A CONJECTURE REGARDING PAIRS OF SET SYSTEMS

DUSTIN STYNER

UNIVERSITY OF MANITOBA

MARCH 21, 2013

Let $\mathcal{A}$ and $\mathcal{B}$ be set systems over an n-element set such that for all $A, A' \in \mathcal{A}$ and for all $B, B' \in \mathcal{B}$, $A \setminus B = A' \setminus B' \implies A = A'$ and $B \setminus A = B' \setminus A' \implies B = B'$. In 1989, Gábor Simonyi conjectured that if these conditions are satisfied, then $|\mathcal{A}||\mathcal{B}| \leq 2^n$. This presentation will discuss several cases under which this is true, as well as the nature of the set of numbers over which it is true, and lastly a new problem in graph theory that arose from this work will be presented.