Esercizio 1. Prove that every model of T_{acf} is ω-ultraomogeneous (indipendenlty of cardinality and degree of transcendence).

Suggerimento. Volendo, si può verificare che ogni $k : M \to N$ isomorfismo parziale finito tra due modelli numerabili di T_{acf} con lo stesso grado di transcendanza si estende ad un isomorfismo.

Esercizio 2. Let L be the language of strict order. Let T be the theory discrete linear orders without endpoints. (An order is discrete if every point has an immediate predecessor and an immediate successor.) Show that the structure $\mathbb{Q}\times\mathbb{Z}$ ordered with the lexicographic order

$$(a_1, a_2) < (b_1, b_2) \quad \Leftrightarrow \quad a_1 < b_1 \text{ or } a_1 = b_1 \text{ e } a_2 < b_2$$

is a saturated model of T. For every $n \in \omega$ add to the language a relation symbol $d(x, y) = n$ and add to T the axiom $d(x, y) = n \leftrightarrow \exists^{=n} z\, (x < z \leq y)$. Let T' be the resulting theory. Prove that T' has quantifier elimination.

Hint: answer the second question first.