Минимизация автомата Мили

Таблица переходов

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | X 1 | X 2 | X 3 | X 4 | X 5 | X 6 | X 7 | X 8 | X 9 | X 10 | X 11 | X 12 |
| P1 | X 11 | X 5 | X 2 | X 10 | X 10 | X 1 | X 2 | X 3 | X 1 | X 7 | X 7 | X 5 |
| P2 | X 2 | X 9 | X 6 | X 9 | X 9 | X 12 | X 6 | X 4 | X 6 | X 8 | X 8 | X 9 |

Таблица выходов

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | X 1 | X 2 | X 3 | X 4 | X 5 | X 6 | X 7 | X 8 | X 9 | X 10 | X 11 | X 12 |
| P1 | L2 | L1 | L2 | L1 | L1 | L | L2 | L2 | L1 | L2 | L2 | L1 |
| P2 | L1 | L2 | L1 | L2 | L2 | L1 | L1 | L1 | L2 | L2 | L2 | L2 |

π1={x1,x3,x6,x7,x8}B1

{x2,x4,x5,x9,x12}B2

{x10,x11}B3

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | X 1 | X 3 | X 6 | X 7 | X 8 |  | X2 | X 4 | X 5 | X 9 | X 12 |  | X 10 | X 11 |
| P1 | B3 | B2 | B1 | B2 | B1 |  | B2 | B3 | B3 | B1 | B2 |  | B1 | B1 |
| P2 | B2 | B1 | B2 | B1 | B2 |  | B2 | B2 | B2 | B1 | B2 |  | B1 | B1 |

π2={X1}C1

{X3,X7}C2

{X6,X8}C3

{X2,X12}C4

{X4,X5}C5

{X9}C6

{X10,X11}C7

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | X 1 |  | X 3 | X 7 |  | X 6 | X 8 |  | X2 | X 12 |  | X 4 | X5 |  | X9 |  | X10 | X 11 |
| P1 | C7 |  | C4 | C4 |  | C1 | C2 |  | C5 | C5 |  | C2 | C2 |  | C1 |  | C2 | C2 |
| P2 | C4 |  | C3 | C3 |  | C4 | C5 |  | C6 | C6 |  | C4 | C4 |  | C3 |  | C3 | C3 |

π3={X1}D1

{X3,X7}D2

{X6}D3

{X8}D4

{X2,X12}D5

{X4,X5}D6

{X9}D7

{X10,X11}D8

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | X 1 |  | X 3 | X 7 |  | X 6 |  | X 8 |  | X2 | X 12 |  | X 4 | X5 |  | X9 |  | X10 | X 11 |
| P1 | D8 |  | D5 | D5 |  | D1 |  | D2 |  | D6 | D6 |  | D8 | D8 |  | D1 |  | D2 | D2 |
| P2 | D5 |  | D3 | D3 |  | D5 |  | D6 |  | D7 | D7 |  | D7 | D7 |  | D3 |  | D4 | D4 |

π4={X1}E1

{X3,X7}E2

{X6}E3

{X8}E4

{X2,X12}E5

{X4,X5}E6

{X9}E7

{X10,X11}E8

π4=π3 => X'={X1,X3,X6,X8,X2,X4,X9,X10}

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | X1 | X3 | X6 | X8 | X2 | X4 | X9 | X10 |
| P1 | X10 | X2 | X1 | X3 | X4 | X10 | X1 | X3 |
| P2 | X2 | X6 | X2 | X4 | X9 | X9 | X6 | X8 |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | X1 | X3 | X6 | X8 | X2 | X4 | X9 | X10 |
| P1 | L2 | L2 | L2 | L2 | L1 | L1 | L1 | L2 |
| P2 | L1 | L1 | L1 | L1 | L2 | L2 | L2 | L2 |

Минимизация автомата Мура

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | L1 | L2 | L2 | L1 | L1 | L3 | L3 | L3 | L3 | L2 | L1 | L1 |
|  | X 1 | X 2 | X 3 | X 4 | X 5 | X 6 | X 7 | X 8 | X 9 | X 10 | X 11 | X 12 |
| P1 | X 9 | X 11 | X 11 | X 10 | X 10 | X 3 | X 2 | X 3 | X 2 | X 7 | X 9 | X 3 |
| P2 | X 8 | X 2 | X 2 | X 9 | X 9 | X 12 | X 6 | X 4 | X 6 | X 5 | X 8 | X 4 |

π0={X1,X4,X5,X11,X12}A1

{X2,X3,X10}A2

{X6,X7,X8,X9}A3

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | L1 | L1 | L1 | L1 | L1 |  | L2 | L2 | L2 |  | L3 | L3 | L3 | L3 |
|  | X 1 | X 4 | X 5 | X 11 | X 12 |  | X 2 | X3 | X 10 |  | X 6 | X 7 | X 8 | X 9 |
| P1 | A3 | A2 | A2 | A3 | A2 |  | A1 | A1 | A3 |  | A2 | A2 | A2 | A2 |
| P2 | A3 | A3 | A3 | A3 | A1 |  | A2 | A2 | A1 |  | A1 | A3 | A1 | A3 |

π1={X1,X11}B1

{X4,X5}B2

{X12}B3

{X2,X3,}B4

{X10}B5

{X6,X8,}B6

{X7,X9}B7

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | L1 | L1 |  | L1 | L1 |  | L1 |  | L2 | L2 |  | L2 |  | L3 | L3 |  | L3 | L3 |
|  | X 1 | X 11 |  | X 4 | X 5 |  | X 12 |  | X 2 | X3 |  | X 10 |  | X 6 | X 8 |  | X 7 | X 9 |
| P1 | B7 | B7 |  | B5 | B5 |  | B4 |  | B1 | B1 |  | B7 |  | B4 | B4 |  | B4 | B4 |
| P2 | B6 | B6 |  | B7 | B7 |  | B2 |  | B4 | B4 |  | B2 |  | B3 | B2 |  | B6 | B6 |

