215,513,312,216,613,313,314,413,315,514,414,415,515,516,614,416,615,517,  
713,316,616,617,714,417,715,518,813,317,716,618,814,418,815,519,912,217,717,718,816,  
619,913,318,817,719,914,419,915,520,149,916,620,155,156,621,157,720,158,818,819,917,  
721,159,918,820,166,167,722,168,821,169,919,920,177,178,822,179,921,188,189,922,199,  
218,823,319,923,320,220-222,219,924,420,223,321,224,421,225,521,226,622,227,723,322,  
228,824,422,229,925,522,233,234,423,323,324,424,425,523,325,524,426,623,326,624,427,  
724,428,825,525,526,625,527,725,528,826,626,627,726,628,827,727,728,828,829,926,629,  
927,729,928,830,235,529,929,930,236,630,237,730,238,831,239,931,244,245,530,246,631,  
247,731,248,832,249,932,255,256,632,257,732,258,833,259,933,266,267,733,268,834,429,  
934,430,269,935,531,277,278,835,532,279,936,633,288,289,937,734,431,299,327,735,533,  
328,836,634,432,330-333,329,938,837,736,635,534,433,334,434,435,535,536,636,637,737,  
738,838,839,939,940,335,537,739,941,336,638,840,337,740,338,841,339,942,344,345,538,  
842,346,639,943,347,741,348,843,349,944,355,356,640,357,742,358,844,359,945,539,946,  
641,366,367,743,368,845,540,369,947,744,377,378,846,642,379,948,847,745,541,388,389,  
949,950,399,436,643,440-444,437,746,644,438,848,849,951,445,542,446,645,543,447,747,  
748,850,448,851,449,952,455,439,953,456,646,647,749,954,457,750,458,852,459,955,466,  
467,751,468,853,469,956,648,854,477,478,855,479,957,752,488,489,958,856,649,959,960,  
499,544,550-555,545,546,650,556,651,557,753,558,857,754,559,961,566,547,755,548,858,  
859,962,567,756,652,568,860,569,963,577,549,964,578,861,579,965,588,589,966,599,653,  
660-666,654,667,757,758,862,668,863,669,967,759,968,864,677,655,678,865,679,969,970,  
688,656,657,760,689,971,699,658,866,659,972,770-777,761,778,867,762,779,973,788,763,  
789,974,799,764,880-887,765,888,766,889,975,899,767,768,868,869,976,990-997,769,977,  
998,870,999,871,1000,1100,1101,1001,1002,2000,1102,2001,1003,3000,1103,3001,1004,4000,  
1104,4001,1005,5000,1105,5001,1006,6000,1106,6001,1007,7000,1107,7001,1008,872,1009,  
978,873,1011,1012,2002,2003,3002,2004,4002,2005,5002,2006,6002,2007,7002,2008,874,  
1013,3003,3004,4003,3005,5003,3006,6003,3007,7003,3008,875,1014,4004,4005,5004,4006,  
6004,4007,7004,4008,876,1015,5005,5006,6005,5007,7005,5008,877,1016,6006,6007,7006,  
6008,878,879,979,980,1108,8000,1109,981,1017,7007,7008,8001,1018,8002,2009,982,1019,  
983,1022,1023,3009,984,1024,4009,985,1025,5009,986,1026,6009,987,1027,7009,988,1028,  
8003,3011,1029,989,9000,1110,1111,1033,1034,4011,1035,5011,1036,6011,1037,7011,1038,  
8004,4012,2011,1039,9001,1044,1045,5012,2012,2013,3012,2014,4013,3013,3014,4014,4015,  
5013,3015,5014,4016,6012,2015,5015,5016,6013,3016,6014,4017,7012,2016,6015,5017,7013,  
3017,7014,4018,8005,5018,8006,6016,6017,7015,5019,9002,2017,7016,6018,8007,7017,7018,  
8008,8009,9003,3018,8011,1046,6019,9004,4019,9005,5022,1047,7019,9006,6022,1048,8012,  
2018,8013,3019,9007,7022,1049,9008,8014,4022,1055,1056,6023,3022,1057,7023,3023,3024,  
4023,3025,5023,3026,6024,4024,4025,5024,4026,6025,5025,5026,6026,6027,7024,4027,7025,  
5027,7026,6028,8015,5028,8016,6029,9009,9011,1058,8017,7027,7028,8018,8019,9012,2019,  
9013,3027,7029,9014,4028,8022,1059,...

Relations: LT GE [3 digits in Sd are NOT such that  $d < e \geq f$ ] - [sequence has only 9 terms]:

[Sd] = 1,2,3,4,5,6,7,8,9 stop

Relations: LT EQ [the digits in Se are NOT such that  $d < e = f$ ] - [1000 terms and 100 compressions]:

[Se] = 1-10,12,11,13-21,23,22,24-32,34,33,35-43,45,44,46-54,56,55,57-65,67,66,68-76,  
78,77,79-87,89,88,90-98,100,101,200,102-110,120,121,111-119,123-132,134-143,145-154,  
156-165,167-176,178-187,189-198,201,202,300,203-212,301,213-220,230-232,221,234,222-229,  
235-243,245-254,256-265,267-276,278-287,289-298,302,303,400,304-313,401,314-323,402,  
324-330,340-343,331,345,332,346,333-339,347-354,356-365,367-376,378-387,389-398,403,  
404,500,405-414,501,415-424,502,425-434,503,435-440,450-454,441,456,442,457,443,458,  
444-449,459-465,467-476,478-487,489-498,504,505,600,506-515,601,516-525,602,526-535,  
603,536-545,604,546-550,560-565,551,567,552,568,553,569,554,570-575,555-559,576,578-587,  
589-598,605,606,700,607-616,701,617-626,702,627-636,703,637-646,704,647-656,705,657-660,  
670-676,661,678,662,679,663,680-686,664,687,665,689,666-669,690-698,706,707,800,708-717,  
801,718-727,802,728-737,803,738-747,804,748-757,805,758-767,806,768-770,780-787,771,  
789,772,790-797,773,798,774,807,808,775,809,776,810-818,777-779,819-828,900,829-838,  
901,839-848,902,849-858,903,859-868,904,869-878,905,879,880,890-898,881,906-909,882,  
910-919,883,920-929,884,930-939,885,940-949,886,950-959,887,960-969,888,889,1000,970-979,  
1001,980-989,1002-1010,1012-1021,1023-1032,1034-1043,1045-1051,...

