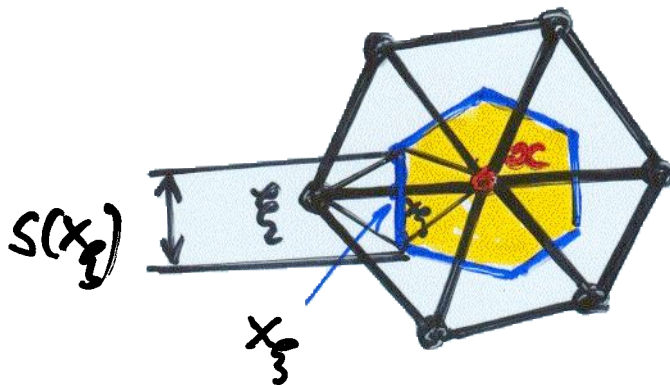


Let us estimate, for instance,

$$1) |(\psi_a, z)| \leq \dots,$$

For simplicity, we assume  $a = \bar{a} = 1$ . Then

$$\begin{aligned} (\psi_a, z) &= \sum_{x \in \omega} \psi_a(x) z(x) H(x) = \\ &= \sum_{x \in \omega} \left\{ \sum_{T \in S'(x)} \left[ -\frac{u(T) - u(x)}{h(x, T)} S(x_T) + \int_{\partial T(x, T)} \frac{\partial u}{\partial n} ds \right] \right\} z(x) \end{aligned}$$



$$\partial R(x) = \bigcup_{T \in S'(x)} \partial T(x, T)$$

$$= \sum_{x_T} \underbrace{\left[ \frac{1}{S(x_T)} \int_{\partial T} \frac{\partial u}{\partial n} ds - \frac{u(T) - u(x)}{h(x, T)} \right]}_{=: \alpha(x_T)} \underbrace{\frac{z(T) - z(x)}{h(x, T)} h(x, T) S(x_T)}_{=: z_R(x_T)} = H'(x)$$

$$= \sum_{x_T} \alpha(x_T) z_R(x_T) H'(x_T)$$

$$\Rightarrow |(\psi_a, z)| \leq \sqrt{\sum_{x_T} \alpha^2(x_T) H'(x_T)} \sqrt{\sum_{x_T} z_R^2(x_T) H'(x_T)}$$

$$\leq \sqrt{\sum_{x_T} \alpha^2(x_T) H'(x_T)} \|z\|_{W_2^{-1}(\omega)}$$

Bramble-Hilbert  $\searrow$

$$\leq c h |u|_{2, \Omega} \|z\|_{W_2^{-1}(\omega)}$$

$$= c_A(u) h \|z\|_{W_2^{-1}(\omega)}$$