Goldstein (2.26) states that

$$\delta \int_{t_1}^{t_2} \left(L + \sum_{\alpha}^{m} \mu_a f_a \right) \mathrm{d}t = 0,$$

and jumping quickly to (2.27), he writes

$$\frac{\mathrm{d}}{\mathrm{d}t} \frac{\partial}{\partial \dot{q}_k} L - \frac{\partial}{\partial q_k} L = - \sum_{a=1}^{m} \mu_a \frac{\partial}{\partial \dot{q}_k} f_a.$$

We have problems following this. (2.26) suggests that L and $\mu_a f_a$ has same dimensions. howver, the left side of (2.27) has the dimensions of L divided by the dimensions of q. However, the right side has dimensions of L divided by the $\dot{q}$. This makes us suspect there is something wrong with (2.27), or at least something we fundamentally missunderstand.