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Exercise 11.1

$$
\begin{aligned}
(\neg((\neg B \land D) \land (C \lor D)) \land (B \lor A)) &\equiv (\neg(\neg B \land (D \land (C \lor D)) \land (B \lor A))) && \text{(Associativity)} \\
&\equiv (\neg(\neg B \land (D \land (D \lor C)) \land (B \lor A))) && \text{(Commutativity)} \\
&\equiv (\neg(\neg B \land D) \land (B \lor A))) && \text{(Absorption)} \\
&\equiv ((\neg\neg B \lor \neg D) \land (B \lor A)) && \text{(De Morgan)} \\
&\equiv ((B \lor \neg D) \land (B \lor A)) && \text{(Double Negation)} \\
&\equiv (B \lor (\neg D \land A)) && \text{(Distributivity)}
\end{aligned}
$$

Exercise 11.2

I will disprove the statement: Every single Literal is a clause and a monomial, because the terms clause and monomial are also used for the corner case with only one literal. Every literal is also a formula. Therefore there exists a formula which is both a monomial and a clause.

Exercise 11.3

(a)

(b)

Exercise 11.4

Exercise 11.5

(a)

(b)