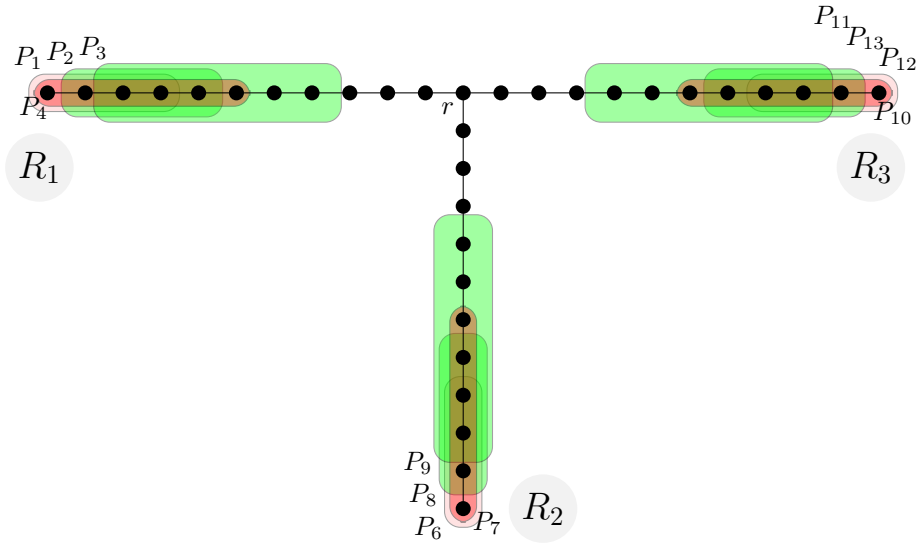
k-subdivided star tree path labeling example. The convention used is, path label P_i maps to set S_i.

After Step 2 shown in Figure 2, the rest of the steps could compute in different ways to arrive at a solution depending on in what order $X \in \mathcal{O}$ is processed.



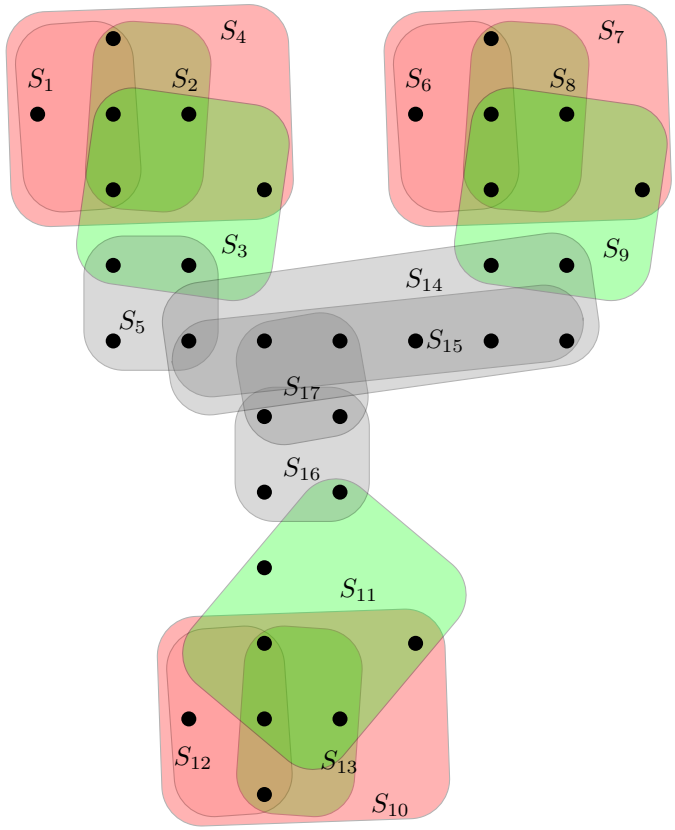
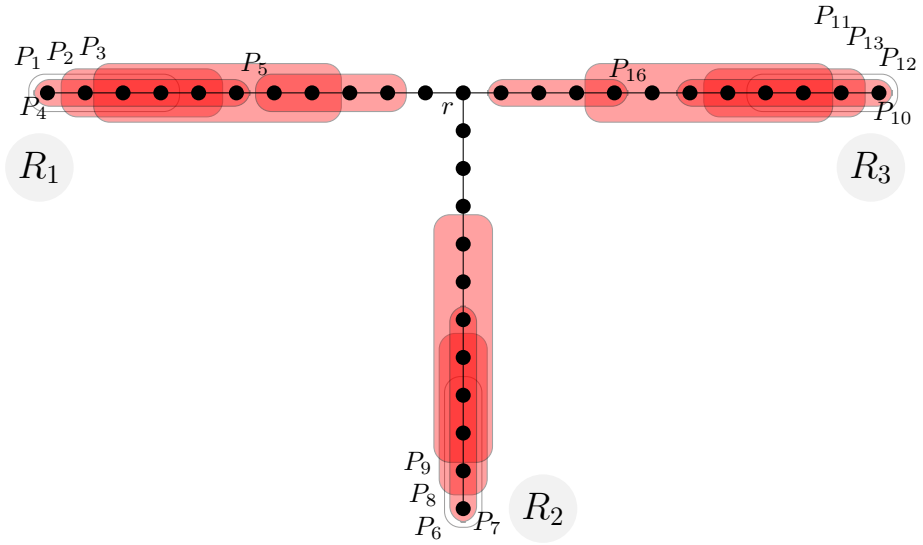


