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of proof for Lemma Agatha Murder Puzzle (JProver)Lori2R:

1. Agatha hates Charles
2. Agatha hates Agatha
3. $\forall p:\text{Person}. \neg p \text{ is richer than Agatha} \Rightarrow \text{The Butler hates } p$
4. $\forall p:\text{Person}. \text{Agatha hates } p \Rightarrow \neg \text{Charles hates } p$
5. $\forall p:\text{Person}. \text{Agatha hates } p \Rightarrow \text{The Butler hates } p$
6. $\forall p:\text{Person}. \neg p \text{ hates Agatha} \vee \neg p \text{ hates The Butler} \vee \neg p \text{ hates Charles}$
7. $\forall p, q:\text{Person}. p \text{ kills } q \Rightarrow \neg p \text{ is richer than } q$
8. $\forall p, q:\text{Person}. p \text{ kills } q \Rightarrow p \text{ hates } q$
9. $\neg \text{The Butler is richer than Agatha} \Rightarrow \text{The Butler hates The Butler}$
10. $\text{Agatha hates Agatha} \Rightarrow \neg \text{Charles hates Agatha}$
11. $\text{Agatha hates Agatha} \Rightarrow \text{The Butler hates Agatha}$
12. $\text{Agatha hates Charles} \Rightarrow \text{The Butler hates Charles}$
13. $\forall q:\text{Person}. \text{The Butler kills } q \Rightarrow \neg \text{The Butler is richer than } q$
- $\vdash \neg \text{The Butler kills Agatha} \ \& \ \neg \text{Charles kills Agatha}$
by allL (13) Agatha

1:

14. $\text{The Butler kills Agatha} \Rightarrow \neg \text{The Butler is richer than Agatha}$
 $\vdash \neg \text{The Butler kills Agatha} \ \& \ \neg \text{Charles kills Agatha}$