

# A Peer-to-Peer Advertising Game\*

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**Abstract.** Advertising plays a key role in service oriented recommendation over a peer-to-peer network. The advertising problem can be considered as the problem of finding a common language to denote the peers' capabilities and needs. Up to now the current approaches to the problem of advertising revealed that the proposed solutions either affect the autonomy assumption or do not scale up the size of the network. We explain how an approach based on language games can be effective in dealing with the typical issue of advertising: do not require ex-ante agreement and to be responsive to the evolution of the network as an open system. In the paper we introduce the notion of advertising game, a specific language game designed to deal with the issue of supporting the emergence of a common denotation language over a network of peers. We provide the related computational model and an experimental evaluation. A positive empirical evidence is achieved by sketching a peer-to-peer recommendation service for bookmark exchanging using real data.