p.93 E3] Equivalent or not?

$(A \vee B) \vee C$ and $A \vee (B \vee C)$

A	B	C	$(A \vee B) \vee C$	$A \vee (B \vee C)$
T	T	T	T	T
T	T	F	T	T
T	F	T	T	T
T	F	F	T	T
F	T	T	T	T
F	T	F	T	T
F	F	T	T	T
F	F	F	F	F

columns match
⇒ equivalent!

p. 94 I1 | Valid?

$A \to B, B \therefore A$

premises — conclusion

A	B	A → B	B	A
T	T	T	T	T
T	F	F	F	T
F	T	T	T	F ← counterexample b/c premises are all true + conclusion is false
F	F	T	F	F

hypothetical scenario (valuations)

premises — conclus

So there exists a counterexample

Therefore the argument is not valid.

in symbols:

$$A \to B, B \not\vdash A$$

"do not entail"

$A_1, A_1 \rightarrow C_1 \therefore A_1 \wedge A_2 \wedge A_3 \wedge A_4 \wedge A_5 \wedge A_6 \wedge A_7 \rightarrow C_1 \vee C_2 \vee C_3 \vee C_4 \vee C_5$

truth table: 2^{13} rows in truth table to check validity !!

8192 rows to check validity !

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p.117

1	$[(A \vee B) \rightarrow (C \vee D)] \wedge [(E \vee F) \rightarrow (G \vee H)]$	
2	$(A \vee B) \rightarrow (C \vee D)$	$\wedge E$ 1
3	$(E \vee F) \rightarrow (G \vee H)$	$\wedge E$ 1
4	$[(E \vee F) \rightarrow (G \vee H)] \wedge [(A \vee B) \rightarrow (C \vee D)]$	$\wedge I$ 3,2