

Here, we show that the subdiagrams (a) to (c) on p.6 vanish (at least (a) and (b) are properly investigated here):

- subdiagram (a):

$$\begin{aligned}
\overline{h_v(0)h_v(x)} &= \Theta(-v \cdot x) \delta^{(d-1)}(x_\perp) P_+ i g_s \int_{v \cdot x} ds v^\mu A_\mu(sv) \\
&= \Theta(-v \cdot x) \delta^{(d-1)}(x_\perp) P_+ i g_s \int_{v \cdot x} ds v^\mu \int_0^1 du u s v^\nu G_{\nu\mu}(usv) \\
&= 0
\end{aligned} \tag{1}$$

since

$$v^\mu v^\nu G_{\nu\mu}(\dots) = -v^\mu v^\nu G_{\mu\nu}(\dots) = -v^\nu v^\mu G_{\mu\nu}(\dots) = -v^\mu v^\nu G_{\nu\mu}(\dots) \tag{2}$$

Generally, a product of an antisymmetric and a symmetric tensor leads 0. We immediately started this investigation at $\mathcal{O}(g_s)$, because an emission of a background gluon field is an NLO effect.

- subdiagram (b):

Here, the heavy quark propagator is again expanded to $\mathcal{O}(g_s)$ and the appearing background field gluon is contracted with the field strength tensor from the three-body current.

$$\begin{aligned}
&\Theta(-v \cdot x) \delta^{(d-1)}(x_\perp) P_+ \langle 0 | T \{ \bar{q} \Gamma_1 g_s \overline{G_{\mu\nu} i g_s \int_{v \cdot x} ds v^\lambda A_\lambda(sv) \Gamma_2 q} \} | 0 \rangle \\
&= \Theta(-v \cdot x) \delta^{(d-1)}(x_\perp) P_+ \langle 0 | T \{ \bar{q} \Gamma_1 \Gamma_2 q \} | 0 \rangle i g_s^2 \int_{v \cdot x} ds \frac{\Gamma\left(\frac{d}{2}\right) \delta^{ab}}{2\pi^{\frac{d}{2}} (-s^2 v^2 + i0^+)^{\frac{d}{2}}} s (g_{\nu\lambda} v_\mu - g_{\mu\lambda} v_\nu) v^\lambda \\
&= 0
\end{aligned} \tag{3}$$

since

$$(g_{\nu\lambda} v_\mu - g_{\mu\lambda} v_\nu) v^\lambda = v_\mu v_\nu - v_\nu v_\mu = 0 \tag{4}$$

The only missing piece seems to be subdiagram (c). The proof might be as simple as to take equation (30) and set $z=0$, because the gluon line is connected to the same on-shell quark line.