Contraction Algorithm

Suppose Contract(G, e, z_e) returns the contraction of G using the edge e = (u, v), where u and v are replaced by z_e , and all edges with either u or v as endpoints, now have z_e as that endpoint.

procedure Contraction Algorithm (G = (V, E)): { Input: G is a multigraph } { Output: A cut of G, (A, B) } $\{ S(v) = \text{set of vertices contracted to } v \}$ for all $v \in V$ $S(v) = \{v\}$ **return** Do Contraction(G) procedure Do Contraction(G = (V, E)) if G has 2 vertices, v_1 , v_2 , then return $(S(v_1), S(v_2))$ else choose $e = (u, v) \in_R E$ $G' \leftarrow \text{Contract}(G, e, z_e)$ $S(z_e) \leftarrow S(u) \cup S(v)$ Do Contraction(G')