

THE USE OF SPATIAL INFORMATION IN SOCIAL NETWORKS ANALYSIS

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This paper presents some results of mapping different aspects of social networks according to social scientists needs. A social network is defined as a social structure comprised of individuals and/or organizations usually represented as nodes of a graph that are tied together according to their type of interdependency. This paper also focuses on social networks that are established through the World Wide Web, which are considered to be complex structures. These networks are extremely dynamic and, therefore, conflicts can arise because the geographic location of the actors and their spatial relationships changes constantly. Differently from geographic space, cyberspace is not defined by geographic physical elements. This is a great problem to cartographers when their intention is to represent and visualize social networks established in virtual spaces. Therefore, despite the importance of depicting the spatial locations of social network actors, such structures are usually analyzed by means of tables and 2D graphs, as presented in Figure 1.

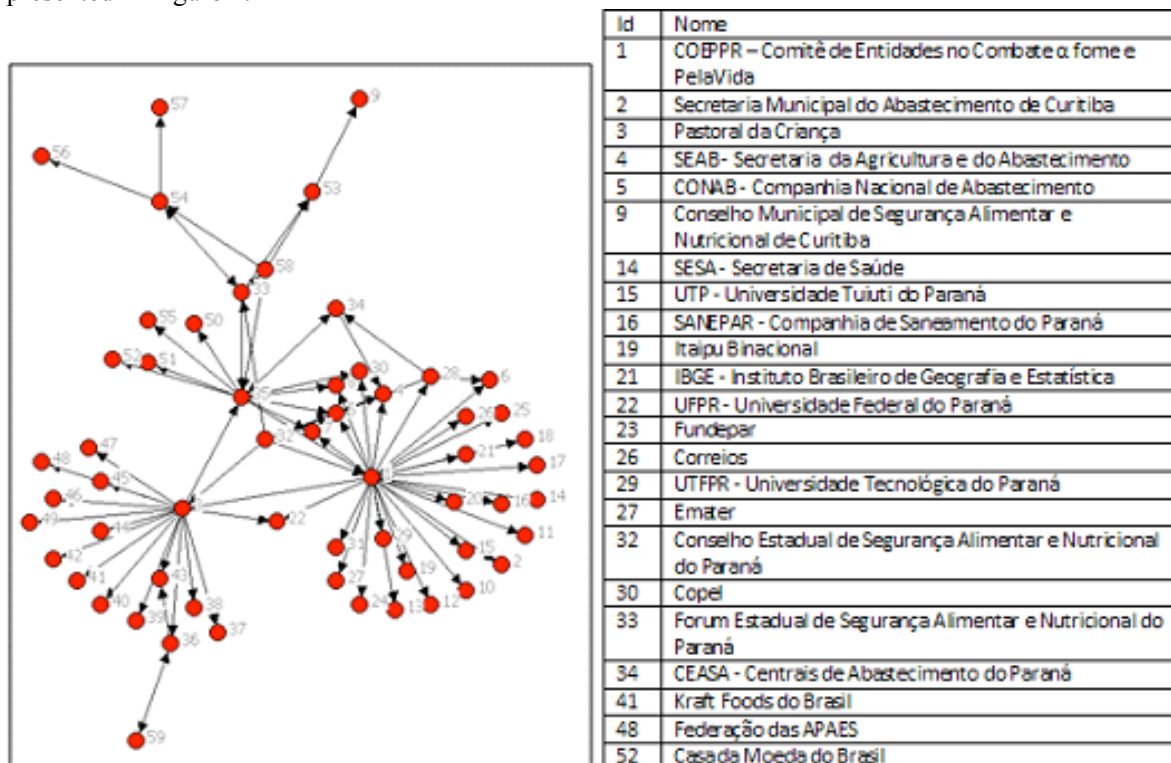


Figure 1 – Graph and table related to Food Security Network

The representation of the spatial location of the network actors is needed for the analysis of social agents' proximity and neighborhood relationships. Moreover, the attributes (characteristics) of the graphs elements must be depicted due to the need of analysis of clusters, dispersions, tendencies and areas of influence. Users are sociologists, experts in social networks, that need to know the sort of social agents by regions in order to analyze which regions are aided by governmental agencies or non-governmental organizations; the users also need to know the characteristics of connections, the number of social agents in different States of Brazil, considering their organizational characteristics (governmental, non-governmental, third sector) and their connections (if ideological, by project, and so on). In order to get a solution to the problem of social network visualization and analysis, this research presents a methodology for mapping the different aspects of this type of network. The referred methodology was applied to represent and analyze a series of social networks regarding individual's social rights in Brazil. According the Brazilian Constitution of 1988, the individual's social rights comprise Housing, Health, Education, Labor, Food Security and Social Assistance. The data necessary to establish these networks were collected through

