

$$\begin{aligned}
t_{ij}^{(mn)} &= - \left[\langle m+1|_i \langle n-1|_j \right] H \left[|m\rangle_i |n\rangle_j \right] \\
&\quad + \frac{E_m + E_n}{2} \left[\langle m+1|_i \langle n-1|_j \right] \left[|m\rangle_i |n\rangle_j \right]
\end{aligned}$$