Defining the core characters and events of a fictional narrative by two-mode social network analysis

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Abstract

Inspired by the increased availability of digitized texts and the development of relevant technologies, as well as rise of the digital literary studies and the method of distant reading (Moretti, 2013), social network analysis has increasingly been used to analyze fictional narratives. The main lines of research focus on revealing patterns within a wider corpus and modelling interaction between characters within a single literary work (Chao et al., 2019). The present study adds to past research by analyzing two essential story elements in parallel, the plot and the characters. Plot is a structure connecting a series of events based on their logical relationships. Patterns of characters' co-participation in the events allows readers to see how characters and plot define each other thus building a co-dependent relationship between these two elements of the story. Data for the article is drawn from the renowned Finnish war novel *The Unknown Soldiers* by Väinö Linna (2015 [1954]). A two-mode dataset was constructed to show how the 58 characters of the novel co-appear in the 88 sections of the book, each of which illustrates an episode encountered by the troops. As a depiction of war, the novel describes various forms of interaction, including multiple characters sharing spaces and experiences together without any bilateral dialogue. The article contributes in part to the use of core-periphery analysis as an indicator of characters' positions. Among the methods created for identifying the core-periphery structure, and whether such structure can be found, there are varying and often inconsistent assumptions about how the core and the periphery are connected to each other. A binary typology distinguishes between two-block models and k-cores (Gallagher R. J. et al., 2021). The former partitions a network into a binary hub-and-spoke layout while the k-core decomposition divides the network into a layered hierarchy. In the present article, the discussion is extended to two-mode networks and a qualitative verification of the methods. Both the two-block model (Borgatti et.al., 2018) and the k-core (Cerinšek & Batagelj, 2015) are implemented for two-mode networks. The article assesses how the selection of the core-periphery algorithm affects the ability to reveal relevant observations about the protagonists and key events of the novel. Finally, perspectives provided by the network measures are compared with those of past scholarship.

Keywords: two-mode networks, duality, core-periphery structure, Väinö Linna, Finnish war novel

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