

$$\frac{m_t^2((\langle 2|3|1+2|4|1\rangle - \langle 2|4|1+2|3|1\rangle)\Delta_{12}|\mathbf{34}|5\text{tr}(1+2|\mathbf{3}+\mathbf{4})\langle 3/8|\mathbf{24}\rangle\langle 3|4|2\rangle \dots \langle \text{3 terms}\rangle \dots - 3/8\langle \mathbf{34}\rangle\langle 2|4|2\rangle)}{(12)|12|\Delta_{12}^2|\mathbf{23}|4|5} +$$

$$\frac{m_t^2((\langle 2|3|1+2|4|1\rangle - \langle 2|4|1+2|3|1\rangle)\text{tr}(1+2|\mathbf{3}-\mathbf{4})\text{tr}(1+2|\mathbf{3}+\mathbf{4})\langle -9/32|\mathbf{34}\rangle\langle 1|4|2\rangle\langle 2|4|1\rangle \dots \langle \text{14 terms}\rangle \dots + 3/32\langle \mathbf{14}\rangle\langle \mathbf{31}\rangle\langle 1|3|4|1\rangle)}{(12)|12|\Delta_{12}^2|\mathbf{23}|4|5} +$$

$$\frac{m_t^3|12|^2(12)^2\langle 2|3|1\rangle\langle 9/8|\mathbf{32}\rangle\langle 24|+9/16\langle \mathbf{31}\rangle\langle 14|\rangle}{(s_{123}-m_t^2)\Delta_{12}^2|\mathbf{23}|4|5} +$$

$$\frac{m_t^2|12|^2(12)^2\langle 2|3|1\rangle\langle -9/16\langle \mathbf{32}\rangle\langle 2|3|4\rangle - 9/16\langle 1|3|1\rangle\langle \mathbf{34}\rangle}{(s_{123}-m_t^2)\Delta_{12}^2|\mathbf{23}|4|5} +$$

$$\frac{m_t\langle 2|\mathbf{3}|4|2\rangle\langle -3/8\langle 1|3|1\rangle\langle 24|\rangle\langle \mathbf{32}\rangle \dots \langle \text{7 terms}\rangle \dots + 9/8\langle 2|4|2\rangle\langle 14|\rangle\langle \mathbf{31}\rangle}{(12)\Delta_{12}|\mathbf{3}|4|5} +$$

$$\frac{m_t\langle 2|\mathbf{3}|4|2\rangle\langle 3/4\langle 24\rangle\langle 1|3|1\rangle\langle \mathbf{32}\rangle + 3/8\langle 2|\mathbf{3}|2\rangle\langle 24\rangle\langle \mathbf{32}\rangle - 3/8\langle 2|4|2\rangle\langle 24\rangle\langle \mathbf{32}\rangle + 3/8\langle 14\rangle\langle 1|3|1\rangle\langle \mathbf{31}\rangle}{(12)\Delta_{12}|\mathbf{3}|4|5} +$$

$$\frac{\langle 2|\mathbf{3}|4|2\rangle\langle 3/8\langle 1|3|4|2\rangle\langle \mathbf{34}\rangle\langle 12\rangle \dots \langle \text{7 terms}\rangle \dots - 3/4\langle \mathbf{34}\rangle\langle 2|\mathbf{3}|2\rangle\langle 1|3|1\rangle}{(12)\Delta_{12}|\mathbf{3}|4|5} +$$

$$\frac{\text{tr}(\mathbf{3}|4)\langle 2|\mathbf{3}|4|2\rangle\langle -3/8\langle 2|\mathbf{3}|4\rangle\langle \mathbf{32}\rangle - 3/8\langle \mathbf{34}\rangle\langle 1|3|1\rangle}{(12)\Delta_{12}|\mathbf{3}|4|5} +$$

$$\frac{\langle 2|\mathbf{3}|4\rangle m_t\langle -3/4\langle 1|4|1\rangle^2\langle \mathbf{32}\rangle \dots \langle \text{4 terms}\rangle \dots - 3/4\langle 2|4|2\rangle^2\langle \mathbf{32}\rangle}{(12)\Delta_{12}|\mathbf{3}|4|5} +$$

