

Small world networks with segregation patterns and brokers

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Abstract

Many social networks have the following five properties: (i) a short average distance between any two individuals; (ii) a high clustering coefficient; (iii) segregation patterns; the presence of (iv) brokers and (v) hubs. (i) and (ii) are the definition of a *small world* network. This paper develops a strategic network formation model where agents have heterogeneous knowledge of the network: cognizant agents know the whole network, while ignorant ones are less knowledgeable. For a broad range of parameters, all *pairwise Nash* (PN) networks have properties (i)-(iv). There are some PN networks with one hub. Cognizant agents have higher betweenness centrality: they are the *brokers* who connect different parts of the network. Ignorant agents cause the emergence of *segregation patterns*. The results are robust to varying the number of cognizant agents and to increasing the knowledge level of ignorant ones.

Keywords: network, incomplete information, small world, segregation.

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