Figure 1: **Step 1:** The sets in shades of red are marginal sets: $S_1, S_4, S_6, S_7, S_{12}, S_{10}$. The maximal sets among them, S_4, S_7, S_{10}, are super-marginal. They are assigned to the paths with leaves as shown above, in Step 1. The green sets are the ones involved in illustrating the single inclusion chain that characterizes marginal sets. Gray sets are not involved in this step.



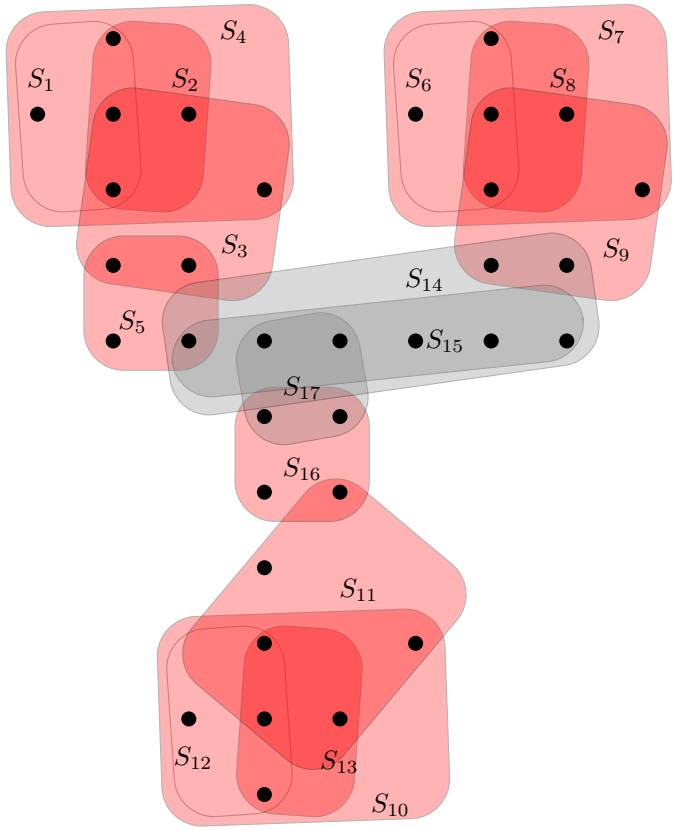
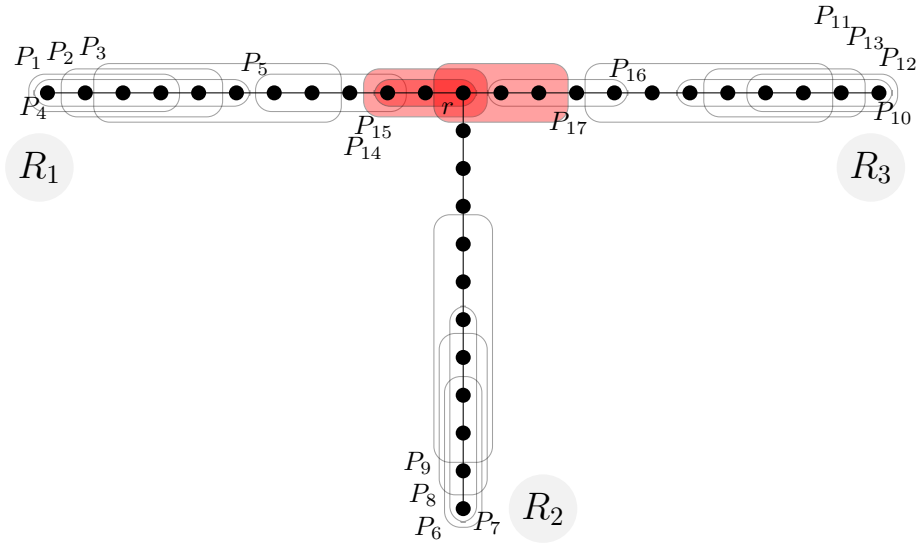


