

研究報告要旨/Abstract

九州大学 阿部貴晃

Takaaki Abe, Kyushu University

Directed networks are widely used to model asymmetric relationships, including citation networks in documents and follower–followee relationships in social network services. This study introduces new node-weighting measures for digraphs that extend the delta- and beta-measures proposed by van den Brink and Gilles (2000, *Social Networks*). We provide alternative axiomatic characterizations by replacing the original additivity axiom with an independence axiom. In addition, we propose variants of the delta- and beta-measures that explicitly incorporate egalitarian principles into the weighting scheme. Finally, we develop a new class of normalized measures that assign weights summing to one within a selected subset of nodes. These measures are particularly suited for resource allocation problems that rely on digraph structures.