\(<g(G);*>, \) it suffices to verify the following cases:

**Case 1.** \(x \ast y = 0\): If \(W\) is an open topo-neighborhood of 0, then we want to show that there exist two open topo-neighborhoods \(U_1\) and \(U_2\) of \(x\) and \(y\) respectively such that \(U_1 \ast U_2 \subseteq W\). By Lemma 1 we can take \(U_1 = \{x\}\) and \(U_2 = \{y\}\). We observe that \(U_1 \ast U_2 \subseteq W\).

**Case 2.** \(x \ast 0 = 0\): If \(W = \{0 \cup \{x_1\}\}\) is an open topo-neighborhood of 0, pick \(x_k\) in \(V(G) \setminus N(x)\) as is the smallest element in the set. We see that the open sets \(U_1 = \{x\}\), \(U_2 = \{0 \cup \{x_k\}\}\) satisfy \(U_1 \ast U_2 \subseteq W\).

**Case 3.** \(0 \ast x = 0\): If \(W\) is an open topo-neighborhood of 0, take \(U_1 = W\) and \(U_2 = \{x\}\). We observe that \(U_1 \ast U_2 \subseteq W\).

Hence the groupoid is not DT.

3. Some sufficient conditions for a graph algebra to be DT.

We recall that for a 2-groupoid \(<S;*>\) to be DT requires that the only Hausdorff topology \(T\) which can be defined on \(S\) so that \(<S;o,T>\) is a topological algebra is the discrete topology.

**Lemma 2.** Let \(<g(G);*,T>\) be a topological graph algebra. If \(G\) contains a cofinite vertex, then \(\{0\}\) is open.

**Proof.** Since \(x \ast 0 = 0\), it follows that if \(W\) is an open topo-neighborhood of 0 which does not contain \(x\), then by the continuity of \(\ast\) there exist open topo-neighborhoods \(U\) and \(Q\) of \(x\) and 0 respectively such that \(U \ast Q \subseteq W\). Now \(Q \subseteq (V(G) \setminus N(x)) \cup \{0\}\) is finite. Thus \(\{0\} = Q \setminus (Q \setminus \{0\})\) is open.

**Lemma 3.** If \(<g(G);*,T>\) is a topological graph algebra with a cofinite vertex \(x\), then \(\{y\}\) is open for all \(y \neq N(x)\).

**Proof.** If \(y \in V(G) \setminus N(x)\) then \(x \ast y = 0\). As \(\{0\}\) is open by Lemma 2, we can find open topo-neighborhoods \(U\) and \(Q\) of \(x\) and