Structure of Graph Colorings (Towards Characterization of Good Characterizations)

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One of the approaches to coloring and to its structural generalizations involved in e.g. constraint satisfaction and channel assignment problems is via homomorphisms.

This led to the notions of density (of color classes) and to (homomorphism) duality theorems. The later may be viewed as an algebraic approach to good characterizations. Recently all finitary duality theorems were characterized in the full generality (for relational structures). We shall present an overview of these results.