# Undecidable Weak Theories of Polynomial Rings

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We show that the theory $\mathrm{Th}(\mathbf{F}_q[X_1, \ldots, X_n], S_1, S_{X_1}, \perp)$ is undecidable. Here $\mathbf{F}_q$ is a finite field of $q$ elements, $S_1$ and $S_{X_1}$ are the natural analogues of the successor function ($S_1(f) = f+1$, $S_{X_1}(f) = f+X_1$) and $\perp$ is a coprimeness predicate. The proof uses the truth of the analogues of the Erdös-Woods conjecture for polynomial rings over a finite field, which was obtained in [1].

[1] M. A. Vsemirnov, *The Woods-Erdös conjecture for polynomial rings.* Annals of Pure and Applied Logic (to appear).

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