

must resort to more specific dynamical considerations. In particular the symmetry-breaking mass differences and mixing of wave functions, and the structure of the radial function (form factors) must be considered.

For example, the role of the $\mathbf{L}\cdot\mathbf{S}$ coupling is very different for the two. Clearly, a p -wave spin-orbit force, which one might expect to play the dominant role in bringing about the splitting among the various members of the $(70,3)$ super multiplet, has the $SU(3)$ -spin dependence P_u^- for parastatistics and P_u^+ for Fermi statistics, where P_u^\pm are respectively the projection operators for the (6) and (3^*) states of a Q - Q system. Since, on the other hand, P_u^- is a null operator for (10) states and likewise P_u^+ for (1) states, one would expect a p -wave spin-orbit force to split the (1) states but not (10) under parastatistics and vice versa under Fermi statistics. This would immediately explain the splitting between the $Y_0^*(1405)$ and $Y_0^*(1520)$ states under parastatistics, but not under Fermi statistics.

Our results also indicate that the $(10)_{3/2}$ and $(10)_{1/2}$ states are strongly split. In parastatistics this splitting might come about through $SU(3)$ violating terms, say of the form $\lambda_8^{(i)}\lambda_8^{(j)}$, in the Q - Q potential. The near degeneracy among several $SU(3)$ multiplets makes this hypothesis rather attractive. We have not yet worked out the detailed consequences of such a hypothesis. The splitting of (8) states by an $\mathbf{L}\cdot\mathbf{S}$ force is comparable under both forms of statistics.

A more interesting piece of evidence favoring parastatistics against Fermi statistics comes from the role of the positive parity states other than the (56) . Dynamically A functions of $L^P=1^+$ have strongly attractive kernels under p wave interaction. These functions give a total of $(20,3)$ states of $SU(6)\times O_3$ under parastatistics

and $(56,3)$ under Fermi statistics. The spin-orbit force splits these states into various $SU(3)$ multiplets, the lowest ones having $J^P=\frac{1}{2}^+$. This leaves for the states $J^P=\frac{1}{2}^+$ of lowest energies, a singlet and an octet under parastatistics, and a decuplet and an octet under Fermi statistics. Experimentally, it is tempting to identify the 1450-MeV Roper resonance with the $Y=1, I_3=\frac{1}{2}$ member of the above octet. Parastatistics therefore give a (more economical) prediction of a mere extra singlet, while Fermi statistics require a whole extra decuplet of low energy.

A third feature bearing on statistics concerns the shape of baryon form factors in relation to the kind of spatial symmetry (S or A) assumed.²¹ Thus an A function predicts nodal behavior for the form factor at $q^2\approx 20 \text{ F}^{-2}$, in complete disharmony with experiment. An S function, on the other hand, predicts a smooth monotonic fall, which is at least consistent with experiment. This again favors parastatistics to Fermi statistics, as long as the (56) representation for baryons is not questioned.

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²¹A. N. Mitra and Rabi Majumdar, Phys. Rev. **150**, 1194 (1966).

Errata

Dynamics at Infinite Momentum, STEVEN WEINBERG [Phys. Rev. **150**, 1313 (1966)]. The following should be added at the end of Ref. 3: The relation between the old rules and the Feynman rules has been extensively examined by A. Ramakrishnan and his colleagues. See A. Ramakrishnan, J. K. Radha, and R. Thunga, Proc. Indian Acad. Sci. **52(A)**, 228 (1960); J. Math. Anal. Appl. **4**, 494 (1962); **5**, 225 (1962); A. Ramkrishnan, K. Venkatesan, and V. Devanathan, *ibid.* **8**, 345 (1964); and to be published.

Renormalization Constants in the Extended Lee Model ($W\rightleftharpoons V+\theta$), FEI S. CHEN-CHEUNG [Phys. Rev. **152**, 1408 (1966)]. J. B. Bronzan [Phys. Rev. **139**, B751 (1965)] has given a similar demonstration of the renormalization constants. The work

done by this author, however, was done independently [see Fei Shian Chen and C. M. Sommerfield, Bull. Am. Phys. Soc. **10**, 61 (1965)].

Possible Charge-Conjugation Noninvariance in the Photoproduction of Neutral ρ Mesons, SAUL BARSCHAY AND YUAN LI [Phys. Rev. **153**, 1657 (1967)]. In an error subsequent to the proof, the printer erroneously duplicated Fig. 8 as Fig. 9, leaving out entirely the figure referred to as Fig. 9 in the Appendix. The correct Fig. 9 appears below.