Relations: LE LT [3 digits in Sf are NOT such that  $d \leq e < f$ ] - [1000 terms and 73 compressions]:

[Sf] = 1, 2, 10, 3, 11, 101, 102, 12-14, 4, 15, 5, 16, 6, 17, 7, 18, 8, 19, 9, 20-22, 103, 23-33, 104, 34-44, 105, 45-55, 106, 56-66, 107, 67-77, 108, 78-88, 109, 89-99, 110, 111, 1010, 201, 1011, 1020, 202, 120, 203, 121, 204, 122, 130, 205, 131, 206, 132, 133, 140, 207, 141, 208, 142-144, 150, 209, 151, 210, 211, 1021, 212, 152-155, 160, 213, 161, 214, 162-166, 170, 215, 171, 216, 172-177, 180, 217, 181, 218, 182-188, 190, 219, 191, 220-222, 192-199, 230, 301, 1022, 1030, 302, 1031, 303, 231, 304, 232, 305, 233, 240, 306, 241, 307, 242, 308, 243, 244, 250, 309, 251, 310, 311, 1032, 312, 1033, 252, 313, 253-255, 260, 314, 261, 315, 262, 316, 263-266, 270, 317, 271, 318, 272, 319, 273-277, 280, 320-322, 1040, 323, 281, 324, 282, 325, 283-288, 290, 326, 291, 327, 292, 328, 293-299, 329-333, 1041, 401, 1042, 402, 1043, 403, 1044, 340, 404, 341, 405, 342, 406, 343, 407, 344, 350, 408, 351, 409, 352, 410, 411, 1050, 412, 1051, 413, 1052, 414, 353, 415, 354, 355, 360, 416, 361, 417, 362, 418, 363, 419, 364-366, 370, 420-422, 1053, 423, 1054, 371, 424, 372, 425, 373, 426, 374-377, 380, 427, 381, 428, 382, 429, 383, 430-433, 1055, 384-388, 390, 434, 391, 435, 392, 436, 393, 437, 394-399, 438-444, 1060, 501, 1061, 502, 1062, 503, 1063, 504, 1064, 505, 450, 506, 451, 507, 452, 508, 453, 509, 454, 510, 511, 1065, 455, 460, 512, 1066, 461, 513, 1070, 514, 1071, 515, 462, 516, 463, 517, 464, 518, 465, 466, 470, 519, 471, 520-522, 1072, 523, 1073, 524, 1074, 525, 472, 526, 473, 527, 474, 528, 475-477, 480, 529, 481, 530-533, 1075, 482, 534, 1076, 483, 535, 484, 536, 485-488, 490, 537, 491, 538, 492, 539, 493, 540-544, 1077, 494, 545, 495-499, 546-555, 1080, 601, 1081, 602, 1082, 603, 1083, 604, 1084, 605, 1085, 606, 560, 607, 561, 608, 562, 609, 563, 610, 611, 1086, 564, 612, 1087, 565, 613, 1088, 566, 570, 614, 1090, 615, 1091, 616, 571, 617, 572, 618, 573, 619, 574, 620-622, 1092, 623, 1093, 624, 1094, 625, 1095, 626, 575, 627, 576, 577, 580, 628, 581, 629, 582, 630-633, 1096, 583, 634, 1097, 584, 635, 1098, 585, 636, 586-588, 590, 637, 591, 638, 592, 639, 593, 640-644, 1099, 594, 645, 1101-1106, 595, 646, 596-599, 647-655, 1107, 656-666, 1108, 670, 701, 1109, 671, 702, 1110, 703, 1111, 10101, 10102, 1201, 10103, 1202-1207, 672, 704, 1208, 673, 705, 1209, 674, 706, 1210, 707, 675, 708, 676, 709, 677, 680, 710, 711, 10104, 1211, 10105, 1212-1217, 681, 712, 1218, 682, 713, 1219, 683, 714, 1220, 715, 1221, 716, 1222, 1301, 10106, 1302-1307, 684, 717, 685, 718, 686, 719, 687, 688, 690, 720-722, 1308, 691, 723, 1309, 692, 724, 1310, 725, 1311, 10107, 693, 726, 1312-1317, 694, 727, 695, 728, 696, 729, 697-699, 730-733, 1318, 734, 1319, 735, 1320, 736, 1321, 737-744, 1322-1327, 745, 1328, 746, 1329, 747-755, 1330, 756, 1331, 757-766, 1332, 767-777, 1333, 1401, 10108, 780, 801, 10109, 781, 802, 1402-1408, 782, 803, 1409, 783, 804, 1410, 805, 1411, 10110, 806, 1412-1418, 784, 807, 1419, 785, 808, 786, 809, 787, 810, 811, 10111, 10201, 10202, 1420, 812, 1421, 813, 1422-1428, 788, 790, 814, 1429, 791, 815, 1430, 816, 1431, 817, 1432, 818, 792, 819, 793, 820-822, 1433-1438, 794, 823, 1439, 795, 824, 1440, 825, 1441, 826, 1442, 827, 1443, 828, 796, 829, 797, 830-833, 1444, 1501, 10203, 1502-1508, 798, 799, 834, 1509, 835, 1510, 836, 1511, 10204, 1512-1518, 837, 1519, 838-844, 1520, 845, 1521, 846, 1522-1528, 847, 1529, 848-855, 1530, 856, 1531, 857, 1532, 858-866, 1533-1538, 867, 1539, 868-877, 1540, 878-888, 1541, 901, 10205, 1542, 902, 1543, 903, 1544-1549, 890, 904, 1550, 905, 1551, 906, 1552, ...

Relations: LE LE [3 digits in Sg are NOT such that  $d \leq e \leq f$ ] - [1000 terms and 74 compressions]:

