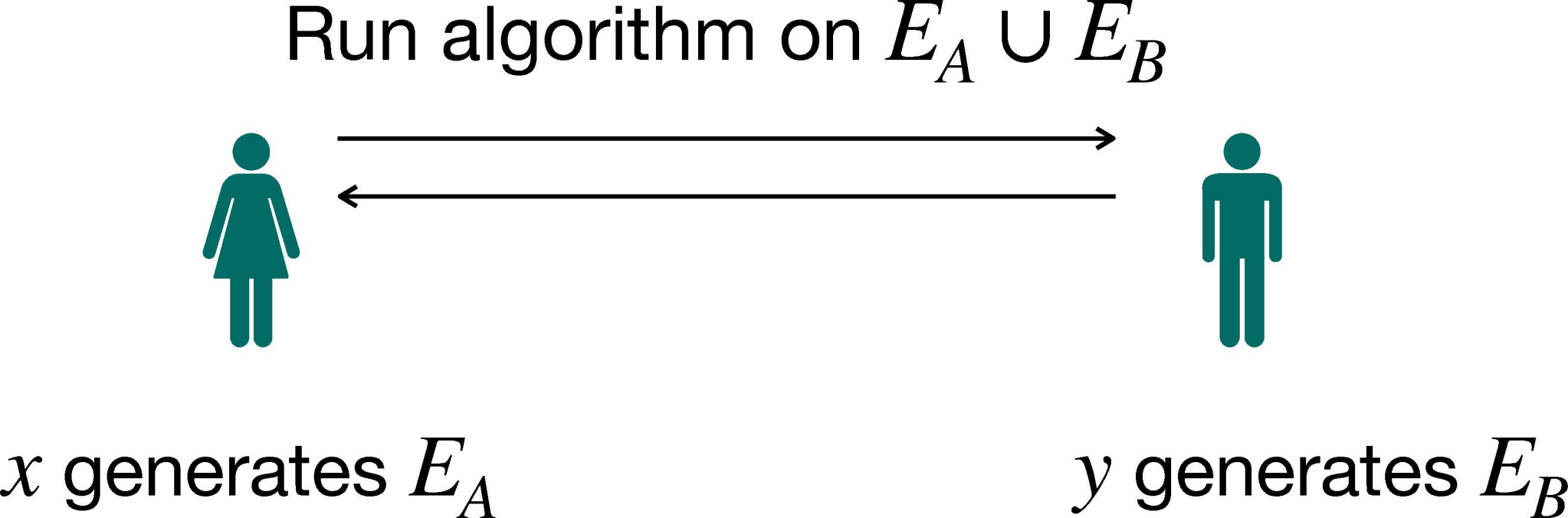

Run algorithm on $E_A \cup E_B$
x generates E_A
y generates E_B