Many Cheerful Facts

Organizer: Jeffrey Galkowski

Wednesday, 3:00pm-4:00pm, 891 Evans

September 21.

Speaker: Alex Kruckman, UC Berkeley

Title: *A Logical Look at Complex Polynomials*

Every injective polynomial map $\mathbb{C} \to \mathbb{C}$ is also surjective. This statement has proofs from complex analysis and algebraic geometry, but (unexpectedly?) the easiest proof comes from logic. Most of the talk will consist of a gentle introduction to model theory for the uninitiated - no background in logic required! In particular, after we examine the logical theory of algebraically closed fields and formalize the intuition that "true in characteristic zero" is approximated by "true in characteristic p" as p gets large, today's cheerful fact will fall into our laps with a satisfying clunk.

I am the very model of a modern Major-General,
I've information vegetable, animal, and mineral,
I know the kings of England, and I quote the flights historical
From Marathon to Waterloo, in order categorical;
I'm very well acquainted, too, with matters mathematical,
I understand equations, both the simple and quadratical,
About binomial theorem I'm teeming with a lot o' news,
With many cheerful facts about the square of the hypotenuse.
I'm very good at integral and differential calculus;
I know the scientifc names of beings animalculous:
In short, in matters vegetable, animal, and mineral,
I am the very model of a modern Major-General.