

1. Consider an anonymous routing/congestion game that is parameterized as follows:

- A finite set of resources \mathcal{R} .
- A congestion function for each resource r of the form $c_r : \{0, 1, 2, \dots\} \rightarrow R$. The cost $c_r(k)$ is the congestion on resource/road r when there are k users. In this formulation, congestion on a particular resource/road only depends on the number of users on that road not which specific users, i.e., users are anonymous.
- A finite set of players $N = \{1, 2, \dots, n\}$.
- A finite action set of each player $\mathcal{A}_i \subseteq 2^{\mathcal{R}}$: An action $a_i \in \mathcal{A}_i$ is just a collection of resources, i.e., $a_i \subseteq \mathcal{R}$. Let $\mathcal{A} := \mathcal{A}_1 \times \dots \times \mathcal{A}_n$ represent the set of joint actions.
- A cost function for each player i of the form $J_i : \mathcal{A} \rightarrow R$ that each player seeks to minimize. The specific form of the cost function is

$$J_i(a_i, a_{-i})$$