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Network analysis of the novel "The Master and Margarita" by M. A. Bulgakov

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The network analysis of the structure of social relations in one of the most popular novels in Russian of the Soviet era by M. A. Bulgakov "The Master and Margarita" was carried out. The structure of the novel is complex, i.e., there is novel in novel. In our study, only relations between explicitly present and acting characters were taken into account; the characters mentioned and expected connections were not taken into consideration. Based on the character interaction matrix, a graph was constructed, the vertices of which are the characters of the novel, while the edges correspond to relation between them. In our study, only the explicit interaction of the characters on the stage was considered. Interaction, i.e., bidirectional action, leads to the fact that, in our study, the social network is described by an ordinary, rather than directed graph. The largest connected component of the graph consists of 153 characters.

Degree, betweenness, closeness, eigenvector, assortativity coefficient were computed to characterize the network.

The assortativity coefficient of the network under consideration equals to -0.177, which indicates artificiality of the network. The structure of communities in the network was analyzed using the Girvan—Newman algorithm. In addition to the obvious large communities — the characters from the Gospel part of the novel, the characters of the Moscow part of the novel, the characters of the other world — the algorithm also revealed a more subtle structure in the Moscow part of the novel: communities of writers, a hospital, and a theater. Using the analysis of centralities, a group of main characters has been detected. It turned out unexpectedly that in the Gospel part of the novel, the central character is Afranius, rather than Pontius Pilate.

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