Cabibbo theory refers to the best fit of seven baryon decay points to the Cabibbo theory.[16]

Finally, in order to see how critically our results depend on the specific model used for the mass continuation, we evaluate Eq. (2) for several simpler models. The only important differences lie in whether one makes the mass continuation for fixed values of $\sqrt{s}$ (the total c.m. energy) or for fixed values of ν (the lab energy of the kaon). These are related by $s=2M_N\nu+M_N^2+q^2$, where $\sqrt{(q^2)}$ is the external mass of the kaon. One extreme case is to assume $\text{Im}A^{(0)}=K^2(0)\,\text{Im}A$ for the same value of s. This decreases I_0 and I_1, giving $|g_A{}^\Lambda=0.86$ and $|g_A{}^{\Sigma^-}|=0.63$. The other extreme case[2] is to assume $\text{Im}A^{(0)}=\text{Im}A$ for the same value of ν and use the empirical value of f_K. This gives $|g_A{}^\Lambda|=0.53$ and $|g_A{}^{\Sigma^-}|=0.06$. All other combinations of the Goldberger-Treiman relation and correction factors gave results lying between these extremes. Thus the extrapolation in the kaon mass is more model-dependent than extrapolation in the pion mass, but for reasons mentioned earlier we are confident that the model used is a realistic one.

In conclusion, with the recent better-determined experimental results on kaon physics, one can evaluate numerically the two Adler-Weisberger–type sum rules for strangeness-changing currents very accurately. The results that we obtained here agree well with the best-fit solution to all leptonic baryon decays.[15,16] But if we compare them with the latest experimental results determined from the decay angular distribution of polarized hyperons,[16,17] our $(g_A{}^\Lambda)^2$ is small and $(g_A{}^{\Sigma^-})^2$ large. Using a different approximation for the mass continuation will not improve the results, since it either increases both or decreases both $(g_A{}^\Lambda)^2$ and $(g_A{}^{\Sigma^-})^2$. A better experimental determination on $g_A{}^\Lambda$ and $g_A{}^{\Sigma^-}$ will clear up this point.

Erratum

Sum Rules for the Axial-Vector Coupling Constant Renormalization in β Decay, STEPHEN L. ADLER [Phys. Rev. **140**, B736 (1965); **149**, 1294(E) (1966)].

1. In the first line of Eq. (62), $M_\pi{}^2$ should read $(M_\pi{}^{i,f})^2$. In Eq. (65), $f_{lJI}{}^B(W,0,0)$ should read $f_{lJI}{}^B(W,0,M_\pi)$. I wish to thank G. E. Brown, A. M. Green, B. H. J. McKellar, and R. Rajaraman for pointing out these errors.

2. A factor of $|\mathbf{k}|/|\mathbf{k}^0|$ was omitted in Eqs. (72), (73), and (77). Equation (72) should read

$$\sigma_{0\pi}{}^{l,I}(s)=(|\mathbf{k}|/|\mathbf{k}^0|)K^{NN\pi}(0)^2(|\mathbf{k}^0|/|\mathbf{k}|)^{2l}\sigma_\pi{}^{l,I}(s),$$

and Eqs. (73) and (77) are corrected by making the substitution $ds\rightarrow(|\mathbf{k}|/|\mathbf{k}^0|)ds$. Making the correction increases the magnitude of the scattering length a_0 required to saturate the sum rule.