On the complexity of finding falsifying assignments for Herbrand disjunctions

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Suppose that $\Phi$ is a consistent sentence. Then there is no Herbrand proof of $\neg \Phi$, which means that any Herbrand disjunction made from the prenex form of $\neg \Phi$ is falsifiable. We show that the problem of finding such a falsifying assignment is hard in the following sense. For every total polynomial search problem $R$, there exists a consistent $\Phi$ such that finding solutions to $R$ can be reduced to finding a falsifying assignments to Herbrand disjunctions made from $\neg \Phi$. 