Community finding in weighted multiplex by sequential intra-layer edge elimination

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Identifying modular properties of multiplexes presents additional subtleties to the already corresponding difficult problem in single layer networks. Based on the well known Newman-Girvan method, a framework (MultiNG) to reach this goal is developed and tested. Additional steps are also added to the framework, which allow to obtain modular properties of weighted multiplexes based on the results for a family of un-weighted multiplexes. The reliability of the procedure is tested by investigating different cases, as synthetic multiplexes, multiplexes derived from different weighted networks, and multiplexes based on one single weighted network at different threshold values. Results are compared with those obtained by GenLouvain.