

Solution to Exercise 4.9.2

This follows easily from Exercise 4.9.1. Observe that any SG -module is H -projective, since $p \nmid [G: H]$ and notice that V being semisimple is equivalent to the condition that any short exact sequence

$$\{0\} \longrightarrow V_1 \xrightarrow{\alpha} V \xrightarrow{\beta} V_2 \longrightarrow \{0\},$$

splits. Since V_H is semisimple, any short exact sequence

$$\{0\} \longrightarrow V_{1H} \xrightarrow{\alpha} V_H \xrightarrow{\beta} V_{2H} \longrightarrow \{0\}$$

splits, hence by Exercise 4.9.1, the original sequence splits, too.