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3-Uniform Friendship Hypergraphs

The well-known Friendship Theorem states that a graph G , in which every pair of vertices has exactly one common neighbour, must be a windmill graph. A generalization of the concept of friendship graphs is due to Sós in 1976 the following in a 3-uniform hypergraph H of order n ; for every three vertices x, y, z in H there exists a unique vertex w in H s.t. xyw , xzw and yzw are all edges in the hypergraph. Soś showed that such friendship hypergraphs contain a universal friend (the generalization of the windmill graph) iff n congruent to 2 or 4 mod 6. In this talk we will look at some of the results known about friendship hypergraphs without a universal friends, and we will give a construction for making friendship hypergraphs on 2^k vertices.