Abstract Submitted
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Network description on competition and cooperation systems[1]
YUE-PING ZHOU, HUI CHANG, DA-REN HE, Yangzhou University — We propose a kind of network description on competition and cooperation systems. In the network the vertices are defined as the elements, which make competition and cooperation in some acts. They are competing because each of them tries to occupy a larger piece of "cake" that represents a kind of competition harvest. They are cooperating because they will not destroy each other. They coexist and each one gets a piece of cake. Two nodes are connected by an edge when they appear in a common act. The total weight of the cake a node gets is defined as the node weight. The statistical properties without involving the weight counting can show the situation how the elements are competing and cooperating in the acts. While the properties involving the weight counting can show the competition results and the relationship between the competition results and the network topological structure. We have done such network descriptions for some practical systems. The results show that the description may be helpful.

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