1116-12-1477 **Carlos E Arreche*** (cearrech@math.ncsu.edu), Mathematics Department, North Carolina State University, Campus Box 8205, Raleigh, NC 27605. *Computing Galois groups for functional equations.*

There are several Galois theories that describe the relations among solutions to functional equations. As an application of these theories, one can prove that the Gamma function $\Gamma(x)$ does not satisfy any $\frac{d}{dx}$-equations with polynomial coefficients, and that the incomplete Gamma function $\gamma(x,t)$ does not satisfy any $\frac{d}{dt}$-equations with polynomial coefficients. Although these results were already known, the Galois theoretic point of view gives a more conceptual explanation of these facts than many of the earlier proofs, based only on the defining functional equations $\Gamma(x+1) = x\Gamma(x)$ and $\frac{\partial^2\gamma}{\partial x^2}(x,t) = \frac{t-1-x}{x}\frac{\partial\gamma}{\partial x}(x,t)$ for each of these functions. More importantly, the computations involved are symbolic, which allows us to discover similar facts about other special functions automatically, based only on their defining functional equation. (Received September 20, 2015)