

**Esercizio 1.** The language contains only the binary relations  $<$  and  $e$ . The theory  $T_0$  says that  $<$  is a strict linear order and that  $e$  is an equivalence relation. Let  $\mathcal{M}$  consists of models of  $T_0$  and partial isomorphisms. Do rich models exist? Can we axiomatize their theory? If so, does it have elimination of quantifiers? Is it  $\lambda$ -categorical for some  $\lambda$ ?

Si risponda sinteticamente.

**Esercizio 2.** In the language of graphs let  $T_0$  say that there are no cycles (equivalently, there is at most one path between any two nodes). In combinatorics these graphs are called *forests*, their connected components are called *trees*. Let  $\mathcal{M}$  consists of models of  $T_0$  and partial isomorphisms. Do rich models exist? Can we axiomatize their theory? If so, does it have quantifier elimination? Is it  $\lambda$ -categorical for some  $\lambda$ ?

Si risponda sinteticamente.