$$(12345 \rightarrow \overline{21345}) +$$

$$\frac{\langle \mathbf{31}\rangle m_t(s_{1\mathbf{3}}-s_{2\mathbf{3}})\langle -1/3\langle 2|\mathbf{3}|2\rangle\langle 24|+7/6\langle 1|\mathbf{3}|4\rangle\langle 12|+7/6\langle 1|4|1\rangle\langle 24| - 7/6\langle 14\rangle\langle 1|4|2\rangle}{(s_{123}-m_t^2)\langle 1|3|2\rangle^2} +$$

$$\frac{1/3\langle 12\rangle\langle 2|\mathbf{3}|4\rangle\langle \mathbf{32}\rangle m_t(s_{1\mathbf{3}}-s_{2\mathbf{3}})}{(s_{123}-m_t^2)\langle 1|3|2\rangle^2} +$$

$$\frac{7/6\langle 14\rangle\langle \mathbf{31}\rangle\langle 12\rangle\langle 1|3|1\rangle\langle s_{1\mathbf{3}}-s_{2\mathbf{3}}\rangle}{(s_{123}-m_t^2)\langle 1|3|2\rangle^2} +$$

$$\frac{1/3\langle 12\rangle\langle 2|\mathbf{3}|2\rangle\langle 24\rangle\langle \mathbf{32}\rangle\langle s_{1\mathbf{3}}-s_{2\mathbf{3}}\rangle}{(s_{123}-m_t^2)\langle 1|3|2\rangle^2} +$$

$$\frac{m_t\langle 1/2\langle 1|3|1\rangle\langle 24|\rangle\langle \mathbf{32}\rangle \dots \langle \text{9 terms}\rangle \dots + 1/2\langle 4|2\rangle\langle 14|\rangle\langle \mathbf{31}\rangle}{\langle 1|3|2\rangle(s_{123}-m_t^2)} +$$

$$\frac{m_t\langle 7/6\langle 12\rangle\langle 24\rangle\langle 12\rangle\langle \mathbf{32}\rangle \dots \langle \text{4 terms}\rangle \dots + 5/3\text{tr}(\mathbf{3}|4)\langle 14\rangle\langle \mathbf{31}\rangle}{\langle 1|3|2\rangle(s_{123}-m_t^2)} +$$

$$\frac{\langle -5/3\langle 1|4|1\rangle\langle \mathbf{34}\rangle m_t^2 \dots \langle \text{3 terms}\rangle \dots + 11/6\langle 2|\mathbf{3}|2\rangle\langle \mathbf{31}\rangle\langle 24\rangle\langle 12\rangle}{\langle 1|3|2\rangle(s_{123}-m_t^2)} +$$

$$\frac{\langle 8/3\langle 2|\mathbf{3}|4\rangle\langle 1|3|1\rangle\langle \mathbf{32}\rangle - 1/3\langle 2|\mathbf{3}|4\rangle\langle 2|\mathbf{3}|2\rangle\langle \mathbf{32}\rangle - 8/3\langle 12\rangle\langle 14\rangle\langle 1|3|2\rangle\langle \mathbf{31}\rangle - 1/3\langle 12\rangle\langle 2|\mathbf{3}|2\rangle\langle 24\rangle\langle \mathbf{31}\rangle}{\langle 1|3|2\rangle(s_{123}-m_t^2)} +$$

$$\frac{m_t\langle -5/3\langle 2|4|2\rangle\langle 14\rangle m_t^2\langle \mathbf{32}\rangle \dots \langle \text{22 terms}\rangle \dots - 7/3\langle 2|\mathbf{3}|4\rangle\langle \mathbf{31}\rangle\langle 12\rangle\langle 2|\mathbf{3}|1\rangle}{\Delta_{12}|\mathbf{3}|4|5}(s_{123}-m_t^2)} +$$

