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Title: d'Alembert's other functional equation

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Let G be a topological group. We find formulas for the solutions $f, g, h \in C(G)$ of the functional equation

$$f(xy) - f(y^{-1}x) = g(x)h(y), \quad x, y \in G,$$

when G is generated by its squares and its center, as for instance when G is a connected Lie group, and when G is compact. Some solutions are given by the same formulas as in the known abelian case. The new ones are expressed in terms of matrix-coefficients of irreducible, 2-dimensional representations of G and of solutions of Wilson's functional equation $\phi(xy) + \phi(xy^{-1}) = 2\phi(x)\gamma(y)$.

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