Figure 2: **Step 2:** The sets in shades of red are the overlapping sets that saturate each of the rays. All sets except S_{14}, S_{15}, S_{17} are assigned paths as shown. The ones not assigned must proceed with partial labeling in Step 3. Gray sets are not involved in this step.



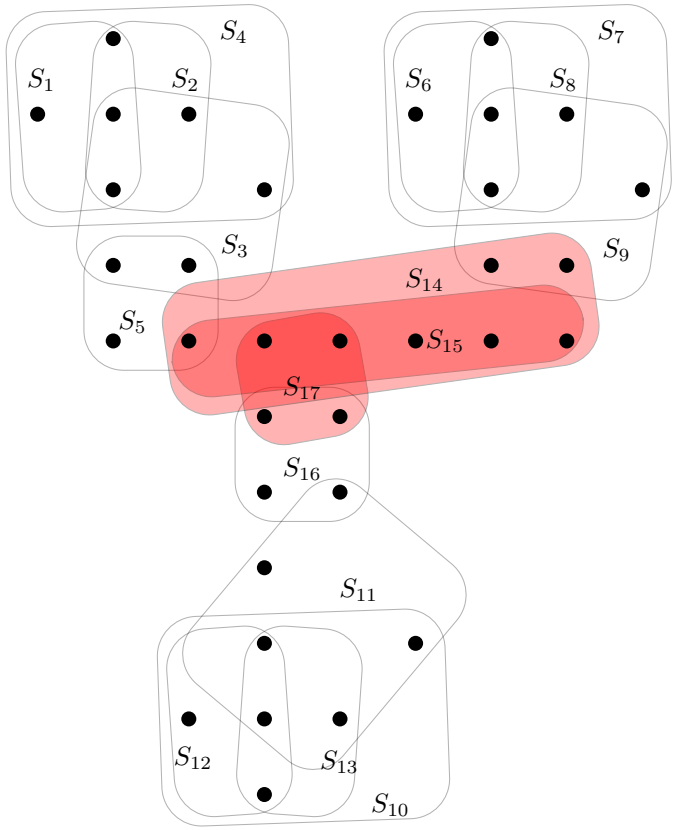
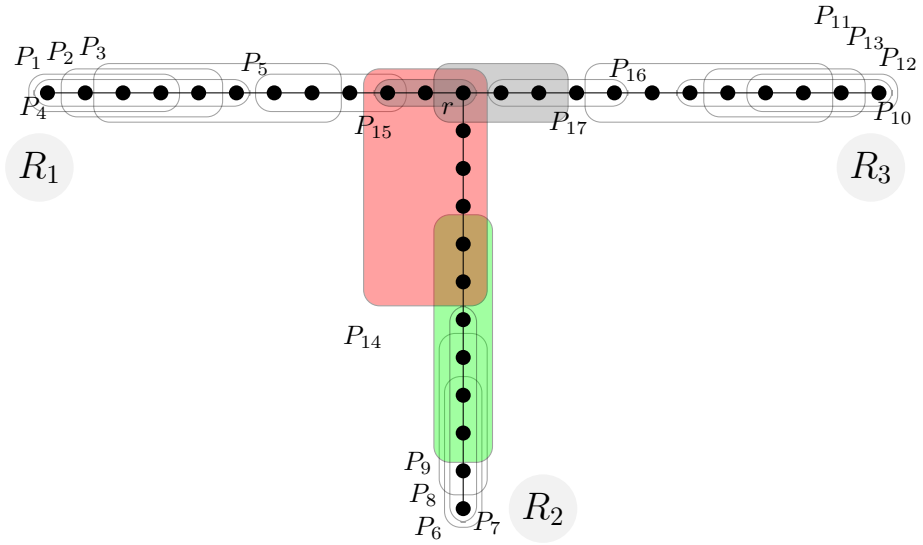


