Abstract Submitted
for the MAR12 Meeting of
The American Physical Society

Modeling users' activity on Twitter networks: validation of Dunbar's number BRUNO GONCALVES, NICOLA PERRA, ALESSANDRO VESPIGNANI, Northeastern University — Microblogging and mobile devices appear to augment human social capabilities, which raises the question whether they remove cognitive or biological constraints on human communication. In this paper we analyze a dataset of Twitter conversations collected across six months involving 1.7 million individuals and test the theoretical cognitive limit on the number of stable social relationships known as Dunbar's number. We find that the data are in agreement with Dunbar's result; users can entertain a maximum of 100-200 stable relationships. Thus, the "economy of attention" is limited in the online world by cognitive and biological constraints as predicted by Dunbar's theory. We propose a simple model for users' behavior that includes finite priority queuing and time resources that reproduces the observed social behavior.

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Date submitted: 20 Dec 2011 Electronic form version 1.4