

MANY CHEERFUL FACTS

presents

Ceci n'est pas un résumé: The surreal numbers

a talk by Alex Fink

12:10 – 1:00pm on Wednesday, March 14, in room 1015.

Around 1970, while investigating Go endgames, John H. Conway came upon a construction which produces from a very few simple rules an embarrassingly rich system of numbers. They were subsequently dubbed the surreal numbers by Donald Knuth in the mathematical novelette that was their first exposition in print. The surreals can be seen as a simultaneous generalization of the ordinals and the Dedekind cut construction of the reals.

I'll introduce the surreals from the natural vantage point of combinatorial game theory and proceed to develop some of their algebraic properties, hopefully culminating in the fact that they form a real closed field.

*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 fights 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!*

- Gilbert & Sullivan $P \circ P$

The website for Many Cheerful Facts is
<http://www.math.berkeley.edu/~slofstra/mcf>