

Keeping Track of Terms in Klauber (7-110) to (7-111)

Use the numbering shown above terms below to keep track of those terms in going from (7-110) to (7-111)

$$\begin{aligned}
 A_1 B_2 C_3 = N_c \{A_1 B_2 C_3\} &= A_1^{\boxed{1}} B_2^{\boxed{2}} C_3^{\boxed{3}} \pm B_2^{\boxed{2}} A_1^{\boxed{4}} C_3^{\boxed{5}} + A_1^{\boxed{3}} B_2^{\boxed{4}} C_3^{\boxed{5}} + A_1^{\boxed{4}} B_2^{\boxed{5}} C_3^{\boxed{5}} + \left[A_1^{\boxed{5}}, B_2^{\boxed{5}} \right]_{\mp} C_3 \\
 &\pm \underbrace{A_1^{\boxed{6}} C_3^{\boxed{7}}}_{\pm C_3^{\boxed{6}} A_1^{\boxed{7}}} B_2^{\boxed{8}} + A_1^{\boxed{8}} \left[B_2^{\boxed{9}}, C_3^{\boxed{10}} \right]_{\mp} \pm B_2^{\boxed{9}} C_3^{\boxed{10}} A_1^{\boxed{11}} \pm B_2^{\boxed{12}} \left[A_1^{\boxed{13}}, C_3^{\boxed{10}} \right]_{\mp} \\
 &+ \left[A_1^{\boxed{6}}, C_3^{\boxed{7}} \right]_{\mp} \\
 &\pm A_1^{\boxed{11}} C_3^{\boxed{12}} B_2^{\boxed{13}} + A_1^{\boxed{11}} \left[B_2^{\boxed{12}}, C_3^{\boxed{13}} \right]_{\mp} + A_1^{\boxed{11}} B_2^{\boxed{13}} C_3^{\boxed{13}}.
 \end{aligned} \tag{7-110}$$

Re-grouping once again, we have

$$\begin{aligned}
 A_1 B_2 C_3 &= A_1^{\boxed{1}} B_2^{\boxed{2}} C_3^{\boxed{3}} \pm B_2^{\boxed{2}} A_1^{\boxed{4}} C_3^{\boxed{5}} + A_1^{\boxed{3}} B_2^{\boxed{4}} C_3^{\boxed{5}} + A_1^{\boxed{4}} B_2^{\boxed{5}} C_3^{\boxed{5}} \\
 &\pm C_3^{\boxed{6}} A_1^{\boxed{7}} B_2^{\boxed{8}} \pm B_2^{\boxed{9}} C_3^{\boxed{10}} A_1^{\boxed{11}} \pm A_1^{\boxed{11}} C_3^{\boxed{12}} B_2^{\boxed{13}} + A_1^{\boxed{11}} B_2^{\boxed{13}} C_3^{\boxed{13}} \\
 &+ \underbrace{\left[A_1^{\boxed{5}}, B_2^{\boxed{5}} \right]_{\mp}}_{\substack{A_1 B_2 \text{ for } t_2 < t_1 \\ \underbrace{\hspace{1cm}}}} C_3 + A_1 \underbrace{\left[B_2^{\boxed{8}}, C_3^{\boxed{12}} \right]_{\mp}}_{\substack{B_2 C_3 \text{ for } t_3 < t_2 \\ \underbrace{\hspace{1cm}}}} \pm B_2^{\boxed{10}} \underbrace{\left[A_1^{\boxed{13}}, C_3^{\boxed{10}} \right]_{\mp}}_{\substack{A_1 C_3 \text{ for } t_3 < t_1 \\ \underbrace{\hspace{1cm}}}} \pm \underbrace{\left[A_1^{\boxed{7}}, C_3^{\boxed{10}} \right]_{\mp}}_{\substack{A_1 C_3 \text{ for } t_3 < t_1 \\ \underbrace{\hspace{1cm}}}} B_2^{\boxed{8}}.
 \end{aligned} \tag{7-111}$$