I. Edge-clustering coefficients

Let $G = (V, E)$ be an undirected, unweighted graph. $N(u) = \{w \in V : d(u, w) = 1\}$, where $d(u, w)$ is the hop distance between u, w.

Definition 1 (Local clustering coefficient of an edge)**.** *Let* $(u, v) \in E$*. Then*

$$c(u, v) = \frac{|N(u) \cap N(v)|}{|N(u) \cup N(v) \backslash \{u, v\}|}.$$

This definition is similar to the one in [], which replaces the denominator above with $\min\{|N(u)| - 1, |N(v)| - 1\}$.

A. Longer cycles

II. Edge-clustering in Multiplex networks

Let $\mathscr{G} = (G_\alpha = (V, E_\alpha))_{\alpha \in \Lambda}$ be a node-aligned multiplex network (that is, each layer of the multiplex contains the same vertices). Consider an edge in layer γ, specified by $((u, v), \gamma)$, where $u, v \in V$. Then can define edge-clustering coefficients

Definition 2.

$$c_{\alpha,\beta}((u, v), \gamma) = \frac{w_{\alpha\beta\gamma} \, |N_\alpha(u) \cap N_\beta(v)|}{|N_\alpha(u) \cup N_\beta(v) \backslash \{u, v\}|}.$$

III. Edge-clustering in Multilayer network

Thursday, December 29, 2016 1:17 PM