Arc consistency

Algorithm that makes a CSP arc-consistent!

function AC-3(csp)
returns False if an inconsistency is found, True otherwise
inputs: csp, a binary CSP with components (X, D, C)
local variables: queue, a queue of arcs, initially all the arcs in csp
while queue is not empty **do**
    (X_i, X_j) = REMOVE-FIRST(queue)
    if REVISE(csp, X_i, X_j)**then**
        if size of $D_i = 0$ **then return** *False*
        for each X_k **in** X_i.NEIGHBORS $- \{X_j\}$ **do**
            add (X_k, X_i) *to queue*
return true

function REVISE(csp, X_i, X_j)
returns True iff we revise the domain of X_i
revised = False
for each x **in** D_i **do**
    if no value y in D_j allows (x, y) to satisfy the constraint between X_i and X_j **then**
        delete x from D_i
        revised = True
return revised