1135-VT-1116　　　　**William Cipolli*** (`will@cipolli.com`), 13 Oak Dr, Department of Mathematics, Hamilton, NY 13346, and **Timothy Hanson**. *Supervised Learning via Smoothed Polya Trees.* Preliminary report.

The goal in any classification scheme is to design a system that classifies new observations into their true class as often as possible. The Bayesian nonparametric approach of the multivariate Polya tree proposed realizes impressive results in simulations and real data analyses, performing similarly to, or better than, current approaches in many cases. The flexibility gained from relaxing certain distributional assumptions from the model can greatly improve the ability to correctly classify new observations; even minor deviations from parametric distributional assumptions could lead to missing an important feature in any one class's density. Completing classification using Bayes Rule and the nonparametric density estimation of the multivariate Polya Tree is quite fast compared to other supervised classifiers and very simple to implement as there are no kernel tricks or initialization steps. (Received September 19, 2017)