

Assignment 2: Formal Learning Theory

Due anytime before May 2nd, 2018

Question 1

Suppose that some particular (recursively enumerable) language L is given. Show that the class of languages $\{L \cup D \mid D \in \mathcal{L}_{fin}\}$ is identifiable/learnable.

Question 2

(1) If a learner ϕ converges on a text T , then $\{\phi(T[n]) \mid n \in \mathbb{N}\}$ is finite.

1. Prove this.
2. Show that the converse is false.

Question 3

(2) If a learner ϕ converges on a text T , then $L(\phi(T[n])) = \text{content}(T)$ for all but finitely many $n \in \mathbb{N}$.

1. Prove this.
2. Show that the converse is false. That is, show that it is not the case that (if ϕ identifies T , then $L(\phi(T[n])) = \text{content}(T)$ for all but finitely many $n \in \mathbb{N}$) implies that ϕ converges on T .