$$\frac{\langle \mathbf{31}\rangle m_t(s_{1\mathbf{3}}-s_{2\mathbf{3}})\langle -5/6\langle 1|4|1\rangle\langle 14\rangle m_t^2 \dots \langle \text{4 terms}\rangle \dots + 5/12\langle 2|\mathbf{3}|2\rangle\langle 12\rangle\langle 2|\mathbf{3}|4\rangle}{\Delta_{12}|\mathbf{3}|4|5}\langle 1|3|2\rangle(s_{123}-m_t^2)} +$$

$$\frac{m_t\langle 3/2\langle 12\rangle\langle \mathbf{32}\rangle\langle 2|\mathbf{3}|4\rangle \dots \langle \text{5 terms}\rangle \dots - 11/6\langle 2|\mathbf{3}|1\rangle\langle \mathbf{31}\rangle\langle 14\rangle}{\Delta_{12}|\mathbf{3}|4|5} +$$

$$\frac{m_t\langle -3/4\langle 24\rangle\langle 2|\mathbf{3}|2\rangle\langle \mathbf{31}\rangle \dots \langle \text{4 terms}\rangle \dots + 5/6\langle 24\rangle m_t^2\langle \mathbf{31}\rangle}{\Delta_{12}|\mathbf{3}|4|5} +$$

$$\frac{m_t\langle s_{1\mathbf{3}}-s_{2\mathbf{3}}\rangle\langle 7/12\langle 1|4|1\rangle\langle 24\rangle\langle \mathbf{32}\rangle \dots \langle \text{4 terms}\rangle \dots - 7/12\langle \mathbf{31}\rangle\langle 2|4|2\rangle\langle 14\rangle}{\langle 1|3|2\rangle\Delta_{12}|\mathbf{3}|4|5} +$$

$$\frac{m_t\langle s_{1\mathbf{3}}-s_{2\mathbf{3}}\rangle\langle -5/12\langle 24\rangle\langle \mathbf{32}\rangle m_t^2 + 7/12\langle 12\rangle\langle 2|\mathbf{3}|4\rangle\langle \mathbf{31}\rangle - 5/12\langle 14\rangle m_t^2\langle \mathbf{31}\rangle}{\langle 1|3|2\rangle\Delta_{12}|\mathbf{3}|4|5} +$$

$$\frac{m_t(\text{tr}(\mathbf{3}|4)\text{tr}(1+2|\mathbf{3}) - 2m_t^2\text{tr}(1+2|4))\langle 3/16\langle 1|3|1\rangle\langle 2|4|1\rangle\langle 24\rangle\langle \mathbf{32}\rangle \dots \langle \text{12 terms}\rangle \dots + 3/8\langle 2|\mathbf{3}|1\rangle\langle \mathbf{31}\rangle\langle 12\rangle\langle 2|\mathbf{3}|4\rangle}{\Delta_{12}|\mathbf{3}|4|5}\Delta_{12}|\mathbf{23}|4|5} +$$

$$\frac{\langle \mathbf{31}\rangle m_t(\text{tr}(\mathbf{3}|4)\text{tr}(1+2|\mathbf{3}) - 2m_t^2\text{tr}(1+2|4))\langle (-3/32\langle 24\rangle\langle 2|\mathbf{3}|2\rangle^2 + 3/32\langle 24\rangle\langle 1|3|1\rangle^2 - 3/16\langle 2|\mathbf{3}|1\rangle\langle 14\rangle\langle 2|\mathbf{3}|2\rangle - 3/16\langle 2|\mathbf{3}|1\rangle\langle 14\rangle\langle 1|3|1\rangle)}{\Delta_{12}|\mathbf{3}|4|5}\Delta_{12}|\mathbf{3}|4|5} +$$

$$\frac{\langle \mathbf{34}\rangle m_t^2\langle -19/6\langle 2|\mathbf{3}|1\rangle - 3/2\langle 2|4|1\rangle}{\Delta_{12}|\mathbf{3}|4|5} +$$

