$$\langle 1^+2^+3^+|\mathrm{tr}(F_{SD}^3)|0\rangle_{tree} = [12][23][31]$$

$$\langle 1^+2^+3^+4^+|\mathrm{tr}(F_{SD}^3)|0\rangle_{tree} = \frac{s_{12}s_{23}s_{34} + s_{12}\langle 2|3|1]\langle 1|q|2]}{\langle 12\rangle\langle 23\rangle\langle 34\rangle\langle 41\rangle} + \mathrm{cyclic}$$

$$\langle 1^- \ldots i^+ \ldots j^+ \ldots k^+ \ldots n^-|\mathrm{tr}(F_{SD}^3)|0\rangle_{tree} = \frac{[ij]^2[jk]^2[ki]^2}{[12][23]\ldots[n1]}$$