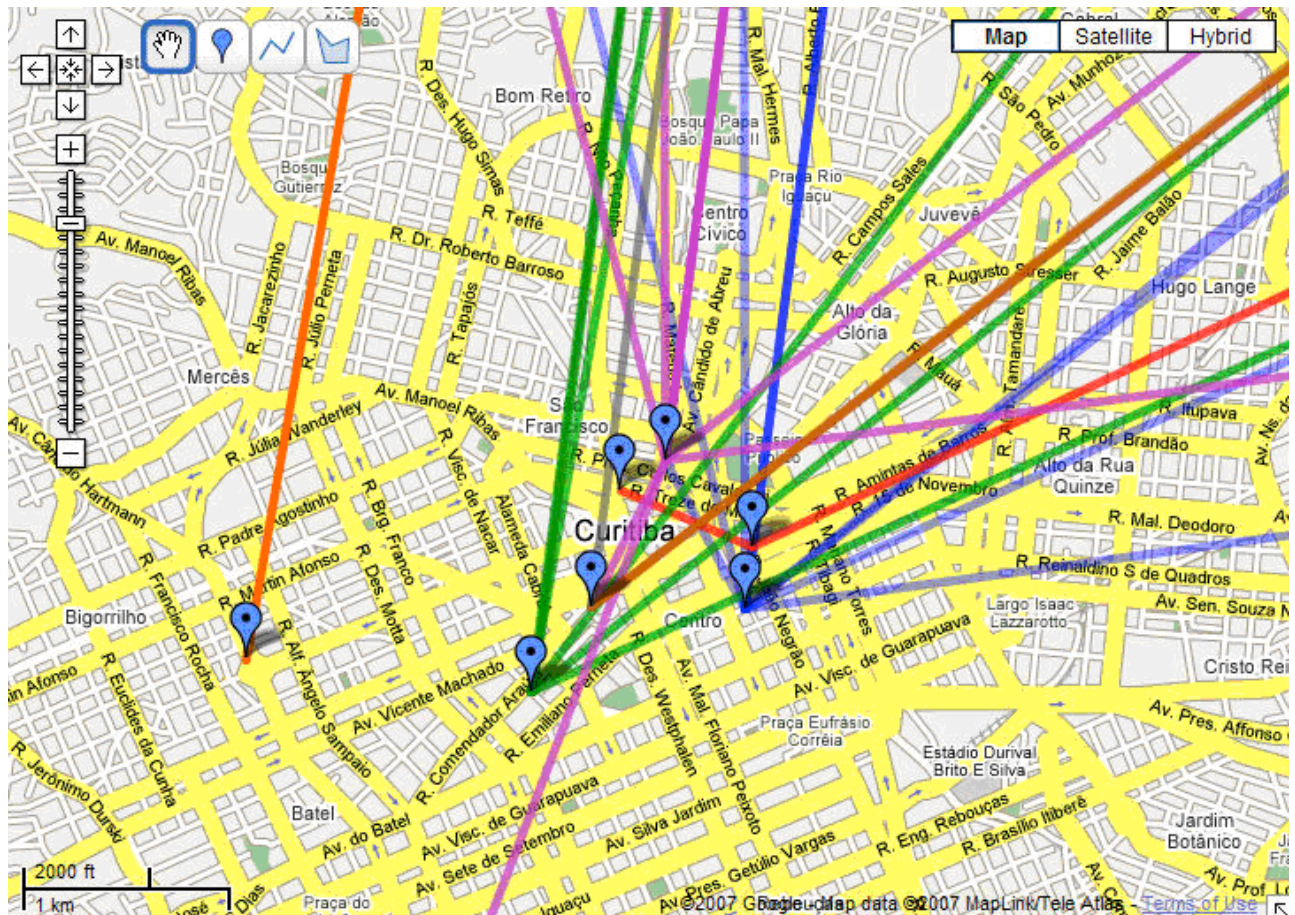


Figure 4 – Example of an online representation of the same Housing Network, in a local scale.

