

Exercise Set 3

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1. For each of the following formulas: if it is intuitionistically provable, provide both a destructive tableau proof and a proof using the tableau system in Graham Priest's book, but if it is not provable, give an intuitionistic counter-model.

Here are the formulas.

a. $\neg(\neg P \wedge \neg Q) \supset \neg\neg(P \vee Q)$

b. $((P \supset Q) \supset P) \supset P$

c. $\neg\neg(((P \supset Q) \supset P) \supset P)$

2. Give a proof that if there is a closed destructive intuitionistic tableau for a formula then there is an *atomically* closed tableau for it. (A tableau branch is closed if it contains $T X$ and $F X$ for some X ; it is atomically closed if X is atomic.)