

## *Synchronization* abstract

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A finite deterministic automaton is synchronizing if there is a word in the alphabet of transitions such that applying that word to the automaton always takes it to a fixed state, no matter what its initial state was. (Such a word is called a reset word.) Some recent research has focussed on the question: what properties of a permutation group guarantee that adding any single non-permutation produces a synchronizing automaton? And if this is the case, what conditions bound the number of occurrences of the non-permutation in any reset word? These conditions are related to traditional permutation group theory (primitivity, the QI property, etc.) and to graph homomorphisms.