Figure 3: **Step 3:** The red paths are *one possibility of* partial labels to S_{14}, S_{15}, S_{17}. Note that the path's cardinality is lesser than the set's cardinality; hence partial labeling.



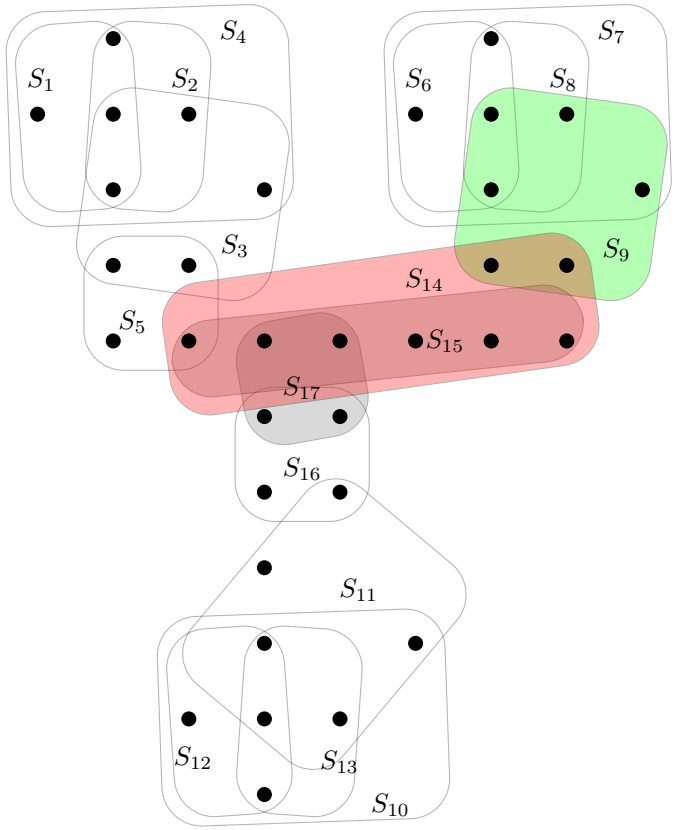
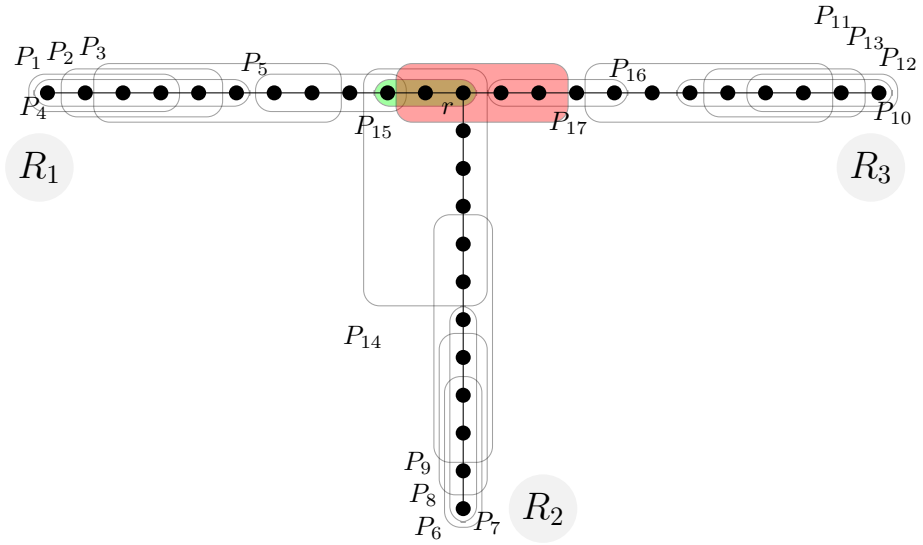