[Sg] = 1, 2, 10, 3, 12-15, 4, 5, 16, 17, 6, 7, 18, 19, 8, 9, 20, 21, 30-32, 40-43, 22, 102, 103, 23-29, 33, 104, 34-39, 44, 105, 45-54, 60-65, 70-76, 55, 106, 56-59, 66, 107, 67-69, 77, 108, 78-87, 90-98, 109, 88, 110, 202, 120, 203, 121, 204, 130, 205, 131, 206, 132, 140, 207, 141, 208, 142, 143, 150, 209, 89, 151, 210, 212, 152-154, 160, 213, 161, 214, 162-165, 170, 215, 171, 216, 172-176, 180, 217, 181, 218, 182-187, 190, 219, 191, 302, 192-198, 220, 303, 221, 304, 230, 305, 231, 306, 232, 307, 240, 308, 241, 309, 242, 310, 312, 1010, 313, 243, 250, 314, 251, 315, 252, 316, 253, 254, 260, 317, 261, 318, 262, 319, 263-265, 270, 320-322, 1020, 323, 271, 324, 272, 325, 273-276, 280, 326, 281, 327, 282, 328, 283-287, 290, 329, 291, 402, 1021, 403, 292, 404, 293-298, 330, 405, 331, 406, 332, 407, 340, 408, 341, 409, 342, 410, 412, 1030, 413, 1031, 414, 343, 415, 350, 416, 351, 417, 352, 418, 353, 419, 354, 360, 420-422, 1032, 423, 1040, 424, 361, 425, 362, 426, 363, 427, 364, 365, 370, 428, 371, 429, 372, 430-433, 1041, 434, 373, 435, 374-376, 380, 436, 381, 437, 382, 438, 383, 439, 384-387, 390, 502, 1042, 503, 1043, 504, 391, 505, 392, 506, 393, 507, 394-398, 440, 508, 441, 509, 442, 510, 512, 1050, 513, 1051, 514, 1052, 515, 443, 516, 450, 517, 451, 518, 452, 519, 453, 520-522, 1053, 523, 1054, 524, 1060, 525, 454, 526, 460, 527, 461, 528, 462, 529, 463, 530-533, 1061, 534, 1062, 535, 464, 536, 465, 470, 537, 471, 538, 472, 539, 473, 540-544, 1063, 545, 474, 546, 475, 476, 480, 547, 481, 548, 482, 549, 483, 602, 1064, 603, 1065, 484, 604, 1070, 605, 485-487, 490, 606, 491, 607, 492, 608, 493, 609, 494, 610, 612, 1071, 613, 1072, 614, 1073, 615, 495-498, 590, 616, 551, 617, 552, 618, 553, 619, 554, 620-622, 1074, 623, 1075, 624, 1076, 560, 625, 1080, 626, 561, 627, 562, 628, 563, 629, 564, 630-633, 1081, 634, 1082, 635, 1083, 636, 565, 637, 570, 638, 571, 639, 572, 640-644, 1084, 645, 1085, 646, 573, 647, 574, 648, 575, 649, 576, 580, 650-655, 1086, 581, 656, 582, 657, 583, 658, 584, 659, 585, 702, 1087, 586, 587, 590, 703, 1090, 704, 1091, 705, 1092, 706, 591, 707, 592, 708, 593, 709, 594, 710, 712, 1093, 713, 1094, 714, 1095, 715, 1096, 595, 716, 596-598, 660, 717, 661, 718, 662, 719, 663, 720-722, 1097, 664, 723, 1098, 665, 724, 1102-1107, 670, 725, 1108, 671, 726, 1109, 672, 727, 673, 728, 674, 729, 675, 730-733, 1202-1207, 676, 734, 1208, 680, 735, 1209, 681, 736, 1210, 737, 682, 738, 683, 739, 684, 740-744, 1212-1217, 685, 745, 1218, 686, 746, 1219, 687, 690, 747, 691, 748, 692, 749, 693, 750-755, 1302-1307, 694, 756, 1308, 695, 757, 696, 758, 697, 698, 759-766, 1309, 767, 1310, 768-770, 802, 1312-1318, 771, 803, 1319, 772, 804, 1320, 805, 1321, 806, 1322-1328, 773, 807, 1329, 774, 808, 775, 809, 776, 810, 812, 1402-1408, 780, 813, 1409, 781, 814, 1410, 815, 1412-1418, 782, 816, 1419, 783, 817, 1420, 818, 784, 819, 785, 820-822, 1421, 823, 1422-1428, 786, 824, 1429, 787, 825, 1430, 826, 1431, 827, 1432, 828, 790, 829, 791, 830-833, 1433-1438, 792, 834, 1439, 793, 835, 1502-1508, 794, 836, 1509, 795, 837, 1510, 838, 796, 839, 797, 840-844, 1512-1518, 798, 845, 1519, 846, 1520, 847, 1521, 848, 1522-1529, 849-855, 1530, 856, 1531, 857, 1532, 858, 1533-1539, 859-866, 1540, 867, 1541, 868, 1542, 869-877, 1543, 878, 1544-1549, 879, 880, 902, 1602-1609, 881, 903, 1610, 904, 1612-1619, 882, 905, 1620, 906, 1621, 907, 1622-1629, 883, 908, 1630, 909, 884, 910, 912, 1631, 913, 1632, 914, 1633-1639, 885, 915, 1640, 916, 1641, 917, 1642, 918, 1643, 919, 886, 920-922, 1644-1649, 887, 923, 1650, 924, 1651, 925, 1652, 926, 1653, 927, 1654, 928, 1655-1659, 890, 929, 891, 930-933, 1702-1709, 892, 934, 1710, 935, 1712-1719, 893, 936, 1720, 937, 1721, 938, 1722, 1723, ...

Relations: LE GT [3 digits in Sh are NOT such that  $d \leq e > f$ ] - [sequence is extended with lots of 9's]:

[Sh] = 1, 2, 3, 4, 5, 6, 7, 8, 9, 99, 999, 9999, 99999, 999999, 9999999, ...

Relations: LE GE [3 digits in Si are NOT such that  $d \leq e \geq f$ ] - [sequence has 9 terms]:

[Si] = 1, 2, 3, 4, 5, 6, 7, 8, 9 stop

Relations: LE EQ [3 digits in Sj are NOT such that  $d \leq e = f$ ] - [1000 terms and 103 compressions]:

[Sj] = 1-10, 12, 11, 20, 13-19, 21, 23, 22, 30, 24-29, 31, 32, 34, 33, 40, 35-39, 41-43, 45, 44, 50, 46-49, 51-54, 56, 55, 60, 57-59, 61-65, 67, 66, 70, 68, 69, 71-76, 78, 77, 80, 79, 81-87, 89, 88, 90-98, 100, 101, 200, 102-110, 120, 121, 123, 112-119, 124-132, 134-143, 145-154, 156-165, 167-176, 178-187, 189-198, 201, 202, 300, 203-212, 301, 213-220, 230-232, 234, 221, 235, 223-229, 236-243, 245-254, 256-265, 267-276, 278-287, 289-298, 302, 303, 400, 304-313, 401, 314-323, 402, 324-330, 340-343, 345, 331, 346, 332, 347, 334-339, 348-354, 356-365, 367-376, 378-387, 389-398, 403, 404, 500, 405-414, ...

501, 415-424, 502, 425-434, 503, 435-440, 450-454, 456, 441, 457, 442, 458, 443, 459, 445-449, 460-465, 467-476, 478-487, 489-498, 504, 505, 600, 506-515, 601, 516-525, 602, 526-535, 603, 536-545, 604, 546-550, 560-565, 567, 551, 568, 552, 569, 553, 570-576, 554, 578, 556-559, 579-587, 589-598, 605, 606, 700, 607-616, 701, 617-626, 702, 627-636, 703, 637-646, 704, 647-656, 705, 657-660, 670-676, 678, 661, 679, 662, 680-687, 663, 689, 664, 690-697, 665, 698, 667-669, 706, 707, 800, 708-717, 801, 718-727, 802, 728-737, 803, 738-747, 804, 748-757, 805, 758-767, 806, 768-770, 780-787, 789, 771, 790-798, 772, 807, 808, 773, 809, 774, 810-818, 775, 819, 776, 820-828, 778, 779, 829-838, 900, 839-848, 901, 849-858, 902, 859-868, 903, 869-878, 904, 879, 880, 890-898, 905-909, 881, 910-919, 882, 920-929, 883, 930-939, 884, 940-949, 885, 950-959, 886, 960-969, 887, 970-979, 889, 1001, 980-989, 1002-1010, 1012-1021, 1023-1032, 1034-1043, 1045-1054, 1056-1061, ...

