Boolean expressions are generated from the following grammer:

$$t ::= x|0|1|\neg t|t \wedge t|t \vee t|t \Rightarrow t|t \Leftrightarrow t$$

The priorities are, with the highest first:

$$\neg, \vee, \wedge, \Leftrightarrow, \Rightarrow$$

Hence, for example

$$\neg x_1 \wedge x_2 \vee x_3 = (((\neg x_1) \wedge x_2) \vee x_3 \Rightarrow x_4)$$