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2.3 Model real-world phenomena using the fundamental definitions of relations.

The definition of the word ancestor is: "one from whom a person is descended," i.e., the parent of your parent, or their parent, or their parent, etc.

Define the following relation A for ancestors:

- For all people x and y we say $(x, y) \in A$ if x is an ancestor of y.

(a) Recall that an *inverse* of a relation R is a relation R^{-1} such that for all $(x, y) \in R \rightarrow (y, x) \in R^{-1}$. Provide a simple definition of the inverse of the ancestor relation A, and justify your definition in a couple sentences. (*Hint:* think about the definition of ancestor.)

(b) A *strict partial ordering* is a relation that is irreflexive (not reflexive for any x), anti-symmetric, and transitive. Prove that the ancestor relation A is a strict partial ordering. A sentence or two for each property should suffice.

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