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Analogues of the general theta transformation formula.

A new class of integrals involving the confluent hypergeometric function ${}_1F_1(a; c; z)$ and the Riemann Ξ -function will be considered. It generalizes a class containing some integrals of S. Ramanujan, G.H. Hardy and W.L. Ferrar and gives as by-products, transformation formulas of the form $F(z, \alpha) = F(iz, \beta)$, where $\alpha\beta = 1$. As particular examples, we will show an extended version of the general theta transformation formula and generalizations of certain formulas of Ferrar and Hardy. A one-variable generalization of a well-known identity of Ramanujan will also be shown. We will conclude with a generalization of a conjecture due to Ramanujan, Hardy and J.E. Littlewood involving infinite series of Möbius function. (Received July 15, 2012)