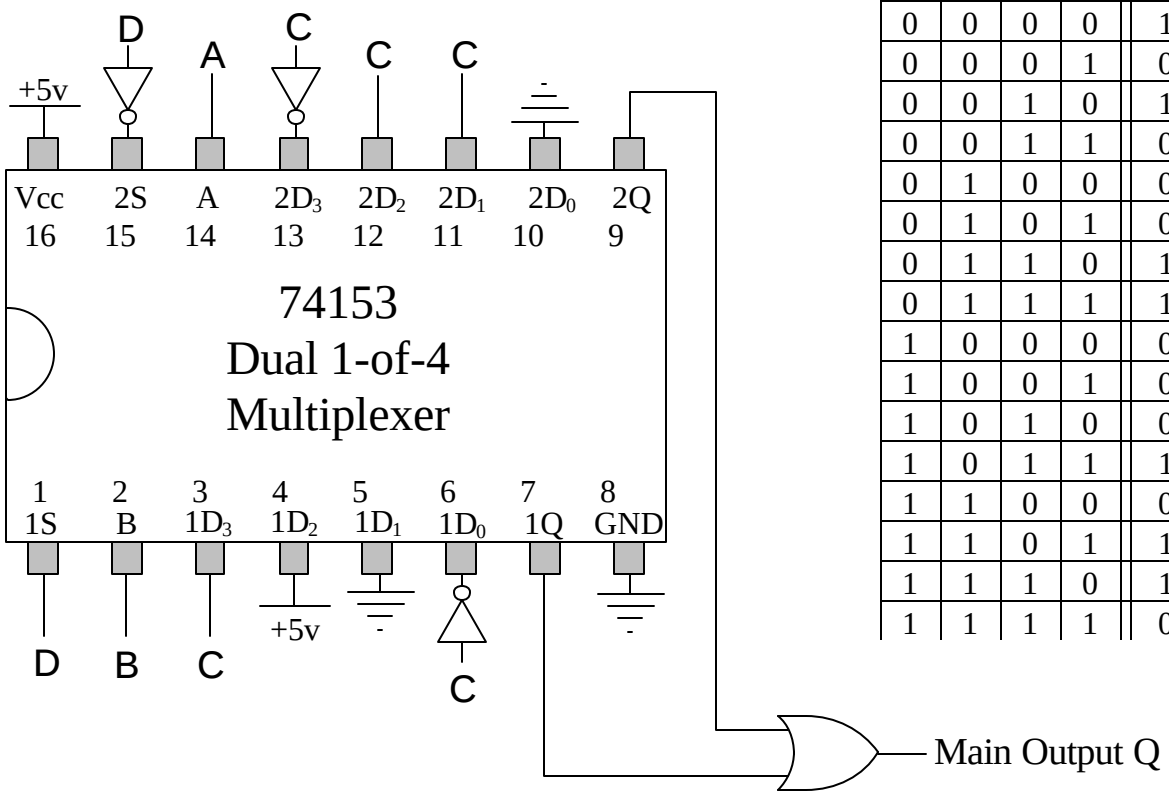
The 74153 MUX has two separate 4-row MUXes on it. We already know how to use a single inverter gate to double this to two 8-row MUXes. If we want to create a single 16-row truth table, we somehow need to combine the two separate outputs into one output. One way to do this is to use the STROBEs to turn on only the MUX you need, and then to combine the outputs with an OR gate. Remember, each strobe turns its MUX on when it is *low*.

The circuit shown will generate the accompanying truth table. Besides the 74153 MUX, it requires two inverters ($\overline{C}$ and $\overline{D}$), and one two-input OR gate.



D	C	B	A	Q	D_i
0	0	0	0	1	$1D_0$
0	0	0	1	0	$1D_1$
0	0	1	0	1	$1D_2$
0	0	1	1	0	$1D_3$
0	1	0	0	0	$1D_0$
0	1	0	1	0	$1D_1$
0	1	1	0	1	$1D_2$
0	1	1	1	1	$1D_3$
1	0	0	0	0	$2D_0$
1	0	0	1	0	$2D_1$
1	0	1	0	0	$2D_2$
1	0	1	1	1	$2D_3$
1	1	0	0	0	$2D_0$
1	1	0	1	1	$2D_1$
1	1	1	0	1	$2D_2$
1	1	1	1	0	$2D_3$