Relations: GT LT [3 digits in Sk are NOT such that  $d > e < f$ ] - [1000 terms and 36 compressions]:

[Sk] = 1-9, 11, 12, 21, 13, 22, 23, 31, 14, 32, 24, 33, 34, 41, 15, 42, 25, 43, 35, 44, 45, 51, 16, 52, 26, 53, 36, 54, 46, 55, 56, 61, 17, 62, 27, 63, 37, 64, 47, 65, 57, 66, 67, 71, 18, 72, 28, 73, 38, 74, 48, 75, 58, 76, 68, 77, 78, 81, 19, 82, 29, 83, 39, 84, 49, 85, 59, 86, 69, 87, 79, 88, 89, 91, 100, 92, 111, 93, 112, 94, 113, 95, 114, 96, 115, 97, 116, 98, 117, 99, 118, 119, 200, 121, 122, 211, 123, 221, 124, 222-229, 300, 125, 311, 126, 321, 127, 322, 231, 128, 331, 129, 332, 232, 233, 333-339, 400, 131, 132, 234, 411, 133, 341, 134, 421, 135, 422, 235, 431, 136, 432, 236, 433, 342, 237, 441, 137, 442, 238, 443, 343, 344, 444-449, 500, 138, 511, 139, 521, 141, 142, 239, 522, 241, 143, 345, 531, 144, 451, 145, 532, 242, 243, 346, 533, 347, 541, 146, 542, 244, 452, 245, 543, 348, 544, 453, 349, 551, 147, 552, 246, 553, 351, 148, 554, 454, 455, 555-559, 600, 149, 611, 151, 152, 247, 621, 153, 352, 248, 622, 249, 631, 154, 456, 632, 251, 155, 561, 156, 633, 353, 354, 457, 641, 157, 642, 252, 253, 355, 562, 254, 458, 643, 356, 644, 459, 651, 158, 652, 255, 563, 357, 653, 358, 654, 461, 159, 655, 564, 462, 256, 661, 161, 162, 257, 662, 258, 663, 359, 664, 463, 361, 163, 362, 259, 665, 565, 566, 666-669, 700, 164, 464, 465, 567, 711, 165, 568, 721, 166, 671, 167, 722, 261, 168, 731, 169, 732, 262, 263, 363, 364, 466, 672, 264, 467, 733, 365, 569, 741, 171, 172, 265, 571, 173, 366, 673, 367, 742, 266, 674, 468, 743, 368, 744, 469, 751, 174, 471, 175, 572, 267, 752, 268, 753, 369, 754, 472, 269, 755, 573, 371, 176, 675, 574, 473, 372, 271, 177, 761, 178, 762, 272, 273, 373, 374, 474, 475, 575, 576, 676, 677, 763, 375, 577, 764, 476, 678, 765, 578, 766, 679, 771, 179, 772, 274, 477, 773, 376, 681, 181, 182, 275, 579, 774, 478, 775, 581, 183, 377, 776, 682, 276, 683, 378, 777-779, 800, 184, 479, 811, 185, 582, 277, 781, 186, 684, 481, 187, 782, 278, 821, 188, 822, 279, 831, 189, 832, 281, 191, 192, 282, 283, 379, 833, 381, 193, 382, 284, 482, 285, 583, 383, 384, 483, 385, 584, 484, 485, 585, 586, 685, 587, 783, 386, 686, 687, 784, 486, 688, 841, 194, 487, 785, 588, 842, 286, 689, 843, 387, 786, 691, 195, 589, 844, 488, 851, 196, 692, 287, 787, 788, 852, 288, 853, 388, 854, 489, 855, 591, 197, 789, 861, 198, 862, 289, 863, 389, 864, 491, 199, 865, 592, 291, 1000, 292, 293, 391, 1001, 294, 492, 295, 593, 392, 296, 693, 393, 394, 493, 395, 594, 494, 495, 595, 596, 694, 496, 695, 597, 791, 1002, 297, 792, 298, 866, 696, 697, 793, 396, 698, 871, 1003, 397, 794, 497, 795, 598, 872, 299, 873, 398, 874, 498, 875, 599, 876, 699, 877, 796, 1004, 499, 881, 1005, 797, 798, 882, 1006, 799, 883, 399, 884, 1007, 885, 1008, 886, 1009, 887, 1100, 888, 889, 900, 891, 1111, 892, 1112, 893, 1113, 894, 1114, 895, 1115, 896, 1116, 897, 1117, 898, 899, 911, 921, 1118, 922, 931, 1119, 932, 1121, 1122, 933, 941, 1123, 942, 1124, 943, 1125, 944, 951, 1126, 952, 1127, 953, 1128, 954, 1129, 955, 961, 1131-1133, 962, 1134, 963, 1135, 964, 1136, 965, 1137, 966, 971, 1138, 972, 1139, 973, 1141-1144, 974, 1145, 975, 1146, 976, 1147, 977, 981, 1148, 982, 1149, 983, 1151-1155, 984, 1156, 985, 1157, 986, 1158, 987, 1159, 988, 991, 1161-1166, 992, 1167, 993, 1168, 994, 1169, 995, 1171-1177, 996, 1178, 997, 1179, 998, 1181-1188, 999, 1189, 1191-1199, 2000, 1200, 1211, 1221, 1222, 2001, 1223, 2002-2009, 2100, 1224, 2111, 1225, 2112-2119, 2200, 1226, 2211, 1227, 2221, 1228, 2222-2229, 2231, 1229, 2232-2239, 2241, 1231, 1232, 2242-2249, 2251, 1233, 2252-2259, 2261, 1234, 2262-2269, 2271, 1235, 2272-2279, 2281, 1236, 2282-2289, 2291, 1237, 2292-2299, 3000, 1238, 3001, 1239, 3002, 2300, 1241, 1242, 2311, 1243, 3003-3009, 3100, 1244, 3111, 1245, 3112, 2321, 1246, 3113-3119, 3200, 1247, 3211, 1248, 3221, 1249, 3222, 2322, 2331, 1251, 1252, 2332, 2333, 3223-3229, 3300, 1253, 3311, 1254, 3321, 1255, 3322, 2334, 3331, 1256, 3332, 2335, 3333-3339, 3341, 1257, 3342, 2336, 3343-3349, 3351, 1258, 3352, 2337, 3353-3359, 3361, 1259, 3362, 2338, 3363-3369, 3371, 1261, 1262, 2339, 3372, 2341, 1263, 3373-3379, 3381, 1264, 3382, 2342, 2343, 3383-3389, 3391, 1265, 3392, 2344, 3393-3399, 4000, 1266, 4001, 1267, 4002, 2345, 4003, 3400, 1268, 4004-4009, 4100, 1269, 4111, 1271, 1272, 2346, 4112, 2347, 4113, 3411, 1273, 3421, 1274, 4114-4117, ...