$$\frac{5/12\langle \mathbf{34}\rangle\langle 2|\mathbf{3}|2\rangle m_t^2\langle s_{1\mathbf{3}}-s_{2\mathbf{3}}\rangle}{\langle 1|3|2\rangle\Delta_{12}|\mathbf{3}|4|5} +$$

$$\frac{m_t\langle -1/3\langle 24\rangle\langle \mathbf{32}\rangle + 2\langle \mathbf{31}\rangle\langle 14\rangle}{\langle 1|3|2\rangle} +$$

$$\frac{m_t\langle 1/2\langle \mathbf{32}\rangle\langle 24\rangle + 7/6\langle 14\rangle\langle \mathbf{31}\rangle}{\langle 1|3|2\rangle} +$$

$$\frac{m_t\langle 53/24 m_t^2\langle 14\rangle\langle 2|4|2\rangle\langle \mathbf{32}\rangle \dots \langle \text{28 terms}\rangle \dots + 9/8\langle 2|\mathbf{3}|4\rangle\langle 3|4|2\rangle\langle 2|\mathbf{3}|1\rangle}{\Delta_{12}|\mathbf{3}|4|5} +$$

$$\frac{m_t\langle -5/12\langle 3|4|1\rangle\langle 1|3|4\rangle\langle 2|4|1\rangle \dots \langle \text{12 terms}\rangle \dots - 3/4\langle 1|3|1\rangle\text{tr}(\mathbf{3}|4)\langle \mathbf{31}\rangle\langle 24\rangle}{\Delta_{12}|\mathbf{3}|4|5} +$$

$$\frac{m_t\langle (\mathbf{3}@\langle 1|2|\mathbf{3}|4|\mathbf{3}\rangle - |1|3|1|4|\mathbf{3}\rangle + |1|3|\mathbf{3}|4|1+2\rangle - |\mathbf{3}|2|\mathbf{3}|4|1+2\rangle)@\langle 4\rangle\rangle\langle 7/12\langle 1|3|1\rangle - 7/12\langle 2|\mathbf{3}|2\rangle - 1/6\langle 1|4|1\rangle}{\langle 1|3|2\rangle\Delta_{12}|\mathbf{3}|4|5} +$$

$$\frac{1/6\langle 2|\mathbf{3}|2\rangle m_t\langle (\mathbf{4}@\langle 1|2|\mathbf{3}|4|\mathbf{3}\rangle - |1|3|1|4|\mathbf{3}\rangle + |1|3|\mathbf{3}|4|1+2\rangle - |\mathbf{3}|2|\mathbf{3}|4|1+2\rangle)@\langle \mathbf{3}\rangle\rangle}{\langle 1|3|2\rangle\Delta_{12}|\mathbf{3}|4|5} +$$

$$\frac{\langle \mathbf{34}\rangle\langle -7/6\langle 1|3|1\rangle + 5/2 m_t^2\rangle}{\langle 1|3|2\rangle} +$$

$$\frac{\langle \mathbf{34}\rangle\langle -1/3\langle 2|\mathbf{3}|2\rangle + 5/6 m_t^2\rangle}{\langle 1|3|2\rangle} +$$

$$\frac{\text{tr}(\mathbf{3}|4)\langle -3/4\langle 12\rangle\langle 2|\mathbf{3}|4|2\rangle\langle \mathbf{34}\rangle \dots \langle \text{5 terms}\rangle \dots + 3/8\langle 1|3|1\rangle\langle \mathbf{34}\rangle\langle 2|\mathbf{3}|1\rangle}{\Delta_{12}|\mathbf{3}|4|5} +$$

$$\frac{\langle 3/8\langle 12\rangle\langle 2|\mathbf{3}|4|2\rangle\text{tr}(\mathbf{3}|4)\langle \mathbf{34}\rangle \dots \langle \text{4 terms}\rangle \dots + 3/8\langle 1|3|1\rangle\text{tr}(\mathbf{3}|4)\langle \mathbf{31}\rangle\langle 2|\mathbf{3}|4\rangle}{\Delta_{12}|\mathbf{3}|4|5}$$