Figure 4: **Step 4:** Following the state of the algorithm shown in Fig. 3, the red partial path P_{14} grows on to a full path as shown here due to S_{14}'s overlap with S_9. This growth happens onto ray R_2 since P_9 is on R_2. The gray sets are partial labeling which have not been resolved yet.



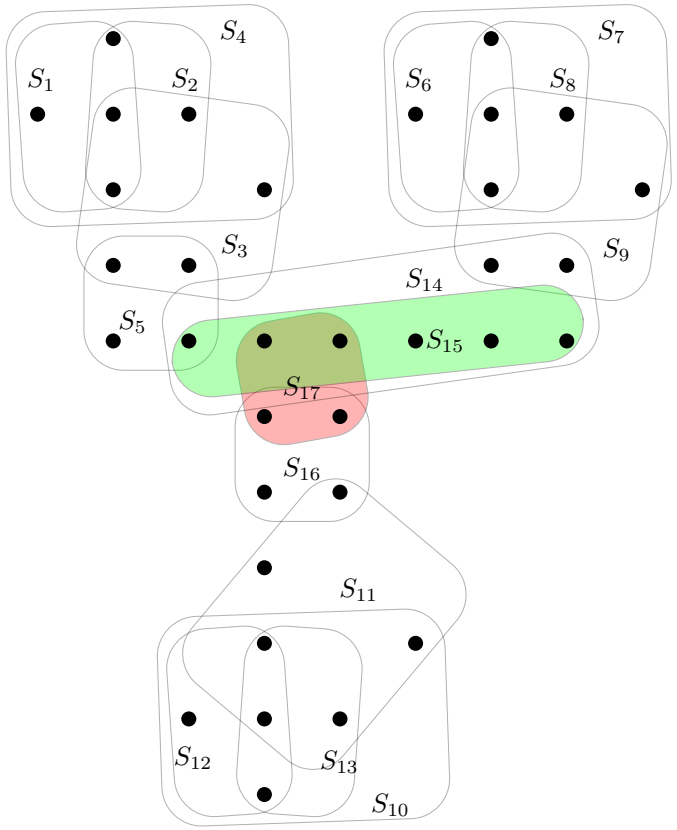
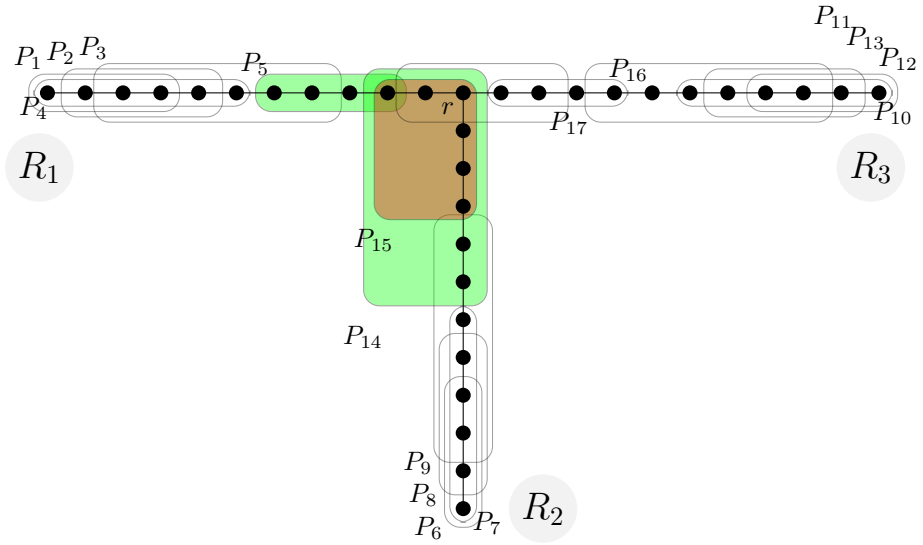


