We can also consider relatively small deformations and perform an expansion of the swimming velocity to the leading order. Using

$$L_1 = \ell_1 + u_1(t), \tag{5.29}$$
$$L_2 = \ell_2 + u_2(t), \tag{5.30}$$

in Eq. (B.1), and expanding to the leading order in u_i/ℓ_j, we find the average swimming velocity as

$$\overline{V_0} = \frac{K}{2}\,\overline{(u_1\dot{u}_2 - \dot{u}_1 u_2)}, \tag{5.31}$$

where

$$K = \frac{3\ a_1 a_2 a_3}{(a_1+a_2+a_3)^2}\left[\frac{1}{\ell_1^2} + \frac{1}{\ell_2^2} - \frac{1}{(\ell_1+\ell_2)^2}\right]. \tag{5.32}$$