

COMP9020 Problems Week 2

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Exercise 1 In Mew, the Nelsons, who are truars, were leaving their four children with the new babysitter, Nancy, for the evening. Before they left, they told Nancy that three of their children were consistent liars but that one of them was a truar. While she was preparing dinner, one of the children broke a vase in the next room. When she asked who broke the vase the children's answers were:

Betty: Steve broke the vase,

Steve: John broke it,

Laura: I didn't break it,

John: Steve lied when he said I broke it.

Who was it?

Exercise 2 (proof by contradiction) Problem 1.9 of [LLM].

Exercise 3 Problem 1.15(a) of [LLM].

Exercise 4 Problem 3.8 of [LLM].

Exercise 5 Problem 3.10 of [LLM].

Exercise 6 Prove the same equivalence as in the previous exercise, but this time using equivalences such as the ones introduced on pages 18 and 19 of [slides 1](#).