# MANY CHEERFUL FACTS

## presents

## How to Have a Kickin' Party

## a talk by Ian Herbert

### 2:10–3:00pm on Tuesday, March 3, in 939 Evans.

The finite version of Ramsey's Theorem tells us that if we want to have a kickin' party (where the kickin'ness of a party depends on the size of the greatest subset of guests such that either everybody in the subset knows everybody else, or nobody knows anybody else), we just need to invite enough people. The infinite version says that if we invite infinitely many people (and they all show up), we're guaranteed to have an infinite subset of either mutual friends or mutual strangers. I will talk about (and prove) both versions of this theorem, and build up to the statement of the Paris-Harrington Theorem, which tells of a party SO KICKIN' that all of Peano Arithmetic can't hold it. What a kickin' party!

*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://math.berkeley.edu/~mcf/`