Errata

Erratum: On the proton decay mode $p \rightarrow \pi^0 e^+$

John F. Donoghue and Gabriel Karl

Equation (3) should read
$$F_{\pi^0}(k^2) = \text{constant} \times \exp[-3k^2/(16\alpha^2 + 12\beta^2)] .$$

This correction does not affect the numerical results presented. In both Eqs. (2) and (3) we use the usual definition of $\alpha$ (see Ref. 10). The meson's oscillator constant $\beta$ is not explicitly defined. Our convention is such that the two-quark wave function is
$$\psi = \text{constant} \times e^{-\beta^2 r^2/2} ,$$
with
$$\rho = \frac{1}{\sqrt{2}} (r_1 - r_2) .$$

We thank N. Isgur for pointing out the correction to Eq. (3) and for useful discussions.

Erratum: Uniqueness of the nucleon state

William B. Rolnick

In this paper, it was shown that the nucleon state is uniquely determined if we assume valence-quark dominance (ignoring the quark "sea") and employ Fermi statistics, without recourse to any spin-flavor symmetry. In particular, it was emphasized that the usual invocation of SU(6) is unnecessary. The derivation depended upon the nucleon being in an SU(3) octet [property (b)].

It has been pointed out\(^1\) that, in fact, no SU(3) assumption is necessary. Indeed, examining all the space-symmetric states obeying Fermi statistics which can be formed from three spin-$\frac{1}{2}$ color-triplet quarks, one finds a spin-$\frac{3}{2}$ SU(3) decuplet and a spin-$\frac{1}{2}$ SU(3) octet [i.e., a $S_6$ of SU(6)]. The ensuing uniqueness of the baryon states (except those that are flavor and spin degenerate) without invocation of flavor symmetries was recognized many years ago by Franklin.\(^1\) The approach used in my paper may be generalized by recognizing that property (b) is a consequence of the three-quark structure.

It is unfortunate that the uniqueness of the baryon states in the valence-quark-dominance limit is not well known so many years after it was first demonstrated. I am grateful to Dr. Franklin for making me aware of the original discovery\(^1\) 15 years ago.

Also note that subscripts $S$ and $A$ and a bar over a 3 were omitted from Eq. (1), which should read:

$$(2 \times 3)_S \times 3 = 6 \times 3 = 8_s + 10 ,$$
$$(3 \times 3)_A \times 3 = 3 \times 3 = 8_a + 1 .$$

\(^{1}\)J. Franklin (private communication) and Phys. Rev. 172, 1807 (1968).