4-bit 2's complement adder/Subtractor

Using 2's complement addition it is possible to design a subtractor.. In this mode one of the operand say B is complemented and added to A. A "1" is also added to the sum. This can be achieved by the Cin input.

To complement the operand an XOR is used with one input tide to a "1". A 4-bit 2's complement adder/subtractor is shown in Fig. 1.
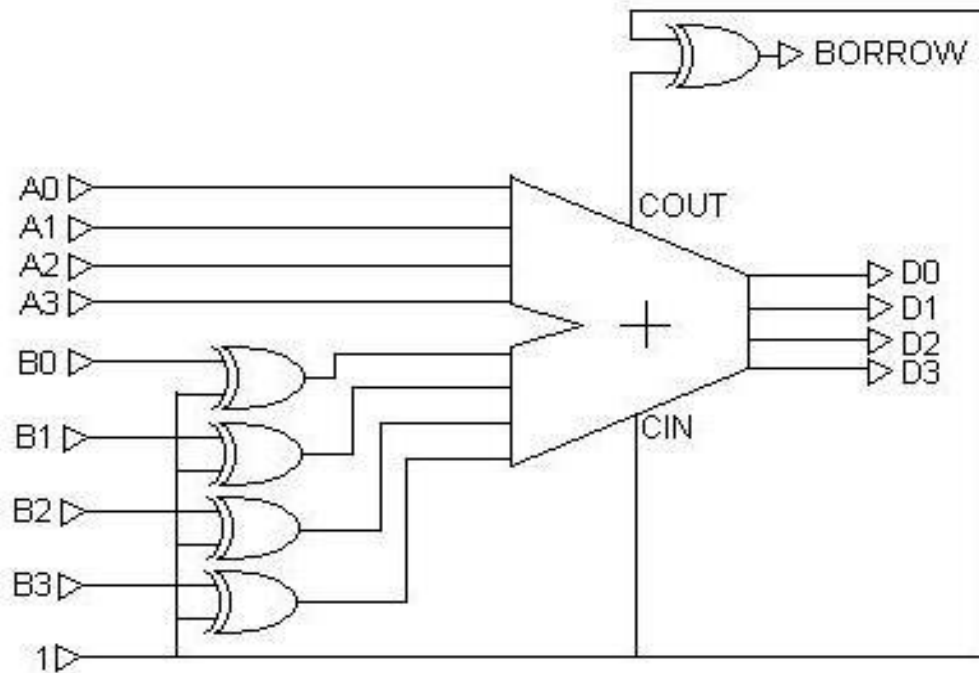

Figure 1 4-bit Subtractor schematic

Here are the truth tables of our gates. The truth table is a breakdown of a logic function by listing all possible values that the function can attain.