1145-11-278 **Nicholas Triantafillou*** (ngtriant@mit.edu). *Variants of Chabauty's Method and the Thrice-Punctured Projective Line.* Preliminary report.

Chabauty's method is a powerful tool for bounding/enumerating the number of integral/rational points on arithmetic curves. Unfortunately, it requires the curve's Jacobian to have rank less than its dimension. This condition frequently fails, especially for number fields of high degree. Several techniques have been proposed to augment the classical Chabauty, including descent, restriction of scalars, the Mordell-Weil sieve and Kim's non-abelian Chabauty. We study the power of various combinations of these techniques, mostly in the context of computing S-integral points of number fields on the thrice-punctured projective line. Among other things, our work gives bounds on the number of solutions to S-unit equations and a strategy for counting solutions without using strong results from transcendental number theory. This work has applications to other counting problems in number theory, like enumerating elliptic curves over numer fields with prescribed primes of bad reduction. (Received August 28, 2018)