

Thursday, September 17

Name SOLUTIONS

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Miniquiz #7

5 Minutes

1. Consider the parent relation $\text{Parent}(A, B) \subseteq \text{People} \times \text{People}$ that denotes that A is a parent of B. For example, $\text{Parent}(\text{Bob}, \text{Elise})$ denotes that Bob is a parent of Elise.
- a) Define the meaning of a new relation $\text{Child}(A, B) \subseteq \text{People} \times \text{People}$ that denotes that A is a child of B by completing the following inference with a premise (or premises) above the line that only use the Parent relation.

$$\frac{\text{Parent}(B, A)}{\text{Child}(A, B)}$$

- b) Define the meaning of a new relation $\text{Grandparent}(A, B)$ that denotes that A is a grandparent of B by completing the following inference rule with a premise (or premises) that only use the Parent relation.

$$\frac{\text{Parent}(A, C) \quad \text{Parent}(C, B)}{\text{Grandparent}(A, B)}$$

- c) Define the meaning of a new relation $\text{Ancestor}(A, B) \subseteq \text{People} \times \text{People}$ that denotes that A is an ancestor of B by providing an inference rule (or inference rules).

$$\frac{\text{Parent}(A, B)}{\text{Ancestor}(A, B)}$$

$$\frac{\text{Ancestor}(A, C) \quad \text{Parent}(C, B)}{\text{Ancestor}(A, B)}$$