1176-05-94 **Joy Morris*** (joy.morris@uleth.ca), Dept. of Math & CS, University of Lethbridge, 4401 University Dr., Lethbridge, Alberta T1K 3M4, Canada. *Automorphisms that preserve the natural edge-colouring.*

Every Cayley graph comes with a natural edge-colouring that uses the elements of the connection set as the colours. For every connected Cayley digraph on a group G, the regular representation of G provides the only automorphisms that preserve this colouring. However, for an undirected Cayley graph $\mathrm{Cay}(G, S)$ and $s \in S$, we must identify the colours s and s^{-1} since they apply to the same undirected edge. One effect of this is that some group automorphisms (those that map each $s \in S$ into $\{s, s^{-1}\}$) also preserve this colouring. Together with the regular representation of G, these are known as affine maps on the graph. In some cases there are additional graph automorphisms that are not affine maps.

We say that a Cayley graph is CCA, if all of its colour-preserving automorphisms are affine. Similarly, we say that a group is CCA, if every connected Cayley graph on that group is CCA. I will describe many of the known results on CCA groups and graphs, including joint work with Ted Dobson, Brandon Fuller, Ademir Hujdurovič, Klavdija Kutnar, Luke Morgan, Dave Witte Morris, and Gabriel Verret. (Received January 15, 2022)