Errata

Erratum: Factorization of the Drell-Yan cross section in perturbation theory [Phys. Rev. D 31, 2616 (1985)]

Geoffrey T. Bodwin

In the Drell-Yan process for scalar quarks, gauge invariance requires the presence of seagull graphs involving the virtual photon and the gluons, as well as the purely gluonic seagulls. The photon-gluon seagulls were inadvertently omitted in some of the explicit discussions in Secs. II and III of factorization at the one- and two-loop levels. In applying the graphical Ward identities, one must combine the photon-gluon seagulls with the terms in which a propagator is canceled on either side of the photon-quark vertex. The conclusions given in these discussions are unchanged.

The fourth sentence after Eq. (2.28) should read "In the region l central there is, for each virtual graph, exactly one pole in the lower half of the l_- complex plane—namely, the gluon pole."

In the statement of the lemma in Sec. IV A (1), the phrase "all terms of the $l_i^+ l_i^-$" should be "all terms of the form $l_i^+ l_i^-$."

The first sentence in the first complete paragraph preceding Eq. (4.21) should read "However, we can show that the contributions to the structure functions actually vanish in the cases in which gluons with central or collinear to $-$ momentum attach to eikonal lines."

In the same paragraph, the material from "Thus, we are free to choose the sign of the $i\epsilon$ in the eikonal propagators . . ." to the end of the paragraph should be replaced with the following: "Thus, we are free to drop the $i\epsilon$'s in the eikonal propagators. For the deep-inelastic case, we consider first the *cut* graph. As can readily be seen from its Fourier transform, the eikonal line represents propagation forward in time from the interaction point. Consequently, a contribution to the Feynman integral from the pole in an eikonal propagator corresponds to a final-state interaction. Such final-state interactions cancel in the sum over final-state cuts. Therefore, in both the cut and the uncut graphs, we can exclude the small regions of integration near the eikonal propagator poles (which do not contribute to the cross section) and drop the $i\epsilon$'s in the propagators."

In the incomplete paragraph immediately preceding Eq. (4.21), the first sentence should read "Now we can easily see that the remaining central and collinear to $-$ contributions cancel."

The $i\epsilon$'s should be deleted in Eq. (4.21).

The following new paragraph should be appended to the end of Sec. V.

Incidentally, this argument shows that we could have dropped the l^- terms in the deep-inelastic eikonal denominators, since (aside from an infinitesimal region of phase space) they are always small compared with the l^+ terms. This would have led to a deep-inelastic structure function with the more conventional lightlike eikonal $\tilde{n}=(0,1,0)$. For further details see J. C. Collins and D. E. Soper, Nucl. Phys. **B194**, 445 (1982).

This work was partially supported by the U.S. Department of Energy, Division of High Energy Physics, Contract No. W-31-109-ENG-38.

Erratum: Evolution of cosmic strings [Phys. Rev. D 33, 872 (1986)]

David P. Bennett

The following Erratum corrects an earlier one [Phys. Rev. D **34**, 1235(E) (1986)].

The bound on the density in strings and in gravitational radiation given by Eq. (4.22) should be

$$\frac{\rho_s+\rho_{\rm gr}}{\rho_r}<0.17\ .$$

The value given in the paper was incorrectly quoted from A. M. Boesgaard and G. Steigman [Annu. Rev. Astron. Astrophys. **23**, 319 (1985)]. The correct bound on the product of the string tension and Newton's constant should be a factor of 4 weaker: $G\mu<4\times10^{-6}$. This is consistent with the lowest values that have been predicted for the cosmic-string theory of galaxy formation. I would like to thank Gary Steigman and Mike Turner for calling this error to my attention.

