Warning

When you get accustomed to writing conjunctions and disjunctions as lists like this, it's easy to forget that the last formula in the list "captures" tokens in the expression to the right of its \land or \lor -even if they occur on a separate line. For example,

$$\begin{array}{ccc}
\wedge & A \\
\wedge & B \\
\Rightarrow C
\end{array}$$

means $A \wedge (B \Rightarrow C)$, not $(A \wedge B) \Rightarrow C$. You can write the latter expression in any of the following ways:

$$\begin{array}{ccccc} & \wedge & A & & \wedge & A & & (\wedge & A & & (\wedge & A & & \\ & \wedge & B & & \wedge & B & & \wedge & B \end{array}) & & & (\wedge & A & & \\ \Rightarrow & C & & \end{array}$$