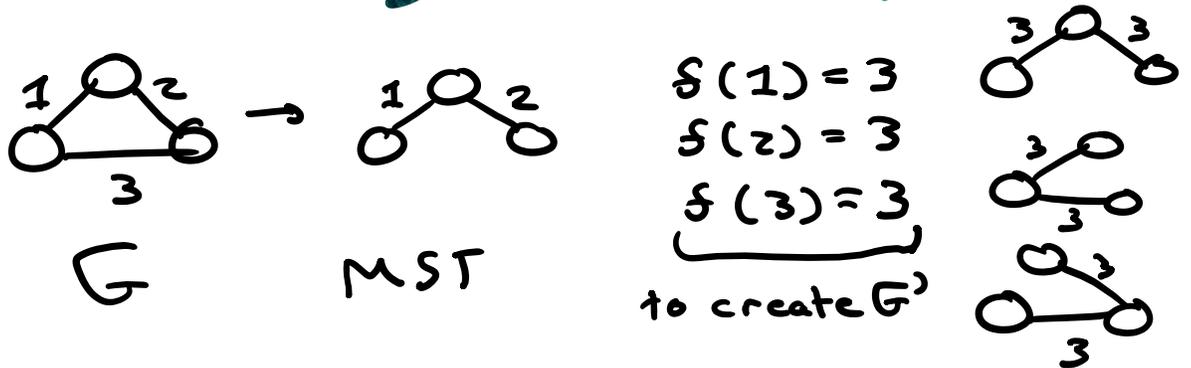


① Note: Some trickery is afoot  
 (non-decreasing)  
 monotonically increasing:  
 $a \leq b \Rightarrow f(a) \leq f(b)$

strictly monotonically increasing:  
 $a < b \Rightarrow f(a) < f(b)$

Proof by counter-example



Note: Kruskal considers all edges in sorted non-decreasing order.

All possible MSTs on  $G'$

However: we have no guarantees that the sorting is "stable"  
 $\rightarrow$  as some  $f()$  could output equivalent

→ as some  $f(C)$  could output equivalent values for 2 different weights on  $G$ , there's no guarantee we'll consider edges in the same order on  $G'$   
⇒ no guarantee the MSTs of  $G$  and  $G'$  use equivalent edges  $\square$

Note: equivalence is guaranteed with a strictly monotonically increasing  $f(C)$ , and we'll still give full credit if you ended up proving that instead