

$$\int_{f_A}^1 ds_4 \int_0^{f_A} ds_3 \int_0^{s_3} ds_2 \int_0^{s_2} ds_1 \exp [R_1 (s_2 - s_1)] \exp [R_{12} (s_3 - s_2)] \exp [R_3 (s_4 - s_3)]$$