Figure 5: **Step 6:** Following the state of the algorithm shown in Fig. 4, the red partial path P_{17} grows on to a full path as shown here due to S_{17}'s overlap with S_{15}. This growth happens onto ray R_1 since the partial label P_{15} is on R_1. Note that Step 5 does not apply in this instance of the problem.



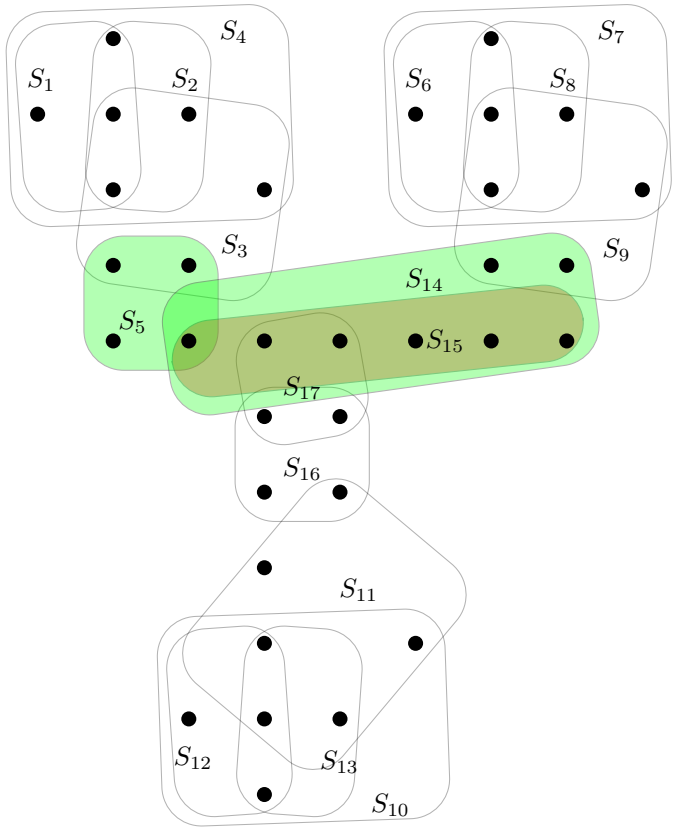


Figure 6: **Step 7:** Following the state of the algorithm shown in Fig. 5, the red partial path P_{15} grows on to a full path as shown here due to S_{15}'s overlap with S_5 and due to P_5 being in $\mathcal{L}_{1,2}$. Also $S_{15} \subseteq S_{14}$, hence only this new P_{15} satisfies pariwise intersection cardinality property.