Relations: GT LE [3 digits in Sl are NOT such that  $d > e \leq f$ ] - [does the sequence stop with 32?]

[Sl] = 1, 2, 3, 4, 5, 6, 7, 8, 9, 32 stop?

Relations: GT GT [3 digits in Sm are NOT such that  $d > e > f$ ] - [1000 terms and 97 compressions]:

[Sm] = 1-9, 11, 10, 12-19, 22, 20, 21, 23-29, 33, 30-32, 34-39, 44, 40-43, 45-49, 55, 50-54, 56-59, 66, 60-65, 67-69, 77, 70-76, 78, 79, 88, 80-87, 89-99, 110, 100-102, 111, 103, 112-120, 104, 121, 105, 122-130, 106, 131, 107, 132, 200, 108, 133-140, 109, 141, 142, 201, 143, 300, 144-152, 202, 153, 301, 154, 400, 155-162, 203, 163, 302, 164, 401, 165, 500, 166-172, 204, 173, 303, 174, 402, 175, 501, 176, 600, 177-182, 205, 183, 304, 184, 403, 185, 502, 186, 601, 187, 700, 188-192, 206, 193, 305, 194, 404, 195, 503, 196, 602, 197, 701, 198, 800, 199, 220, 207, 221, 208, 222, 209, 223-230, 211-213, 231, 214, 232, 215, 233-240, 216, 241, 217, 242, 218, 243, 306, 244-250, 219, 251-253, 307, 254, 405, 255-263, 308, 264, 406, 265, 504, 266-273, 309, 274, 407, 275, 505, 276, 603, 277-283, 311, 284, 408, 285, 506, 286, 604, 287, 702, 288-293, 312, 294, 409, 295, 507, 296, 605, 297, 703, 298, 801, 299, 330, 313, 314, 331, 315, 332, 316, 333, 317, 334-340, 318, 341, 319, 342, 322-324, 343, 325, 344-350, 326, 351, 327, 352, 328, 353, 329, 354, 411, 355-364, 412, 365, 508, 366-374, 413, 375, 509, 376, 606, 377-384, 414, 385, 511, 386, 607, 387, 704, 388-394, 415, 395, 512, 396, 608, 397, 705, 398, 802, 399, 440, 416, 441, 417, 442, 418, 443, 419, 444, 422-425, 445-450, 426, 451, 427, 452, 428, 453, 429, 454, 433-435, 455-460, 436, 461, 437, 462, 438, 463, 439, 464, 465, 513, 466-475, 514, 476, 609, 477-485, 515, 486, 611, 487, 706, 488-495, 516, 496, 612, 497, 707, 498, 803, 499, 550, 517, 551, 518, 552, 519, 553, 522-526, 554, 527, 555, 528, 556-560, 529, 561, 533-536, 562, 537, 563, 538, 564, 539, 565, 544-546, 566-570, 547, 571, 548, 572, 549, 573-576, 613, 577-586, 614, 587, 708, 588-596, 615, 597, 709, 598, 804, 599, 660, 616, 617, 661, 618, 662, 619, 663, 622-627, 664, 628, 665, 629, 666, 633-637, 667-670, 638, 671, 639, 672, 644-647, 673, 648, 674, 649, 675, 655-657, 676, 658, 677-680, 659, 681-687, 711, 688-697, 712, 698, 805, 699, 770, 713-718, 771, 719, 772, 722-728, 773, 729, 774, 733-738, 775, 739, 776, 744-748, 777, 749, 778-780, 755-758, 781, 759, 782, 766-768, 783, 769, 784-798, 806, 799, 880, 807-809, 881, 811-819, 882, 822-829, 883, 833-839, 884, 844-849, 885, 855-859, 886, 866-869, 887, 877-879, 888-909, 911-919, 922-929, 933-939, 944-949, 955-959, 966-969, 977-979, 988-999, 1100, 1000-1002, 1101, 1003, 1102-1110, 1004, 1111, 1005, 1112-1120, 1006, 1121, 1007, 1122-1130, 1008, 1131, 1009, 1132, 2000, 1010-1012, 1133-1140, 1013, 1141, 1014, 1142, 2001, 1015, 1143, 3000, 1016, 1144-1150, 1017, 1151, 1018, 1152, 2002, 1153, 3001, 1019, 1154, 4000, 1020-1022, 1155-1160, 1023, 1161, 1024, 1162, 2003, 1163, 3002, 1164, 4001, 1025, 1165, 5000, 1026, 1166-1170, 1027, 1171, 1028, 1172, 2004, 1173, 3003, 1174, 4002, 1175, 5001, 1029, 1176, ...

Relations: GT GE [3 digits in Sn are NOT such that  $d > e \geq f$ ] - [1000 terms and 85 compressions]:

[Sn] = 1-9, 12-19, 23-29, 34-39, 45-49, 56-59, 67-69, 78, 79, 89, 90, 10, 11, 20-22, 30-33, 40-44, 50-55,

