RICK BREWSTER, Thompson Rivers University, Box 3010, Kamloops, BC V2C 3N5

Switch invariant homomorphism targets

A red-blue graph G is a set of vertices $V(G)$ together with two edges sets: $E_r(G)$, the red edges; and $E_b(G)$, the blue edges. Given red-blue graphs G and H, a *homomorphism* of G to H is a function $f\colon V(G) \to V(H)$ such that $uv \in E_i(G)$ implies $f(u)f(v) \in E_i(H)$, for $i \in \{r, b\}$. We write $G \to H$.

Given a red-blue graph G and a vertex $v \in V(G)$, the graph G^v is obtained from G by switching the colour of edge incident with v. (This process is analogous to Seidel switching when G is a complete red-blue graph.) A red-blue graph H is *switch invariant* if for any red-blue graph G we have $G \to H$ if and only if $G^v \to H$ for all $v \in V(G)$. Switch invariant graphs arise in modeling certain constraint satisfaction problems.

We present a characterization of switch invariant red-blue graphs, plus generalize the problem to edge-coloured graphs with m edge colours.

This is joint work with Timothy Graves.