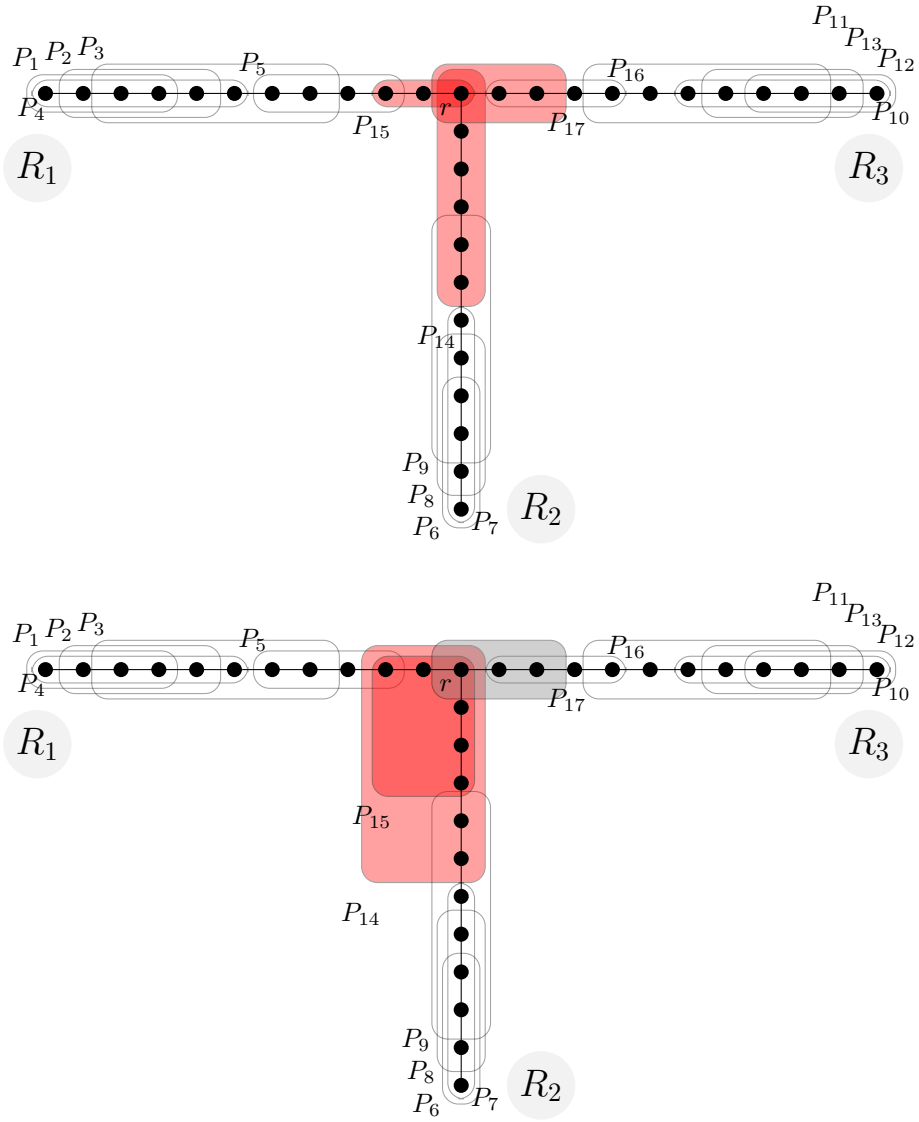


Figure 7: **Step 5:** To illustrate Step 5, we consider a different possible partial assignment in Step 3 (rather than the one in Fig. 3). In this instance, P_{14} and P_{15} get resolved by Step 5. They were partial labels from rays R_2 and R_1 respectively and by Step 5, it is understood that they "grow into" each others rays.

