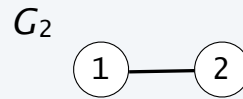


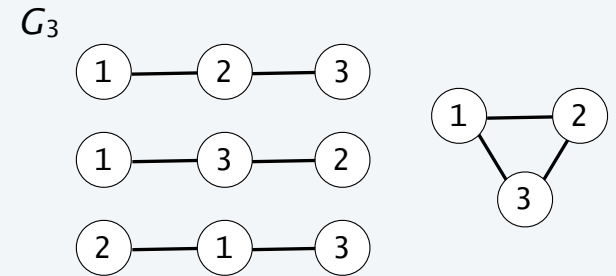
## Open problem from Alan Sokal

<i>Class</i>	$\mathcal{G}_n$ , connected graphs on $n$ labelled vertices
<i>GF</i>	$C_n(v) = \sum_{g \in \mathcal{G}_n} v^{\text{edges}(g)}$



$$C_2(v) = v$$

$$D_2(y) = 1 - y$$



$$C_3(v) = 3v^2 + v^3$$

$$D_3(y) = 1 - (3/2)y + (1/2)y^3$$

Note:  $D_n(0) = 1$   
 $D_n(1) = 0$

$$D_n(y) \equiv \frac{C_n(y-1)}{(-1)^{n-1}(n-1)!}$$

$$P_n(y) \equiv 1 - D_n(y)^{1/n}$$

Conjecture:  $P_n(y)$  has nonnegative coefficients

Combinatorial interpretation?