Analysis of the network of collaboration between European Institutions

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We performed an analysis of the European Commission Framework Programs, regarding the networks of collaboration formed by the different partners when they asked for financial support for a joint research project. We examined data for the FP6 and FP7 datasets. All datasets were provided by the Office of Statistics of the European Commission in anonymised form. The format of the data provided was Microsoft Access databases. The first database contained the set of proposed projects, while the second one contained the accepted proposals that led to signed contracts.

A significant portion of the data records was either missing or faulty and we needed tedious and time consuming procedures to overcome this obstacle. After cleaning the data in the best possible way, we worked on the two datasets, using network tools and analysis.

First, we worked with the FP6 accepted projects dataset. Specifically, we constructed 4 networks for the accepted projects dataset, one for every available level of information, namely participants, city, provinces and country networks. Our results were consistent with those in the previous work of Garas et al (2008). Then, we proceeded to use the same analysis on the proposals FP6 dataset, which includes both the accepted and rejected proposals. As the proposals dataset did not provide the provinces, we constructed 3 networks, i.e. the participants, city and country networks. Finally, we repeated the whole procedure for the FP7 database, therefore, in all, we worked with 14 networks, 7 for each of the FP6 and FP7 databases.

Our preliminary results for the FP6 and FP7 databases showed that the probability distributions for both the proposals and the accepted projects networks exhibit power-law behavior, $P(k) \sim k^{-\gamma}$. We compared the participants network of the whole set of proposals to the participants network of the successful projects, for both databases. Some preliminary results for the FP6 database are shown in the Figure 1.
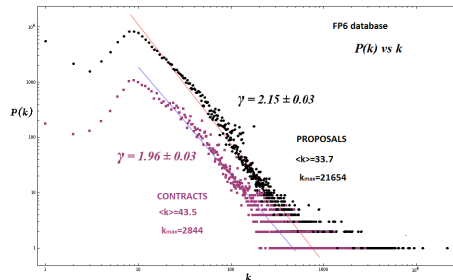

Figure 1: Comparison of the probability distributions for the participants network, for the FP6 datasets.