60-66,70-77,80-88,91-99,120,101,102,121,201,103,122-130,104,131,202,132,301,105,133-140,  
106,141,203,142,302,143,401,107,144-150,108,151,204,152,303,153,402,154,501,109,155-160,  
110-112,161,205,162,304,163,403,164,502,165,601,113,166-170,114,171,206,172,305,173,  
404,174,503,175,602,176,701,115,177-180,116,181,207,182,306,183,405,184,504,185,603,  
186,702,187,801,117,188-190,118,191,208,192,307,193,406,194,505,195,604,196,703,197,  
802,198,901,119,199,230,209,231,212,213,232,308,233-240,214,241,215,242,309,243,407,  
244-250,216,251,217,252,312,218,253,408,254,506,255-260,219,261,220-223,262,313,263,  
409,264,507,265,605,266-270,224,271,225,272,314,273,412,226,274,508,275,606,276,704,  
277-280,227,281,228,282,315,283,413,284,509,285,607,286,705,287,803,288-290,229,291,  
292,316,293,414,294,512,295,608,296,706,297,804,298,902,299,340,317,341,318,342,319,  
343,415,344-350,323,324,351,325,352,326,353,416,354,513,327,355-360,328,361,329,362,  
330-334,363,417,364,514,365,609,366-370,335,371,336,372,337,373,418,374,515,375,612,  
338,376,707,377-380,339,381-383,419,384,516,385,613,386,708,387,805,388-393,423,394,  
517,395,614,396,709,397,806,398,903,399,450,424,425,451,426,452,427,453,428,454,518,  
455-460,429,461,434,435,462,436,463,437,464,519,465,615,466-470,438,471,439,472,440-445,  
473,446,474,523,447,475,616,476,712,448,477-480,449,481-484,524,485,617,486,713,487,  
807,488-494,525,495,618,496,714,497,808,498,904,499,560,526,561,527,562,528,563,529,  
564,534-536,565,619,566-570,537,571,538,572,539,573,545,546,574,547,575,623,548,576,  
715,549,577-580,550-556,581,557,582,558,583,559,584,585,624,586,716,587,809,588-595,  
625,596,717,597,812,598,905,599,670,626,627,671,628,672,629,673,634-637,674,638,675,  
639,676,718,677-680,645-647,681,648,682,649,683,656,657,684,658,685,659,686,719,687,  
813,660-667,688-690,668,691,669,692-696,723,697,814,698,906,699,780,724-728,781,729,  
782,734-738,783,739,784,745-748,785,749,786,756-758,787,815,759,788-790,767,768,791,  
769,792,770-778,793,779,794-797,816,798,907,799,890,817-819,891,823-829,892,834-839,  
893,845-849,894,856-859,895,867-869,896,878,879,897,880-889,898,908,899,909,912-919,  
923-929,934-939,945-949,956-959,967-969,978,979,989-999,1201,1010-1012,1202-1209,1212-1220,  
1013,1221,2010,1014,1222-1230,1015,1231,2011,1016,1232,3010,1017,1233-1240,1018,1241,  
2012,1242,3011,1019,1243,4010,1020,1021,2013,1244-1250,1022,1251,2014,1252,3012,1253,  
4011,1023,1254,5010,1024,1255-1260,1025,1261,2015,1262,3013,1263,4012,1264,5011,1026,  
1265,6010,1027,1266-1270,1028,1271,2016,1272,3014,1273,4013,1274,5012,1275,6011,1029,  
1276,7010,1030,1031,2017,1277-1280,1032,3015,1281,2018,1282,3016,1283,4014,1284,5013,  
1285,6012,1286,7011,1033,1287,8010,1034,1288-1290,1035,1291,2019,1292,3017,1293,4015,  
1294,5014,1295,6013,1296,7012,1297,8011,1036,1298,9010,1037,1299,1301,1038,...

Relations: GT EQ [3 digits in So are NOT such that  $d > e = f$ ] - [1000 terms and 93 compressions]:

[So] = 1-99,101-109,120,110-112,121,201,113,122-130,114,131,202,132-140,115,141,203,  
142-150,116,151,204,152-160,117,161,205,162-170,118,171,206,172-180,119,181,207,182-191,  
208,192-199,209,210,212-219,230,220-223,231,224,232,301,225,233-240,226,241,227,242,  
302,228,243-250,229,251,252,303,253-262,304,263-272,305,273-282,306,283-292,307,293-299,  
308-310,312-321,323-329,340,330-334,341,335,342,336,343,401,337,344-350,338,351,339,  
352,353,402,354-363,403,364-373,404,374-383,405,384-393,406,394-399,407-410,412-421,  
423-432,434-439,450,440-445,451,446,452,447,453,448,454,501,449,455-464,502,465-474,  
503,475-484,504,485-494,505,495-499,506-510,512,511,523-532,534-543,545-549,560,550-556,  
561,557,562,558,563,559,564,565,601,566-575,602,576-585,603,586-595,604,596-599,605-610,  
612-621,623-632,634-643,645-654,656-659,670,660-667,671,668,672,669,673-676,701,677-686,  
702,687-696,703,697-699,704-710,712-721,723-732,734-743,745-754,756-765,767-769,780,  
770-778,781,779,782-787,801,788-797,802,798,799,803-810,812-821,823-832,834-843,845-854,  
856-865,867-876,878,879,890,880-889,891-898,901,899,902-910,912-921,923-932,934-943,  
945-954,956-965,967-976,978-987,989-999,1010-1021,2010,1022-1031,2011,1032-1041,2012,  
1042-1051,2013,...

Relations: GE LT [3 digits in Sp are NOT such that  $d > e = f$ ] - [sequence is extended with lots of 1's]:

[Sp] = 1,2,3,4,5,6,7,8,9,11,111,1111,11111,111111,1111111,...

Relations: GE LE [3 digits in Sq are NOT such that  $d \geq e \leq f$ ] - [does the sequence stop with 32?]

[Sq] = 1,2,3,4,5,6,7,8,9,32 stop?

Relations: GE GT [3 digits in Sr are NOT such that  $d \geq e > f$ ] - [sequence is extended with lots of 9's]:

[Sr] = 1-9,11-19,22-29,33-39,44-49,55-59,66-69,77-79,88,89,99,999,9999,99999,999999,9999999,...

Relations: GE GE [3 digits in Ss are NOT such that  $d \geq e \geq f$ ] - [1000 terms and 63 compressions]:

[Ss] = 1-9,12-19,23-29,34-39,45-49,56-59,67-69,78,79,89,120,10,11,20-22,30-33,40-44,  
50-55,60-66,70-77,80-88,90-98,901,121,201,122,301,123-130,101,131,202,132,302,133,  
401,134-140,102,141,203,142,303,143,402,144,501,145-150,103,151,204,152,304,153,403,  
154,502,155,601,156-160,104,161,205,162,305,163,404,164,503,165,602,166,701,167-170,  
105,171,206,172,306,173,405,174,504,175,603,176,702,177,801,178-180,106,181,207,182,  
307,183,406,184,505,185,604,186,703,187,802,188,902,189,190,107,191,208,192,308,193,  
407,194,506,195,605,196,704,197,803,198,903,230,108,231,209,232,309,233,408,234-240,  
109,241,212,242,312,243,409,244,507,245-250,112,251,213,252,313,253,412,254,508,255,  
606,256-260,113,261,214,262,314,263,413,264,509,265,607,266,705,267-270,114,271,215,  
272,315,273,414,274,512,275,608,276,706,277,804,278-280,115,281,216,282,316,283,415,  
284,513,285,609,286,707,287,805,288,904,289,290,116,291,217,292,317,293,416,294,514,  
295,612,296,708,297,806,298,905,340,117,341,218,342,318,343,417,344,515,345-350,118,  
351,219,352,319,353,418,354,516,355,613,356-360,119,361,223,362,323,363,419,364,517,  
365,614,366,709,367-370,224,371,225,372,324,373,423,374,518,375,615,376,712,325,377,  
807,378-380,226,381,227,382,326,383,424,384,519,385,616,386,713,387,808,388,906,389,  
390,228,391,229,392,327,393,425,394,523,395,617,396,714,397,809,398,907,450,328,451,  
329,452,334,453,426,454,524,455,618,456-460,335,461,336,462,337,463,427,464,525,465,  
619,466,715,467-470,338,471,339,472,428,473,429,474,526,475,623,434,476,716,477,812,  
435,478-480,436,481,437,482,438,483,439,484,527,485,624,486,717,487,813,445,488,908,  
489,490,446,491,447,492,448,493,449,494,528,495,625,496,718,497,814,498,909,560,529,  
561,534,535,562,536,563,537,564,538,565,626,566,719,567-570,539,571,545,572,546,573,  
547,574,548,575,627,576,723,549,577,815,578-580,556,581,557,582,558,583,559,584,585,  
628,586,724,587,816,588,912,589-595,629,596,725,597,817,598,913,634-636,670,637,671,  
638,672,639,673,645,646,674,647,675,648,676,726,677,818,678-680,649,681,656,682,657,  
683,658,684,659,685,667,686,727,687,819,688,914,668,689,690,669,691-696,728,697,823,

