S_0

AB	00	01	11	10
CD				
00	0 (0000)	0 (0100)	0 (1100)	0 (1000)
01	1 (0001)	0 (0101)	0 (1101)	0 (1001)
11	0 (0011)	0 (0111)	0 (1111)	0 (1011)
10	1 (0010)	0 (0110)	0 (1110)	0 (1010)

$$S_0 = \overline{A}\,\overline{B}\,\overline{C}\,D + \overline{A}\,\overline{B}\,C\,\overline{D}$$