Ramsey Theory Meets Infinity

A short introduction to Erdős-Rado Theorem

Chentian Wu

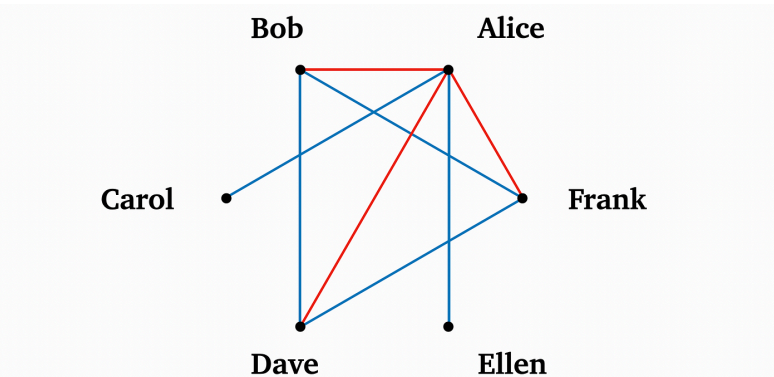
Outline

Ramsey's Theorem

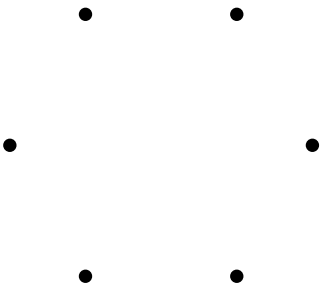
Problem of friends and strangers

Problem: The Friendship Riddle.

Of six (or more) people, either there are three, each pair of whom are acquainted, or there are three, each pair of whom are unacquainted.



Problem of friends and strangers (ii)



General Ramsey's Theorem

Theorem 1: Ramsey's Theorem.

Given an integer $t \geq 2$ and integers $q_1, q_2, ..., q_k \geq t$, there exists an integer p such that

$$K_p^t \to K_{q_1}, K_{q_2}, ..., K_{q_k}$$

Erdős Rado Theorem

References