Additional question for Math 220A, Fall 2011

A complete type $\Phi(v_1, \ldots, v_n)$ in a theory T is *determined by* $\Gamma(v_1, \ldots, v_n)$ if $\Gamma \subseteq \Phi$ and Φ is the only complete type of T that contains Γ. Equivalently, for every formula $\chi(v_1, \ldots, v_n)$, either $T \cup \Gamma(c_1, \ldots, c_n) \vdash \chi(c_1, \ldots, c_n)$, or $T \cup \Gamma(c_1, \ldots, c_n) \vdash \neg\chi(c_1, \ldots, c_n)$.

Φ is *determined by its literal part* if it is determined by $\Gamma = \{\varphi \mid \varphi \in \Phi$ and φ is a literal (i.e., atomic or negation of atomic)$\}$.

Prove that a complete theory T in a countable language admits quantifier elimination iff every complete type of T is determined by its literal part.