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Is my network module preserved and reproducible ?

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In many applications, one is interested in determining which of the properties of a network module change across conditions. For example, to validate the existence of a module, it is desirable to show that it is reproducible (or preserved) in an independent test network. Here we study several types of network preservation statistics that do not require a module assignment in the test network. We distinguish network preservation statistics by the type of the underlying network. Some preservation statistics are defined for a general network (defined by an adjacency matrix) while others are only defined for a correlation network (constructed on the basis of pairwise correlations between numeric variables). Our applications show that the correlation structure facilitates the definition of particularly powerful module preservation statistics.

This is joint work with Peter Langfelder.

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