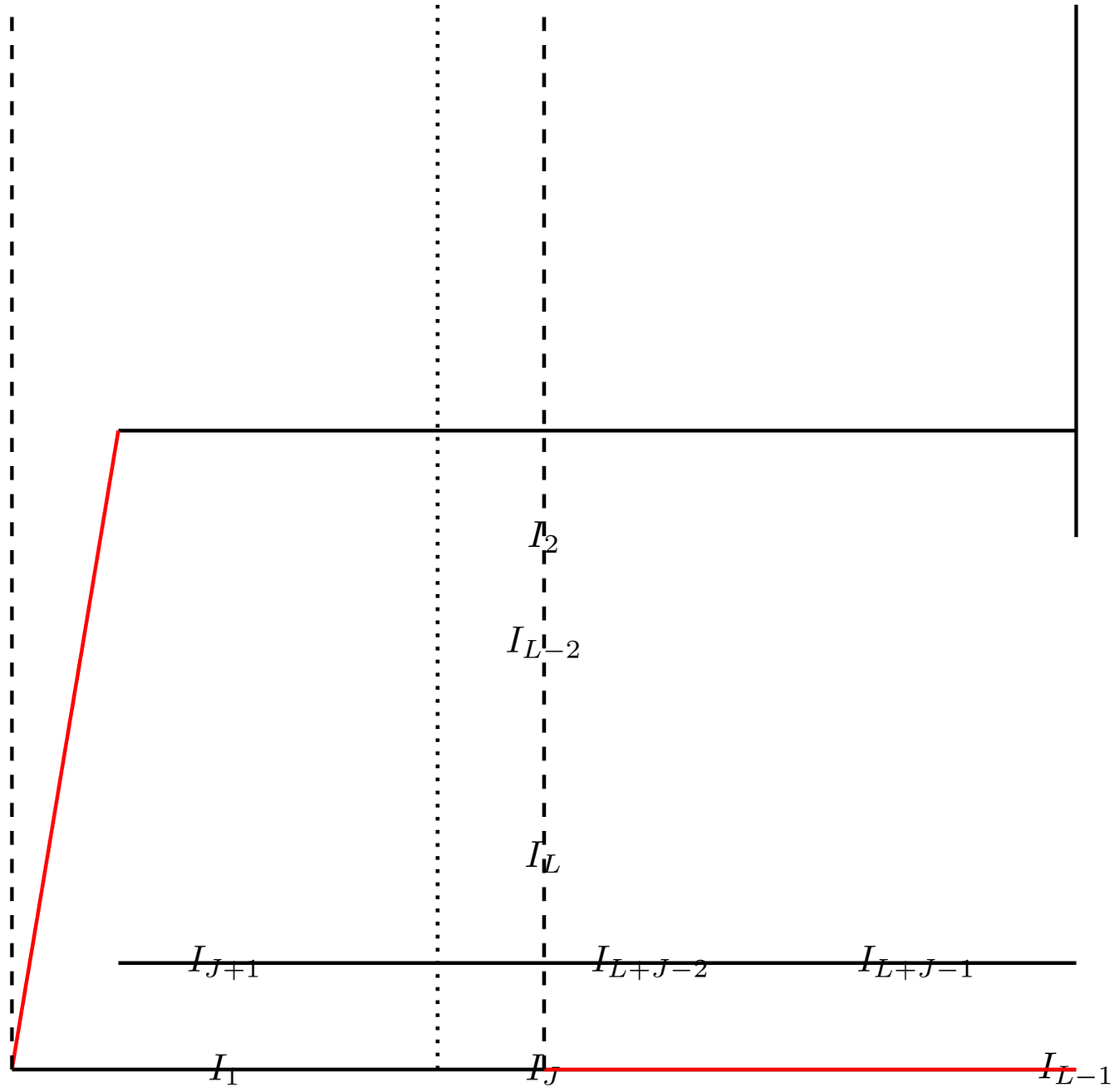

Figure 1: Illustration of the intervals created by Alice and Bob in the proof of Theorem **??** for an instance of Index_{L-2} with $X[J] = 1$. The dashed intervals on the upper part correspond to the zero elements of the bitvector X. The red intervals I_1, I_2 correspond to expired intervals. I_J is the only non-expired interval disjoint with the special interval I_{L-1}. Since $X[J] = 1$, the optimal solution is of size 2. If $X[J]$ was equal to 0, the interval I_J would not be disjoint with I_{L-1}, and thus, an optimal solution would be of size 1.