Zach Domke

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CIS 315

Chris Wilson

1. Kruskal's:

   (F,K)(A,F)(J,K)(B,F)(C,G)(H,L)(E,J)(F,G)(D,H)(G,H)(F,J)

   Prim's:

   (A,F)(F,K)(B,F)(A,E)(F,G)(J,K)(C,F)(D,K)(K,L)(G,H)(E,I)

2. Dijkstra(G,w,s):

```
Initialize-Dingle-Source(G,s)
S = 0
Q = G.V
Array[] = [0 for x in G.V]
while Q != 0:
    u = Extract-Min(Q)
    S = Union(S, {u})
    for each vertex v in G.Adj[u]
        Relax(u, v, w)
    Array[u] += 1
```

3. s.path = infinity

```
for v in V:
    v.path = max{u.path : (u, v) is in E}
    if B[u, v] < u.path:
        v.path = B[u, v]
return t.path
```

4. s.relaibility = 1

```
for v in V:
    v.reliability = max{(u x r(u, v)) : (u, v) is in E}  //where u is a parent of v
return t.reliability
```

5. Bellman-Ford(G,w,s): // added helper function to return vertices as an array

```
Initialize-Single-Source(G,s)
for i = 1 to |G.V| - 1:
    tempA[] = values-of-vertices-to-array()      // added line
    for each edge (u.v) in G.E:
        Relax(u,v,w)
    tempB[] = values-of-vertices-to-array()      // added line
    if tempA == tempB:                           // added line
```

```
                    break                                   // added line
for each edge (u,v) in G.E:
        if v.d > u.d + w(u,v):
                    return False
return True
```