The Theory of Computation
Bernard M.E. Moret
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Solution Manual
Chapter 7, Problem 7.8

Assume that we have $\text{NP} \neq \text{coNP}$—that is, that NP is not closed under complementation. We need to show that we must then have $\text{P} \neq \text{NP}$. We use contradiction: assume that we have $\text{P} = \text{NP}$; since P is closed under complementation, so is NP, which contradicts our assumption and proves our result.