Active Automata Learning: from L^* to $L^\#$

Frits Vaandrager
Radboud University
Nijmegen, The Netherlands
F.Vaandrager@cs.ru.nl

Abstract—In this tutorial on active automata learning algorithms, I will start with the famous L^* algorithm proposed by Dana Angluin in 1987, and explain how this algorithm approximates the Nerode congruence by means of refinement. Next, I will present a brief overview of the various improvements of the L^* algorithm that have been proposed over the years. Finally, I will introduce $L^\#$, a new and simple approach to active automata learning. Instead of focusing on equivalence of observations, like the L^* algorithm and its descendants, $L^\#$ takes a different perspective: it tries to establish *apartness*, a constructive form of inequality.