Supplementary Material for Heard it Through the GITvine: An Empirical Study of Tool Diffusion Across the *npm* Ecosystem

Algorithm 1 Dealiasing Users

Input Set of all repositories: $\mathcal{R}$, Set of all users in a repository r: U_r, Set of all users: $\mathcal{U} = \bigcup_{r=1\ldots\mathcal{R}} U_r$.

for $r \in \mathcal{R}$ **do**
  for $u \in U_r$ **do**
    Id, Name,Login,Email Prefix,Email Domain,Loc.,Org. $\leftarrow$ GetFeatures(u)
  end for
end for
/* Project Level DeAliasing*/
$\text{Cluster}_{\text{local}} = \{\}$ ▷ Initializing project level dictionary
for $r \in \mathcal{R}$ **do**
  for User Pairs$(U_a, U_b) \in U_r$ **do**
    if (Email_a==Email_b) OR
    (Full Name_a==Full Name_b) OR
    (Email Prefix_a==Email Prefix_b) **then**
      $\text{Cluster}_{\text{local}}[\min(\text{Id}_a, \text{Id}_b)].add(\text{Id}_a)$
      $\text{Cluster}_{\text{local}}[\min(\text{Id}_a, \text{Id}_b)].add(\text{Id}_b)$
    end if
  end for
end for
/* Global DeAliasing*/
$\text{Cluster}_{\text{global}} = \{\}$ ▷ Initializing global level dictionary
for User Pairs$(U_a, U_b \in \mathcal{U})$ **do**
  if (Email_a==Email_b) OR
  (Full Name_a==Full Name_b) AND
  ((Location_a==Location_b) OR (Email Domain_a==Email Domain_b)) **then**
    $\text{Cluster}_{\text{global}}[\min(\text{Id}_a, \text{Id}_b)].add(\text{Id}_a)$
    $\text{Cluster}_{\text{global}}[\min(\text{Id}_a, \text{Id}_b)].add(\text{Id}_b)$
  end if
end for
/* Merging Project and Global DeAliasing */
Create empty graph $\mathcal{G} = (V, E)$
for cluster $c \in \text{Cluster}_{\text{local}} \bigcup \text{Cluster}_{\text{global}}$ **do**
  for User Pairs$(U_a, U_b) \in c$ **do**
    $\mathcal{G}$.addNode(U_a), $\mathcal{G}$.addNode(U_b)
    $\mathcal{G}$.addEdge(U_a, U_b)
  end for
end for
$\mathcal{CC} \leftarrow$ GetConnectedComponents($\mathcal{G}$) ▷ Extract Connected Components
for $cc \in \mathcal{CC}$ **do** ▷ For each connected component
  $U_{gen} \leftarrow \text{argmin}_{\text{id}}(U \in cc)$
  AP.add($U_{\text{gen}}, U_{\text{alias}}$) where $U_{\text{alias}} = \{U \in cc \setminus U_{\text{gen}}\}$
end for