



assume  $\exists$  cycle  $C$  that crosses cut  $K$  an odd number of times (cross  $n$  times,  $n \bmod 2 = 1$ )  
 call the set we start in  $S_0$ , other set  $S_1$   
~~the~~ set  $S_i$  when  $i = n \bmod 2$ , because each cross (there are  $n$ ) changes set (ie 0, 1, 0, 1, ...)

~~[ let  $c = (v, (v, v_1), v_1, (v_1, v_2), v_2, \dots, v_{n-1}, (v_{n-1}, v), v)$  ]~~

but  $n \bmod 2 = \cancel{0}$  (assumed) so  $C$  ends in  $S_1$   
 $C$  starts & ends on same vertex (def cycle), ~~the~~  $S_0$  ends in  $S_1$   
 start vertex in both  $S_0$  &  $S_1$ . But  $S_0$  and  $S_1$  are disjoint (def cut)  
 $\perp$

let  $G$  be orig,  $G'$  be removed version

as  $G'$  has a cycle. That cycle is a seq

of vert & edges. All in  $v$  &  $e$  are in  $G$ .

$\therefore G$  has sm cycle too. but  $G$  is acyclic. ]