## **Generazlized Maps**

GMap (M)

$$M = (D, \sigma, \alpha)$$

 $\sigma$  = assigns the node ids

α = clockwise induced fixed point-free involutions from the collection of edges (aka orbits of length 2)

Two widely used permutions on D include a set of n involutions with no fixed-point  $(\sigma)$  & a set of permuation list of half-edges  $(\alpha)$ 

 $\sigma$  allows one to retrieve vertices

 $\alpha$  allows one to retrive

