Exercise 1. Show that the powerset operator $P$ extends to a functor $P : \text{Rel} \to \text{Set}$.

Exercise 2. Show that for every function $\theta : \Sigma \to \Sigma'$ there is a corresponding functor from $\Sigma'-\text{Seq}$ to $\Sigma-\text{Seq}$ (i.e. from DFAs on alphabet $\Sigma'$ to DFAs on alphabet $\Sigma$).

Exercise 3. Prove that your construction above extends to a functor $\text{Seq} : \text{Set} \to \text{Cat}^{\text{op}}$. 