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class function

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Given a field K , a K -valued *class function* on a group G is a function $f : G \longrightarrow K$ such that $f(g) = f(h)$ whenever g and h are elements of the same conjugacy class of G .

An important example of a class function is the character of a group representation. Over the complex numbers, the set of characters of the irreducible representations of G form a basis for the vector space of all \mathbb{C} -valued class functions, when G is a compact Lie group.

Relation to the convolution algebra Class functions are also known as central functions, because they correspond to functions f in the convolution algebra $C^*(G)$ that have the property $f * g = g * f$ for all $g \in C^*(G)$ (i.e., they commute with everything under the convolution operation). More precisely, the set of measurable complex valued class functions f is equal to the set of central elements of the convolution algebra $C^*(G)$, for G a locally compact group admitting a Haar measure.