

$$\begin{aligned}
F_1[\{1, i_-, j_-\}] &= \frac{1}{2} + T_2 g_{1ii} g_{2ji} + \frac{(T_1 - 1) T_2^2 g_{1ji} g_{2ji}}{T_2 - 1} - g_{1ii} g_{2jj} - \frac{(T_1 - 1) T_2 g_{1ji} g_{2jj}}{T_2 - 1} - g_{3ii} + (1 - T_2) g_{2ji} g_{3ii} + 2 g_{2jj} g_{3ii} + \\
&\frac{(T_3 - 1) g_{3ji}}{T_2 - 1} - \frac{T_2 (T_3 - 1) g_{1ii} g_{3ji}}{T_2 - 1} - \frac{(T_1 - 1) (T_2 + 1) (T_3 - 1) g_{1ji} g_{3ji}}{T_2 - 1} + \frac{(T_3 - 1) g_{2ij} g_{3ji}}{T_2 - 1} + (T_3 - 1) g_{2ji} g_{3ji} + \frac{(T_2 - 2) (T_3 - 1) g_{2jj} g_{3ji}}{T_2 - 1} + \\
&g_{1ii} g_{3jj} + \frac{(T_1 - 1) T_2 g_{1ji} g_{3jj}}{T_2 - 1} - g_{2ii} g_{3jj} - T_2 g_{2ji} g_{3jj};
\end{aligned}$$