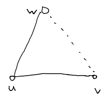
summary

Monday, November 28, 2016 8:51 AM

$$c(e=(u,v)) = \frac{|N(u)\cap N(v)|}{|N(u)\cup N(v)|} \approx \frac{\text{Number of triangles}}{\text{Number of possible.}}$$

Ex.

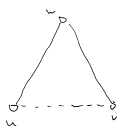


$$c(u,v) = \frac{|\{v,u,w\}\cap\{u,v\}|}{|\{u,v,w\}|} = \frac{2}{3}$$

Then $c(G) = \frac{1}{\binom{n}{2}} \cdot \sum_{u\in V, v\in V} c(u,v)$

↑ sum over all pairs.

Problem:

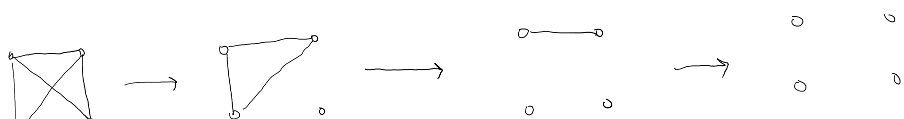


$$c(u,v) = \frac{|\{w\}|}{|\{u,v,w\}|} = \frac{1}{3}.$$

but $c(u,w) = \frac{2}{3}$.

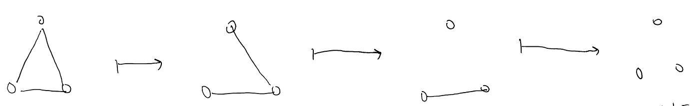
Ideally want $2/3$ for each edge of triangle

Issues with WS clustering:



$c(G)=1$ → $c(G) = 3/4$ → $c(G)=0$, $c(G) \overset{?}{=} 1/2$ requires $d(v)=1 \Rightarrow c(v)=1$ → $c(G)=0$

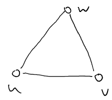
But even with convention that degree 1 => lcc 1,

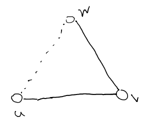


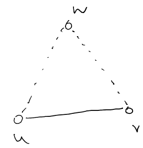
$c(G)=1$ → $c(G) = 2/3$ → $c(G) = 2/3$ → $c(G)=0$.

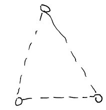
↑ ∴ should be $1/3$

With new def, better:

$G =$ 

$\longrightarrow$ 

$\longrightarrow$ 

$\longrightarrow$ 

$c(e) = \frac{3}{3} = 1$

$c(G) = 1$

$$\left.\begin{aligned} c(u,v) &= \tfrac{2}{3} \\ c(v,w) &= \tfrac{2}{3} \\ * \; c(u,w) &= \tfrac{1}{3} \end{aligned}\right\} \; c(G) = \frac{5}{9}$$

↑
still needs to be fixed.

$$\left.\begin{aligned} c(u,v) &= \tfrac{2}{2} = 1 \\ c(v,w) &= 0 \\ c(u,w) &= 0 \end{aligned}\right\} \; c(G) = \frac{1}{3}$$

$c(G) = 0$