

$$|\sigma_s(V(\mathcal{C}_a^\ell) \setminus (V(\mathcal{S}_a^\ell) \setminus \{\kappa_a^\ell\}))| = |\sigma_s(V(\mathcal{C}_b^\ell) \setminus (V(\mathcal{S}_b^\ell) \setminus \{\kappa_b^\ell\}))| = 2.$$