698, 915, 729, 780, 734-737, 781, 738, 782, 739, 783, 745-747, 784, 748, 785, 749, 786, 756, 757, 787, 824, 758, 788, 916, 759, 789, 790, 767, 791, 768, 792, 769, 793, 778, 794, 779, 795-797, 825, 798, 917, 826-828, 890, 829, 891, 834-838, 892, 839, 893, 845-848, 894, 849, 895, 856-858, 896, 859, 897, 867, 868, 898, 918, 919, 1201, 869, 1202, 878, 923, 879, 1203, 889, 1204, 924-929, 1205, 934-939, 1206, 945-949, 1207, 956-959, 1208, 967-969, 1209, 1212, 978, 979, 1213, 989, 1214-1219, 1223-1230, 1010, 1011, 2010, 1012, 1231, 2011, 2012, 1232, 3010, 1013, 1233, 4010, 1014, 1234-1240, 1015, 1241, 2013, 1242, 3011, 2014, 1243, 4011, 2015, 1244, 5010, 1016, 1245-1250, 1017, 1251, 2016, 1252, 3012, 1253, 4012, 1254, 5011, 2017, 1255, 6010, 1018, 1256-1260, 1019, 1261, 2018, 1262, 3013, 1263, 4013, 1264, 5012, 1265, 6011, 2019, 1266, 7010, 1020, 1021, 2020, 1022, 3014, 1267-1270, 1023, 1271, 2021, 2022, 3015, 1272, 3016, 1273, 4014, 1274, 5013, 1275, 6012, 1276, 7011, 2023, 1277, 8010, 1024, 1278-1280, 1025, 1281, 2024, 1282, 3017, 1283, 4015, 1284, 5014, 1285, 6013, 1286, 7012, 1287, 8011, 2025, 1288, 9010, 1026, 1289, 1290, 1027, 1291, 2026, 1292, 3018, 1293, 4016, 1294, 5015, 1295, 6014, 1296, 7013, 1297, 8012, 1298, 9011, 2027, 1301-1309, 1312-1319, 1323-1329, 1334-1340, 1028, 1341, 2028, 1342, 3019, 1343, 4017, 1344, 5016, 1345-1350, 1029, 1351, 2029, 1352, 3020, 1030, 1031, 2030, 1032, 3021, 2031, 2032, 3022, 3023, 1353, 4018, 1354, 5017, ...

Relations: GE EQ [3 digits in St are NOT such that  $d \geq e = f$ ] - [1000 terms and 105 compressions]:

[St] = 1-11, 20, 12-19, 21, 22, 30, 23-29, 31-33, 40, 34-39, 41-44, 50, 45-49, 51-55, 60, 56-59, 61-66, 70, 67-69, 71-77, 80, 78, 79, 81-88, 90, 89, 91-99, 101-109, 120, 110, 112, 121, 201, 122-130, 113, 131, 202, 132-140, 114, 141, 203, 142-150, 115, 151, 204, 152-160, 116, 161, 205, 162-170, 117, 171, 206, 172-180, 118, 181, 207, 182-190, 119, 191, 208, 192-199, 209, 210, 212-219, 230, 220, 221, 223, 231, 224, 232, 301, 225, 233-240, 226, 241, 227, 242, 302, 243-250, 228, 251, 229, 252, 303, 253-262, 304, 263-272, 305, 273-282, 306, 283-292, 307, 293-299, 308-310, 312-321, 323-329, 340, 330-332, 334, 341, 335, 342, 336, 343, 401, 337, 344-350, 338, 351, 339, 352, 353, 402, 354-363, 403, 364-373, 404, 374-383, 405, 384-393, 406, 394-399, 407-410, 412-421, 423-432, 434-439, 450, 440-443, 445, 451, 446, 452, 447, 453, 448, 454, 501, 449, 455-464, 502, 465-474, 503, 475-484, 504, 485-494, 505, 495-499, 506-510, 512-521, 523-532, 534-543, 545-549, 560, 550-554, 556, 561, 557, 562, 558, 563, 559, 564, 565, 601, 566-575, 602, 576-585, 603, 586-595, 604, 596-599, 605-610, 612-621, 623-632, 634-643, 645-654, 656-659, 670, 660-665, 667, 671, 668, 672, 669, 673-676, 701, 677-686, 702, 687-696, 703, 697-699, 704-710, 712-721, 723-732, 734-743, 745-754, 756-765, 767-769, 780, 770-776, 778, 781, 779, 782-787, 801, 788-797, 802, 798, 799, 803-810, 812-821, 823-832, 834-843, 845-854, 856-865, 867-876, 878, 879, 890, 880-887, 889, 891-898, 901, 899, 1010, 902-910, 912-921, 923-932, 934-943, 945-954, 956-965, 967-976, 978-987, 989, 1011, 990-998, 1012-1021, 2010, 1022-1031, 2011, 2012, 1032-1041, 2013, 1042-1051, 2014, 1052-1059, ...

Relations: EQ LT [3 digits in Su are NOT such that  $d = e < f$ ] - [1000 terms and 99 compressions]:

[Su] = 1-11, 101, 20, 12-19, 21, 22, 102, 30, 23-29, 31-33, 103, 40, 34-39, 41-44, 104, 50, 45-49, 51-55, 105, 60, 56-59, 61-66, 106, 70, 67-69, 71-77, 107, 80, 78, 79, 81-88, 108, 90, 89, 91-99, 109-111, 1010, 120, 121, 201, 202, 122-131, 203, 132-141, 204, 142-151, 205, 152-161, 206, 162-171, 207, 172-181, 208, 182-191, 209, 192-199, 210, 211, 1011, 1012, 212-222, 1013, 230-232, 301, 233-242, 302, 303, 243-252, 304, 253-262, 305, 263-272, 306, 273-282, 307, 283-292, 308, 293-299, 309-311, 1014, 312-322, 1015, 323-333, 1016, 340-343, 401, 344-353, 402, 354-363, 403, 404, 364-373, 405, 374-383, 406, 384-393, 407, 394-399, 408-411, 1017, 412-422, 1018, 423-433, 1019, 434-444, 1020, 450-454, 501, 455-464, 502, 465-474, 503, 475-484, 504, 505, 485-494, 506, 495-499, 507-511, 1021, 512-522, 1022, 1023, 523-533, 1024, 534-544, 1025, 545-555, 1026, 560-565, 601, 566-575, 602, 576-585, 603, 586-595, 604, 596-599, 605-611, 1027, 612-622, 1028, 623-633, 1029, 634-644, 1030, 645-655, 1031, 656-666, 1032, 670-676, 701, 677-686, 702, 687-696, 703, 697-699, 704-711, 1033, 1034, 712-722, 1035, 723-733, 1036, 734-744, 1037, 745-755, 1038, 756-766, 1039, 767-777, 1040, 780-787, 801, 788-797, 802, 798, 799, 803-811, 1041, 812-822, 1042, 823-833, 1043, 834-844, 1044, 1045, 845-855, 1046, 856-866, 1047, 867-877, 1048, 878-888, 1049, 890-898, 901, 899, 902-911, 1050, 912-922, 1051, 923-933, 1052, 934-944, 1053, 945-955, 1054, 956-966, 1055, 1056, 967-977, 1057, 978-988, 1058, 989-996, ...

