Let us now try to find some lower bound on the term $1 + P_i'(t)$ for $t > d - 2$. Observe that, for $t > d - 2$,

$$1 + P_i'(t) = 1 + \sum_{\substack{k_1, k_2, \ldots, \\ k_d \in [t+2] \setminus \{i\}}} \left[\left(\prod_{j=1}^{d} \frac{D_{k_j}(t)}{2(t+1)} \right) \times \frac{1}{2(t+1) - S_t(\{k_1, \ldots, k_d\})} \right]$$

$$\geq 1 + \sum_{\substack{k_1, k_2, \ldots, \\ k_d \in [t+2] \setminus \{i\}}} \left[\left(\prod_{j=1}^{d} \frac{D_{k_j}(t)}{2(t+1)} \right) \times \frac{1}{2(t+1) - 1} \right],$$

by noting that the sum of the degrees of the taboo vertices, i.e., $S_t(\{k_1, \ldots, k_d\})$ can be bounded below by 1.