The Feynman-Dyson Propagator for Neutral Particles (Local or Non-local?)

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ABSTRACT

We analyze the recent controversy in the definitions of the Feynman-Dyson Propagator for the field operator containing the self/anti-self charge conjugate states in the papers by D. Ahluwalia et al. and by W. Rodrigues Jr. et al. The solution of this mathematical controversy is obvious. It is related to the necessary doubling of the Fock Space (as in the Barut and Ziino works), thus extending the corresponding Clifford Algebra to Cl7. However, the logical interrelations of different mathematical foundations with the physical interpretations are not so obvious (Physics should choose only one correct formalism - it is not clear, why two correct mathematical formalisms lead to different physical results?)