

Correction Klauber, Vol. 2, June 2022 version, Chap 11 pg. 364.

Replace the 3rd paragraph (beginning “But note ...”) through the first sentence of the 5th paragraph (beginning “The RHS ...”) with the following.

“For each diagram of Fig. 11-2, we actually have a second diagram where the fermion loop has arrows in the opposite direction. That is, one diagram has a fermion for a loop and the other, an anti-fermion. The two amplitudes (really sub-amplitudes) must be added to get the total amplitude.

But (see Vol. 1, (7-75), pg. 202), the antifermion propagator has the same magnitude but opposite sign of the fermion propagator. So, the two sub-amplitudes cancel, leaving no contribution from the loop. This is one application of Furry’s theorem (Vol. 1, Sect. 14.1.2, pg. 341).

*Fermion and
antifermion
loops cancel*

The diagrams of Fig. 11-2 are called tadpole diagrams, for an obvious reason: part of each looks like a tadpole.”

Then replace the 2nd sentence in the next paragraph (beginning “But how ...”) with the following.

“These do not have antiparticle propagators with opposite signs, so we don’t get the cancellation we get with fermions.”