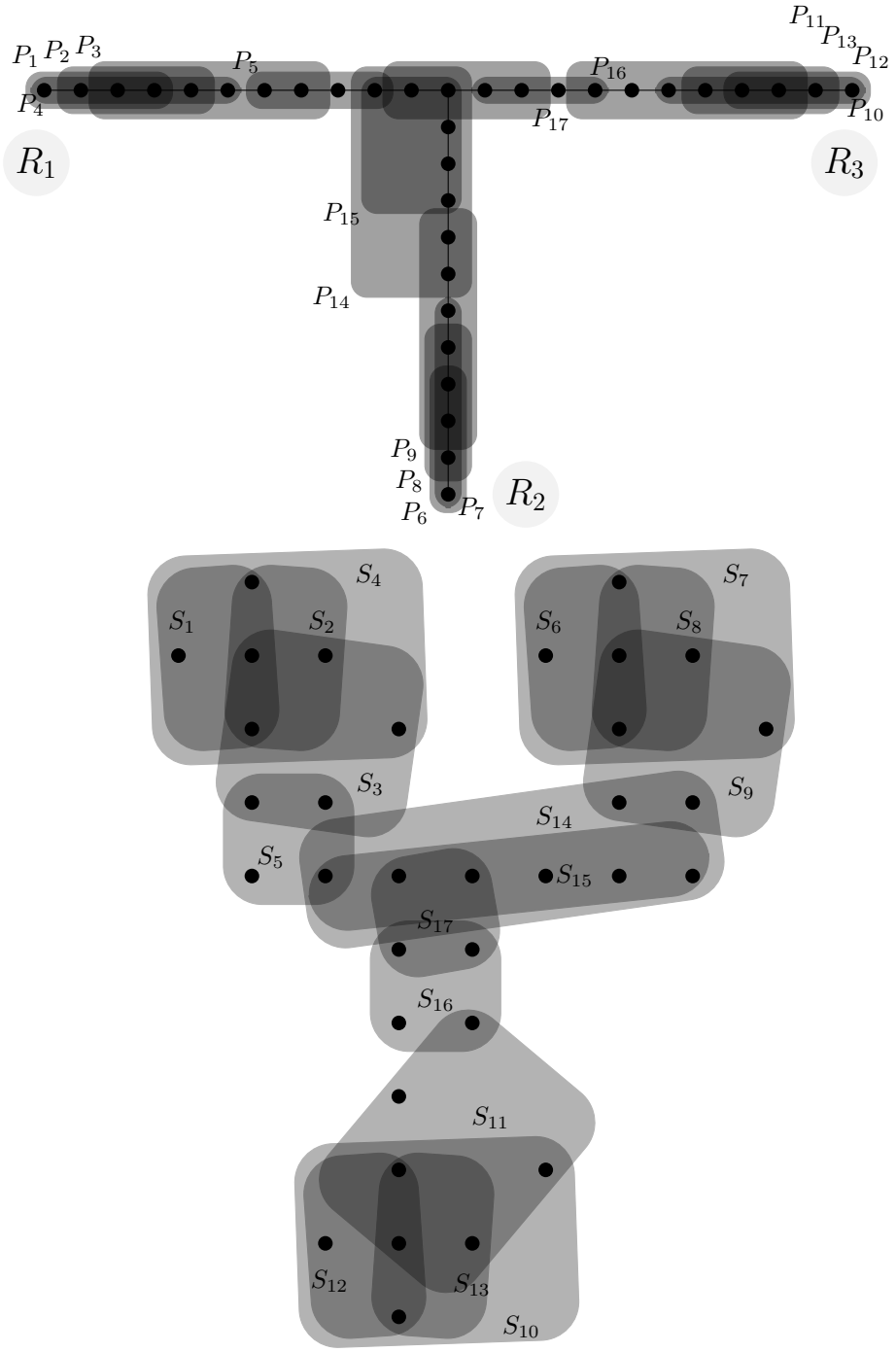


Figure 8: **Step 8:** This solution satisfies the properties of ICPPL and hence is a feasible solution.