

AAA95 – Abstract
Galois connections between group actions and functions
– some results and problems
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Let (A, Γ) be a group action, i.e., a group Γ acting on a set A , and let K be an arbitrary set. Then one can consider the Galois connection between elements $\sigma \in \Gamma$ and functions $f : A \mapsto K$ induced by \vdash , the property f is *invariant* for $\sigma \in \Gamma$ (or σ is a *symmetry* of f):

$$\sigma \vdash f : \iff \forall x \in A : f(x^\sigma) = f(x).$$

For permutation groups (considered in its natural action) and Boolean functions the investigation of this Galois connection was started by A. KISIELEWICZ in 1998 (further research was done e.g. by E. FRIESE, E. HORVÁTH, E. LEHTONEN, G. MAKAY, R. PÖSCHEL, S. RADELECZKI, T. WALDHAUSER, W. XIAO). In the talk some results and problems are reported and a general approach (for arbitrary group actions) is given, in particular a characterization of the Galois closed groups.