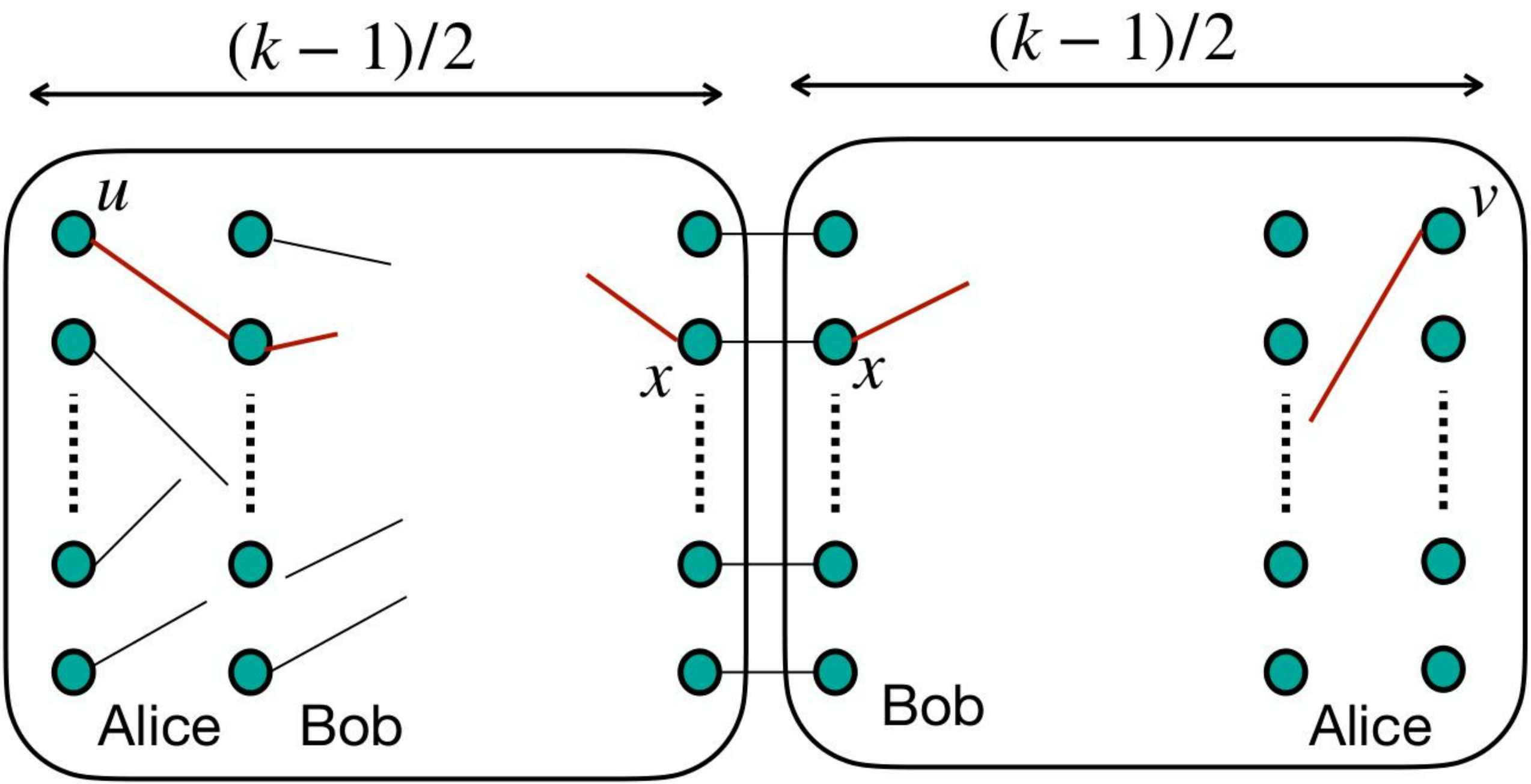

$(k-1)/2$
$(k-1)/2$
u
x
x
v
Alice
Bob
Bob
Alice
P_1
P_2