

- 粗粒度冗余 (含非极大二分团的节点)
- 中等粒度冗余 (重复集合运算)
- 细粒度冗余 (无效顶点访问)

- 根节点
- 极大二分团
- 非极大二分团

**w:**

$$L_w = \bigcap_{N(v_0)} = \bigcap_{\{u_0, u_1, u_2, u_4, u_5, u_6, u_7\}} = \{u_0, u_1, u_2, u_4, u_5, u_6, u_7\}$$

**x:**

$$N_w(v_1) = L_x = \bigcap_{N(v_1)} = \bigcap_{\{u_0, u_1, u_2, u_3\}} = \{u_0, u_1, u_2\}$$

**y:**

$$N_w(v_2) = L_y = \bigcap_{N(v_2)} = \bigcap_{\{u_0, u_1, u_3, u_4, u_5, u_6, u_7, u_8\}} = \{u_0, u_1, u_4, u_5, u_6, u_7\}$$

**z:**

$$N_w(v_3) = L_z = \bigcap_{N(v_3)} = \bigcap_{\{u_0, u_3, u_4, u_5, u_6, u_8, u_9\}} = \{u_0, u_4, u_5, u_6\}$$

**q:**

$$N_x(v_2) = L_r = \bigcap_{N_w(v_2)} = \bigcap_{\{u_0, u_1, u_3, u_4, u_5, u_6, u_7, u_8\}} = \{u_0, u_1\}$$

**r:**

$$N_x(v_3) = L_r = \bigcap_{N_w(v_3)} = \bigcap_{\{u_0, u_3, u_4, u_5, u_6, u_8, u_9\}} = \{u_0\}$$

**s:**

$$N_y(v_3) = L_s = \bigcap_{N_w(v_3)} = \bigcap_{\{u_0, u_3, u_4, u_5, u_6, u_8, u_9\}} = \{u_0, u_4, u_5, u_6\}$$

**t:**

$$N_q(v_3) = L_t = \bigcap_{N_x(v_3)} = \bigcap_{\{u_0, u_3, u_4, u_5, u_6, u_8, u_9\}} = \{u_0\}$$

