

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. The category \mathcal{M} consists of models of T_0 and partial isomorphisms. Let T_1 be the theory of rich models. Axiomatize T_1 . (Basta a parole, se sufficientemente precise, non servono espressioni formali).

Does T_1 have elimination of quantifiers? Is it λ -categorical for some λ ?

Esercizio 2. Let N be free union of two random graphs N_1 and N_2 . That is, $N = N_1 \sqcup N_2$ and $r^N = r^{N_1} \sqcup r^{N_2}$, where \sqcup denotes the disjoint union. Prove that N is not a random graph. Show that N_1 is not definable in N without parameters. Write a first-order formula $\psi(x, y)$ true if x and y belong to the same connected component of N . Axiomatize the class of graphs that are free union of two random graphs. (Basta a parole, se sufficientemente precise, non servono espressioni formali).