



SAID BUSINESS SCHOOL, University of Oxford

SEMINAR SERIES / TRINITY 2010

Convenors: Felix Reed-Tsochas, Institute for Science, Innovation and Society,
Said Business School
Eduardo López, Said Business School

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Seminar webpage:
www.cabdyn.ox.ac.uk/complexity_seminars.asp

Sandwiches and drinks will be provided

Please note: although the seminar programme detailed was correct at time of printing, seminar arrangements are subject to change - for the latest information, please check the seminar webpage.

Tuesday 1st June
(12.30 - 2.00pm) James Martin Seminar Room

Dr Renaud Lambiotte
Institute for Mathematical Sciences, Imperial College of London

'Trade, Conflict and Sentiments: Multi-relational Organization of Large-scale Social Networks'

ABSTRACT

The capacity to collect fingerprints of individuals in online media has revolutionized the way researchers explore social systems. These systems can be seen as a non-linear superposition of a multitude of large, complex social networks, where nodes represent individuals and links capture all sorts of different social relations. Much emphasis has been put on the network topology of social interactions; however, the multi-dimensional nature of these interactions has largely been ignored in empirical studies, mostly because of lack of data. For the first time here we analyze a complete, multi-relational, large social network of a society consisting of the 300,000 odd players of a massive multiplayer online game. We extract networks of six different types of one-to-one interactions between the players. Three of them carry a positive connotation (friendship, communication, trade), three a negative (enmity, armed aggression, punishment). We first analyze these types of networks as separate entities and find that negative interactions differ from positive interactions by their lower reciprocity, weaker clustering and fatter-tail degree distribution. We then proceed to explore how the inter-dependence of different network types determines the organization of the social system. In particular we study correlations and overlap between different types of links and demonstrate the tendency of individuals to play different roles in different networks. Finally we present the first empirical large-scale verification of the long-standing structural balance theory, by focusing on the specific multiplex network of friendship and enmity relations.