

## Thomas Zaslavsky (Binghamton)

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### Psycho-Graph Math on Two-Mode Signed Networks

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#### Abstract for the Combinatorics Seminar 2009 September 22

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I had a slightly silly thought on mathematical pseudo-psychology. A social system has people and it has objects. Some of the people like some of the objects, and some of the people dislike some of the objects.

Mrvar and Doreian asked: Can we group the people into clusters, and the objects into clusters, so that the feelings of the people in any cluster about the objects in any object cluster have no dissents? The number of feelings (if any) that must change to make this possible is the *clusterability index* of the system. It's one measure of the stress in that social system.

An older measure of stress is the *frustration index*. That is the smallest number of feelings that must change so that the people and objects fall into two groups, so no one in a group dislikes any object in that group or likes any object in the other group.

I became curious about the relationship between these two measures. There are some, though not strong ones.

Of course this is a problem of signed graphs, specifically, bipartite signed graphs.

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