Assignment 4

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

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

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