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$x_1$	$x_0$	$y_1$	$y_0$	EQ	LT	GT
0	0	0	0	1	0	0
0	0	0	1	0	1	0
0	0	1	0	0	1	0
0	0	1	1	0	1	0
0	1	0	0	0	0	1
0	1	0	1	1	0	0
0	1	1	0	0	1	0
0	1	1	1	0	1	0
1	0	0	0	0	0	1
1	0	0	1	0	0	1
1	0	1	0	1	0	0
1	0	1	1	0	1	0
1	1	0	0	0	0	1
1	1	0	1	0	0	1
1	1	1	0	0	0	1
1	1	1	1	1	0	0

$y_1 y_0$

$x_1 x_0$	00	01	11	10
00	1	0	0	0
01	0	1	0	0
11	0	0	1	0
10	0	0	0	1

EQ

$$\begin{aligned}
 EQ &= x_0' x_1' y_1' y_0' + x_1' x_0 y_1 y_0 \\
 &\quad + x_1 x_0 y_1 y_0 + x_1 x_0' y_1 y_0' \\
 &= x_1' y_1' (x_0' y_0' + x_0 y_0) \\
 &\quad + x_1 y_1 (x_0 y_0 + x_0' y_0') \\
 &= x_1' y_1' (x_0 \oplus y_0)' \\
 &\quad + x_1 y_1 (x_0 \oplus y_0)' \\
 &= (x_0 \oplus y_0)' (x_1 \oplus y_1)'
 \end{aligned}$$

$y_1 y_0$

$x_1 x_0$	00	01	11	10
00	0	1	1	1
01	0	0	1	1
11	0	0	0	0
10	0	0	1	0

LT

$$\begin{aligned}
 LT &= x_1' y_1 + x_1 x_0' y_0 \\
 &\quad + x_0' y_1 y_0 \\
 &= x_0' y_0 (x_1' + y_1) \\
 &\quad + x_1' y_1
 \end{aligned}$$

$y_1 y_0$

$x_1 x_0$	00	01	11	10
00	0	0	0	0
01	1	0	0	0
11	1	1	0	1
10	1	1	0	0

GT

$$\begin{aligned}
 GT &= x_1 y_1' + x_0 y_1' y_0' \\
 &\quad + y_0' x_1 x_0 \\
 &= y_0' x_0 (x_1 + y_1') \\
 &\quad + x_1 y_1'
 \end{aligned}$$

