

# Products of Distributions Coordinate Invariance of Path Integrals

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Perturbative calculations of quantum-mechanical path integrals in curvilinear coordinates lead to Feynman integrals containing products of delta and Heaviside functions. It is shown that the requirement of coordinate invariance defines these uniquely, thus extending the linear space of distributions to a semigroup. The multiplication rules coincide with those derivable from a  $D = 1 - \epsilon$ -dimensional field theory in the limit  $\epsilon \rightarrow 0$ .