

From  $(\star)$  we also get:

$$\text{Sel}^{\text{bal}}(\mathbb{Q}, V^*) \cong S_{\bar{\rho}, \lambda}^- \oplus S_{\rho, \lambda\psi}^- \oplus \text{finite}$$

$\uparrow$   
 same as  $S_{\rho, \lambda}^-$

but with conditions @  $\rho$  &  $\bar{\rho}$  reversed

and  $\text{Sel}^{\text{bal}}(\mathbb{Q}, V) \cong \check{S}_{\bar{\rho}, \lambda}^- \oplus \check{S}_{\rho, \lambda\psi}^- \oplus \text{finite}$

Define  $k_{\lambda}^{\text{diag}}$  by

$$k_{\infty}^{\text{diag}} \mapsto (k_{\lambda}^{\text{diag}}, \quad \quad)$$



$$k_{\alpha\alpha} \neq 0 \implies \dim_{\mathbb{Q}_p} \text{Sel}(\mathbb{Q}, V_p E) = 2.$$

$$\searrow \text{cork}_{\mathbb{Z}_p} \text{Sel}_{0,\phi}(K, \lambda) = 1 \nearrow \# \mathcal{W}(E/\mathbb{Q})[p^\infty] < \infty$$

anti cyclotomic ES  $\{AJ(\Delta^{\text{fg}(K_h K)})\}_{K \geq 2}$

$$\implies \gamma - 1 + \text{char}_{\Lambda} \left[ (S_{\bar{\sigma}, \lambda}^-)^{\gamma} \right]_{\Lambda\text{-tors}}$$

$\implies K_{\lambda}^{\text{diag}}$  has nonzero image

Moreover,  $\text{res}_{\mathfrak{p}}(k_{\alpha\alpha}) = 0$ , so  $\log_{\mathfrak{p}}(k_{\alpha\alpha}) = 0$ .

$$\begin{aligned} \check{S}_{\bar{\sigma}, \lambda}^- / (\gamma - 1) &\hookrightarrow \check{\text{Sel}}_{0,\phi}(K, \lambda) \subset \text{Sel}(\mathbb{Q}, V_p E) \\ (K_{\lambda}^{\text{diag}} \bmod \gamma - 1) &\mapsto k_{\alpha\alpha} \end{aligned}$$