Modelling with cellular automata: problem solving environments and multidimensional applications

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Appendix A. Sample Classes of Structures Generated by 1D Binary Cellular Automata from a Single Seed

A.1 Nontrivial E-classes

Each item represents a non-trivial class of invariance as above. Class members are represented by the numbers of transition functions. Classes are sorted by the minimal number of the contained transition function.

1. \{0, 8, 32, 40, 64, 72, 96, 104, 128, 136, 160, 168, 192, 200, 224, 232\}
2. \{1, 33\}
3. \{2, 10, 34, 42, 66, 74, 98, 106, 130, 138, 162, 170, 194, 202, 226, 234\}
4. \{3, 35\}
5. \{4, 12, 36, 44, 68, 76, 100, 108, 132, 140, 164, 172, 196, 204, 228, 236\}
6. \{6, 38, 134, 166\}
7. \{7, 19, 21, 23, 31, 55, 63, 87, 95, 119, 127\}
8. \{11, 43, 47\}
9. \{14, 46, 142, 174\}
10. \{16, 24, 48, 56, 80, 88, 112, 120, 144, 152, 176, 184, 208, 216, 240, 248\}
11. \{17, 49\}
12. \{18, 26, 82, 90, 146, 154, 210, 218\}
13. \{20, 52, 148, 180\}
14. \{28, 156\}
15. \{50, 58, 114, 122, 178, 186, 242, 250\}
16. \{70, 198\}
17. \{81, 113, 117\}
18. \{84, 116, 212, 244\}
19. \{129, 161\}
20. \{139, 171\}
22. \{173, 189\}
23. \{203, 217, 219\}
24. \{206, 238\}
25. \{209, 241\}
26. \{220, 252\}
27. \{222, 254\}
28. \{229, 231\}

A.2 EIMO-classes

Class members are represented by the numbers of transition functions. Classes are sorted by the minimal number of the contained transition function:

1. \{0, 8, 32, 40, 64, 72, 96, 104, 128, 136, 151, 159, 160, 168, 183, 191, 192, 200, 215, 223, 224, 232, 235, 237, 239, 247, 249, 251, 253, 255\}
2. \{1, 33, 123\}
4. \{3, 17, 35, 49, 59, 115\}
5. \{4, 12, 36, 44, 68, 76, 100, 108, 132, 140, 164, 172, 196, 203, 204, 207, 217, 219, 221, 228, 236\}
6. \{5\}
7. \{6, 20, 38, 52, 134, 148, 155, 166, 180, 211\}
8. \{7, 19, 21, 23, 31, 55, 63, 87, 95, 119, 127\}
9. \{9, 65, 111, 125\}
10. \{11, 43, 47, 81, 113, 117\}
11. \{13, 69, 79, 93\}
12. \{14, 46, 84, 116, 139, 142, 143, 171, 174, 209, 212, 213, 241, 244\}
13. \{15, 85\}
14. \{18, 26, 82, 90, 146, 154, 165, 167, 181, 210, 218\}
15. \{22\}
16. \{25, 61, 67, 103\}
17. \{27, 39, 53, 83\}
18. \{28, 70, 156, 157, 198, 199\}
19. \{29, 71\}
20. \{30, 86, 135, 149\}
21. \{37, 91\}
22. \{41, 97\}
23. \{45, 101\}
24. \{50, 58, 114, 122, 178, 179, 186, 242, 250\}
25. \{51\}
26. \{54, 147\}
27. \{57, 99\}
28. \{60, 102, 153, 195\}
29. \{62, 118\}
30. \{73\}
31. \{75, 89\}
32. \{77\}
33. \{78, 92\}
34. \{94\}
35. \{105\}
36. \{107, 121\}
37. \{109\}
38. \{110, 124\}
39. \{126, 129, 161\}
40. \{131, 145\}
41. \{133\}
42. \{137, 193\}
43. \{141, 197\}
44. \{150\}
45. \{158, 214\}
46. \{163, 177\}
47. \{169, 225\}
48. \{182\}
49. \{185, 227\}
50. \{188, 230\}
51. \{190, 246\}
52. \{201\}
53. \{205\}
54. \{206, 220, 238, 252\}
55. \{222, 254\}
56. \{233\}