Relations: EQ LE [3 digits in Sv are NOT such that  $d = e \leq f$ ] - [1000 terms and 94 compressions]:

[Sv] = 1-10, 12-22, 101, 23-33, 102, 34-44, 103, 45-55, 104, 56-66, 105, 67-77, 106, 78-88, 107, 89-99, 108-110, 120, 121, 201, 202, 122-131, 203, 132-141, 204, 142-151, 205, 152-161, 206, 162-171, 207, 172-181, 208, 182-191, 209, 192-199, 210, 212-221, 230-232, 301, 233-242, 302, 303, 243-252, 304, 253-262, 305, 263-272, 306, 273-282, 307, 283-292, 308, 293-299, 309, 310, 312-322, 1010, 323-332, 340-343, 401, 344-353, 402, 354-363, 403, 404, 364-373, 405, 374-383, 406, 384-393, 407, 394-399, 408-410, 412-422, 1012, 423-433, 1013, 434-443, 450-454, 501, 455-464, 502, 465-474, 503, 475-484, 504, 505, 485-494, 506, 495-499, 507-510, 512-522, 1014, 523-533, 1015, 534-544, 1016, 545-554, 560-565, 601, 566-575, 602, 576-585, 603, 586-595, 604, 596-599, 605-610, 612-622, 1017, 623-633, 1018, 634-644, 1019, 645-655, 1020, 656-665, 670-676, 701, 677-686, 702, 687-696, 703, 697-699, 704-710, 712-722, 1021, 723-733, 1022, 1023, 734-744, 1024, 745-755, 1025, 756-766, 1026, 767-776, 780-787, 801, 788-797, 802, 798, 799, 803-810, 812-822, 1027, 823-833, 1028, 834-844, 1029, 845-855, 1030, 856-866, 1031, 867-877, 1032, 878-887, 890-898, 901, 899, 1033, 1034, 902-910, 912-922, 1035, 923-933, 1036, 934-944, 1037, 945-955, 1038, 956-966, 1039, 967-977, 1040, 978-988, 1041, 989, 1042, 990-998, 1043-1074, ...

Relations: EQ GT [3 digits in Sw are NOT such that  $d = e > f$ ] - [sequence is extended with lots of 9's]:

[Sw] = 1-89, 99, 999, 9999, 99999, 999999, 9999999, ...

Relations: EQ GE [3 digits in Sx are NOT such that  $d = e \geq f$ ] - [1000 terms and 102 compressions]:

[Sx] = 1-11, 20, 12-19, 21, 22, 30, 23-29, 31-33, 40, 34-39, 41-44, 50, 45-49, 51-55, 60, 56-59, 61-66, 70, 67-69, 71-77, 80, 78, 79, 81-88, 90, 89, 100, 91-98, 101, 120, 102-109, 112-119, 121, 122, 300, 123-133, 400, 134-144, 500, 145-155, 600, 156-166, 700, 167-177, 800, 178-188, 900, 189-198, 200-202, 230, 203-212, 231, 213-219, 223-229, 232, 233, 401, 234-244, 501, 245-255, 601, 256-266, 701, 267-277, 801, 278-288, 901, 289-298, 301-303, 340, 304-313, 341, 314-323, 342, 324-329, 334-339, 343, 344, 502, 345-355, 602, 356-366, 702, 367-377, 802, 378-388, 902, 389-398, 402-404, 450, 405-414, 451, 415-424, 452, 425-434, 453, 435-439, 445-449, 454, 455, 603, 456-466, 703, 467-477, 803, 478-488, 903, 489-498, 503-505, 560, 506-515, 561, 516-525, 562, 526-535, 563, 536-545, 564, 546-549, 556-559, 565, 566, 704, 567-577, 804, 578-588, 904, 589-598, 604-606, 670, 607-616, 671, 617-626, 672, 627-636, 673, 637-646, 674, 647-656, 675, 657-659, 667-669, 676, 677, 805, 678-688, 905, 689-698, 705-707, 780, 708-717, 781, 718-727, 782, 728-737, 783, 738-747, 784, 748-757, 785, 758-767, 786, 768, 769, 778, 779, 787, 788, 906, 789-798, 890, 806-808, 891, 809-818, 892, 819-828, 893, 829-838, 894, 839-848, 895, 849-858, 896, 859-868, 897, 869-878, 898, 907, 879, 889, 1001, 908, 909, 1002, 910-919, 1003, 920-929, 1004, 930-939, 1005, 940-949, 1006, 950-959, 1007, 960-969, 1008, 970-979, 1009, 1010,

980-989,1011,2001,1200,1012-1021,1201,1202,1022,3001,1203,1023-1031,1204,1032,1033,  
4001,1205,1034-1041,1206,1042-1044,5001,1207,1045-1051,1208,...

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Relations: EQ EQ [3 digits in Sy are NOT such that  $d = e = f$ ] - [1000 terms and 25 compressions]:

[Sy] = 1-11,20,12-19,21,22,30,23-29,31-33,40,34-39,41-44,50,45-49,51-55,60,56-59,61-66,  
70,67-69,71-77,80,78,79,81-88,90,89,91-110,112-221,223-332,334-443,445-554,556-665,  
667-776,778-887,889-899,1001,900-989,1002,990-998,1003-1010,...

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[Maximilian Hasler]:

Est-il logique de commencer avec 1 ? Si l'on autorise des digits 0, pourquoi pas  $a(0)=0$  ?

Alors un problème qui survient certainement aussi dans l'autre cas, arrive tout de suite : le début 0,1 est impossible dans le cas du " $\leq$ "

Donc il faut commencer 0,2,1,3, - ... à nouveau problème ! Mais ici on s'en sort grâce aux nombres à plusieurs chiffres : 0,2,1,3,10,4,11, - ... encore problème ! Et là on ne peut faire autrement que revenir sur notre choix !

Donc pas de "greedy solution"...

M.

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Many thanks, Lars and Maximilian!

Best,

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