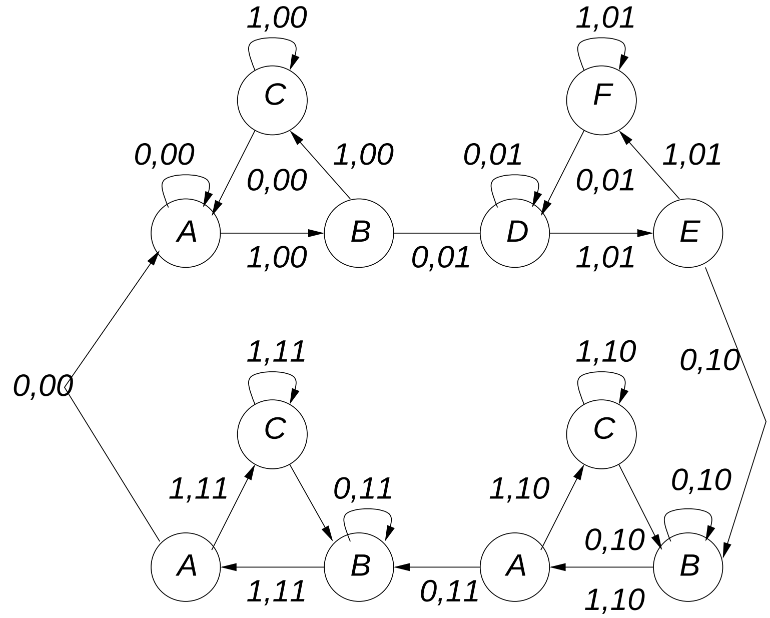
Es. 1



Es. 2

ab \ cd	00	01	11	10
00	1_0	0_1	$-_3$	$-_2$
01	1_4	$-_5$	1_7	0_6
11	1_{12}	0_{13}	0_{15}	1_{14}
10	1_8	0_9	0_{11}	1_{10}

Quine − Mc Cluskey

0	0000 *
2	0010 *
4	0100 *
8	1000 *
3	0011 *
5	0101 *
10	1010 *
12	1100 *
7	0111 *
14	1110 *

cubo che contiene solo condizioni di indifferenza

0,2	00−0 *
0,4	0−00 *
0,8	−000 *
2,3	001−
2,10	−010 *
4,5	010− P0
4,12	−100 *
8,10	10−0 *
8,12	1−00 *
3,7	0−11 P1
5,7	01−1 P2
10,14	1−10 *
12,14	11−0 *

0,2,8,10	−0−0 P3
0,8,4,12	−−00 P4
8,12,10,14	1−−0 P5

	0	4	7	12	14	8	10	lits
P0		x						3
P1			x					3
P2			x					3
P3	x					x	x	2
P4	x	x		x		x		2
P5				x	x	x	x	3

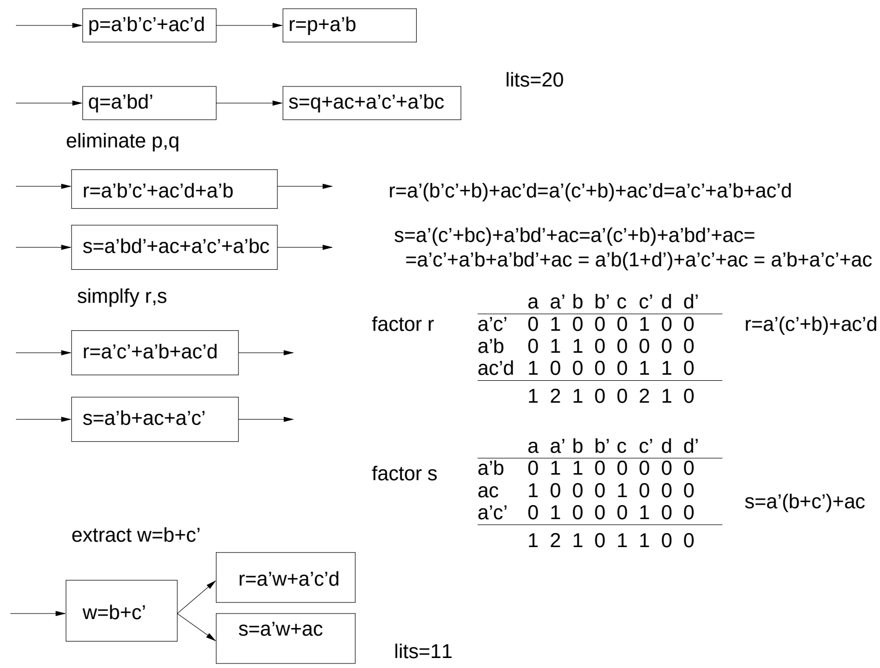
C=(P3+P4)(P0+P4)(P1+P2)(P4+P5)P5(P3+P4+P5)(P3+P5)

=(P3+P4)(P0+P4)(P1+P2)P5 = (P0P3+P4)(P1+P2)P5 =

= P0P1P3P5 + P0P2P3P5 + P1P4P5 +P2P4P5

lits 10 10 7 7

Es. 3



Es. 4

$$
\begin{aligned}
f(a,b,c,d) &= f|_{a=0} \oplus (a\cdot(f|_{a=0} \oplus f|_{a=1})) \\
&= f|_{a=0}\cdot(a\cdot(f|_{a=0} \oplus f|_{a=1}))' + f|'_{a=0}(a\cdot(f|_{a=0} \oplus f|_{a=1})) = \\
&= f|_{a=0}\cdot(a' + (f|_{a=0} \oplus f|_{a=1})') + f|'_{a=0}(a\cdot(f|_{a=0}\cdot f|'_{a=1} + f|'_{a=0}\cdot f|_{a=1})) = \\
&= f|_{a=0}\cdot(a' + f|_{a=0}\cdot f|_{a=1} + f|'_{a=0}\cdot f|'_{a=1}) + f|'_{a=0}(a\cdot f|_{a=0}\cdot f|'_{a=1} + a\cdot f|'_{a=0}\cdot f|_{a=1})) = \\
&= f|_{a=0}\cdot a' + f|_{a=0}\cdot f|_{a=1} + a\cdot f|'_{a=0}\cdot f|_{a=1} = f|_{a=0}\cdot a' + f|_{a=1}(f|_{a=0} + a\cdot f|'_{a=0}) = \\
&= a'f|_{a=0} + f|_{a=1}((f|_{a=0} + a) = \\
&= a'f|_{a=0} + f|_{a=1}f|_{a=0} + af|_{a=1} = a'f|_{a=0} + af|_{a=1} = f(a,b,c,d)
\end{aligned} \tag{1}
$$

L'ultimo passaggio é proprio dato dal teorema di Shannon.