π2={X1,X11}C1

{X4,X5}C2

{X12}C3

{X2,X3}C4

{X10}C5

{X6}C6

{X8}C7

{X7,X9}C8

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | X 1 | X 11 |  | X 4 | X 5 |  | X 12 |  | X 2 | X3 |  | X 10 |  | X 6 |  | X 8 |  | X 7 | X 9 |
| P1 | C8 | C8 |  | C5 | C5 |  | C4 |  | C1 | C1 |  | C8 |  | C4 |  | C4 |  | C4 | C4 |
| P2 | C7 | C7 |  | C8 | C8 |  | C2 |  | C4 | C4 |  | C2 |  | C3 |  | C2 |  | C6 | C6 |

π3={X1,X11}D1

{X4,X5}D2

{X12}D3

{X2,X3}D4

{X10}D5

{X6}D6

{X8}D7

{X7,X9}D8

π2=π3 =>X'={X1,X4,X12,X2,X10,X6,X8,X7}

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | L1 | L1 | L1 | L2 | L2 | L3 | L3 | L3 |
|  | X1 | X4 | X12 | X2 | X10 | X6 | X8 | X7 |
| P1 | X7 | X10 | X2 | X1 | X7 | X2 | X2 | X2 |
| P2 | X8 | X7 | X4 | X2 | X4 | X12 | X4 | X6 |

Минимизация С-автомата

Таблица переходов

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | X1 | X2 | X3 | X4 | X5 | X6 | X7 | X8 | X9 | X10 | X11 | X12 |
| P1 | X10 | X9 | X5 | X9 | X8 | X5 | X9 | X10 | X8 | X1 | X1 | X10 |
| P2 | X1 | X2 | X8 | X2 | X3 | X7 | X2 | X6 | X3 | X8 | X3 | X6 |

Таблица выходов

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | U2 | U2 | U1 | U1 | U3 | U2 | U1 | U1 | U3 | U3 | U3 | U2 |
|  | X1 | X2 | X3 | X4 | X5 | X6 | X7 | X8 | X9 | X10 | X11 | X12 |
| P1 | L2/3 | L2/3 | L2/3 | L1/3 | L2/1 | L2/3 | L1/3 | L1/3 | L2/1 | L2/2 | L2/2 | L1/3 |
| P2 | L2/2 | L2/2 | L1/1 | L2/2 | L1/1 | L1/1 | L2/2 | L2/2 | L1/1 | L1/1 | L1/1 | L2/2 |

π1={X1,X2}B1

{X3,X6}B2

{X4,X7,X8,X12}B3

{X5,X9}B4

{X10,X11}B5

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | X1 | X2 |  | X3 | X6 |  | X4 | X7 | X8 | X12 |  | X5 | X9 |  | X10 | X11 |
| P1 | B5 | B4 |  | B4 | B4 |  | B4 | B4 | B5 | B5 |  | B3 | B3 |  | B1 | B1 |
| P2 | B1 | B1 |  | B3 | B3 |  | B1 | B1 | B2 | B2 |  | B2 | B2 |  | B3 | B2 |

π2={X1}C1

{X2}C2

{X3,X6}C3

{X4,X7}C4

{X8,X12}C5

{X5,X9}C6

{X10}C7

{X11}C8

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | X1 |  | X2 |  | X3 | X6 |  | X4 | X7 |  | X8 | X12 |  | X5 | X9 |  | X10 |  | X11 |
| P1 | C7 |  | C6 |  | C6 | C6 |  | C6 | C6 |  | C7 | C7 |  | C5 | C5 |  | C1 |  | C1 |
| P2 | C1 |  | C2 |  | C5 | C4 |  | C2 | C2 |  | C3 | C3 |  | C3 | C3 |  | C5 |  | C3 |

π3={X1}D1

{X2}D2

{X3}D3

{X6}D4

{X4,X7}D5

{X8,X12}D6

{X5,X9}D7

{X10}D8

{X11}D9

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | X1 |  | X2 |  | X3 |  | X6 |  | X4 | X7 |  | X8 | X12 |  | X5 | X9 |  | X10 |  | X11 |
| P1 | D8 |  | D7 |  | D7 |  | D7 |  | D7 | D7 |  | D8 | D8 |  | D6 | D6 |  | D1 |  | D1 |
| P2 | D1 |  | D2 |  | D6 |  | D5 |  | D2 | D2 |  | D4 | D4 |  | D3 | D3 |  | D6 |  | D3 |

π4={X1}E1

{X2}E2

{X3}E3

{X6}E4

{X4,X7}E5

{X8,X12}E6

{X5,X9}E7

{X10}E8

{X11}E9

π4= π3 => X'={X1,X2,X3,X6,X4,X8,X5,X10,X11}

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | X1 | X2 | X3 | X6 | X4 | X8 | X5 | X10 | X11 |
| P1 | X10 | X5 | X5 | X5 | X5 | X10 | X8 | X1 | X1 |
| P2 | X1 | X2 | X8 | X4 | X2 | X6 | X3 | X8 | X3 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | U2 | U2 | U1 | U2 | U1 | U1 | U3 | U3 | U3 |
|  | X1 | X2 | X3 | X6 | X4 | X8 | X5 | X10 | X11 |
| P1 | L2 | L2 | L2 | L2 | L1 | L1 | L2 | L2 | L2 |
| P2 | L2 | L2 | L1 | L1 | L2 | L2 | L1 | L1 | L1 |