The resulting thematic maps (Figure 5) were presented to the sociologists in order to evaluate their understanding about social networks. The visualization of those maps allowed the sociologists to infer about the dissemination and effectiveness of public policies concerning to social rights protection in all levels of the public administration (municipal, state, and federal). The map users concluded that spatial information can be a methodological strategy to social network analysis, specifically in the case of social rights protection in Brazil. A challenge that still remains concerns the cartographic representation of the attributes of each network component. So far, the results showed that cartographic representation of social network improved the quality of the analyses. As an important consequence we learned that new possibilities of spatially thinking social networks can improve the decision making process related to public policies. The geographic mapping of such networks in the cyberspace is still being explored and the next step is to extend the current planimetric online representation to a 3D environment, like the one made available by the Google Earth platform.

Health Network

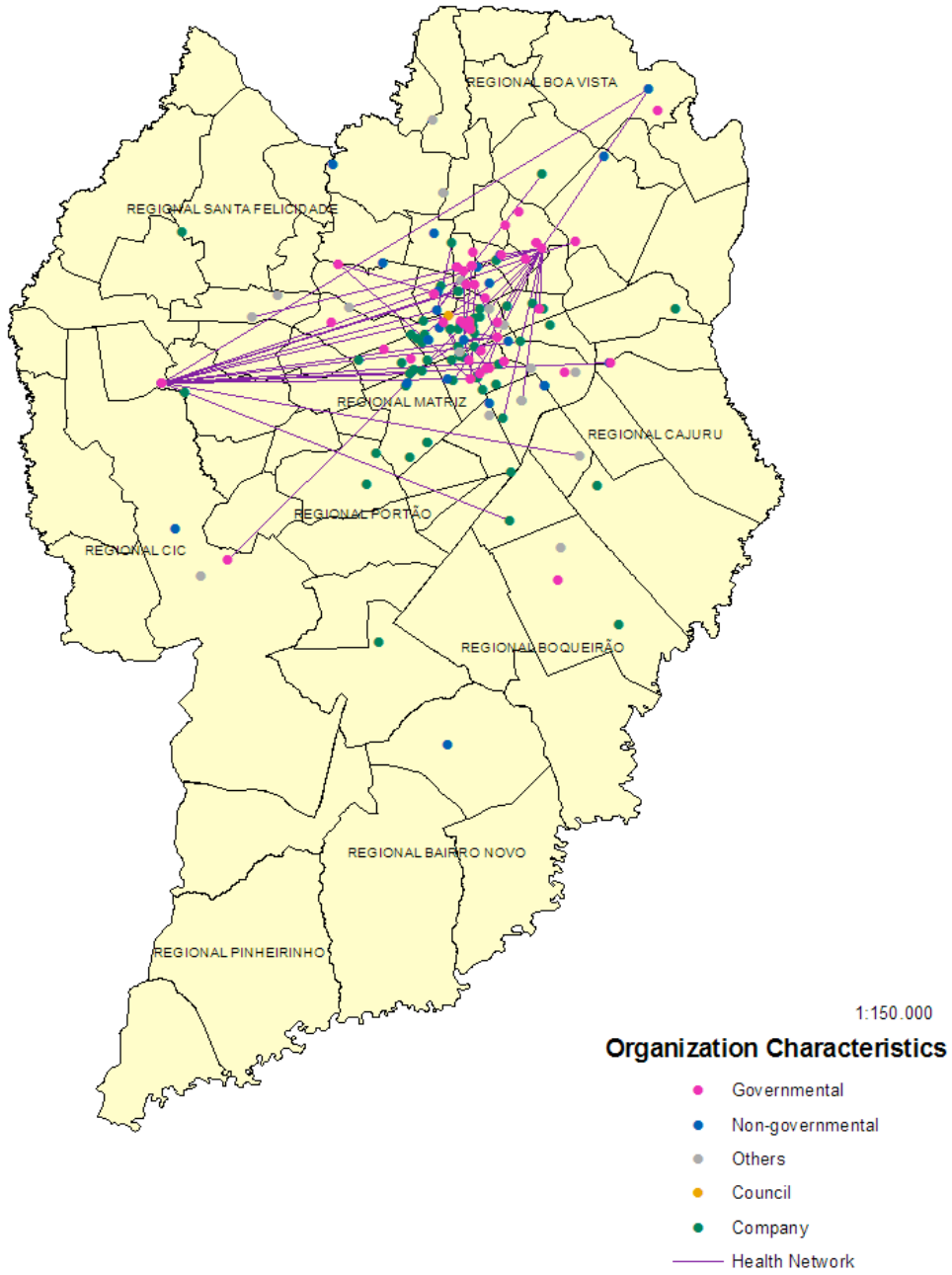


Figure 5 – Health Network Map

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