

$$\mathfrak{h} \in \mathring{\Delta}_0^0 \text{ cpt}$$

$$\mathfrak{h} \text{ cpt} \Leftrightarrow \bigwedge_{\mathcal{E} \subset \mathfrak{h}_{\Delta 2}}^{\text{FIP}} \begin{cases} E_1 \cdots E_n \in \mathcal{E} \\ E_1 \cap \cdots \cap E_n \neq \emptyset \end{cases} \Rightarrow \bigcap_E^{\mathcal{E}} \bar{E} \neq \emptyset$$

\Rightarrow : $\mathfrak{h} \text{ cpt}$

\mathcal{E} FIP

$$\nexists \bigcap_E^{\mathcal{E}} \bar{E} = \emptyset \Rightarrow \mathfrak{h} = \bigcup_E^{\mathcal{E}} \underbrace{\mathfrak{h} \perp \bar{E}}_{\text{off}} \xrightarrow{\text{cpt}} \mathfrak{h} = \underbrace{\mathfrak{h} \perp \bar{E}_1} \cup \cdots \cup \underbrace{\mathfrak{h} \perp \bar{E}_n}$$

$$\Rightarrow \emptyset = \mathfrak{h} \perp \overbrace{\mathfrak{h} \perp \bar{E}_1 \cup \cdots \cup \mathfrak{h} \perp \bar{E}_n} = \bar{E}_1 \cap \cdots \cap \bar{E}_n \supset E_1 \cap \cdots \cap E_n \neq \emptyset \nexists$$

$$\Leftarrow : \mathfrak{h} = \bigcup_{\lambda} \mathfrak{h}_{\lambda} \text{ off deck}$$

$$\mathcal{E} = \begin{cases} \mathfrak{h} \perp \mathfrak{h}_{\lambda} \\ \lambda \in \Lambda \end{cases}$$

$$\Rightarrow \bigcap_{\lambda} \overline{\mathfrak{h} \perp \mathfrak{h}_{\lambda}} = \bigcap_{\lambda} \overline{\mathfrak{h} \perp \mathfrak{h}_{\lambda}} = \bigcap_{\lambda} \underbrace{\mathfrak{h} \perp \mathfrak{h}_{\lambda}} = \mathfrak{h} \perp \bigcup_{\lambda} \mathfrak{h}_{\lambda} = \emptyset$$

$$\Rightarrow \mathcal{E} \text{ not FIP} \Rightarrow \bigvee_{\Lambda \supset \Lambda_0 \text{ fin}} \emptyset = \bigcap_{\lambda \in \Lambda_0} \underbrace{\mathfrak{h} \perp \mathfrak{h}_{\lambda}}$$

$$\Rightarrow \mathfrak{h} = \mathfrak{h} \perp \overbrace{\bigcap_{\lambda \in \Lambda_0} \mathfrak{h} \perp \mathfrak{h}_{\lambda}} = \bigcup_{\lambda \in \Lambda_0} \overbrace{\mathfrak{h} \perp \mathfrak{h} \perp \mathfrak{h}_{\lambda}}^{= \mathfrak{h}_{\lambda}} = \bigcup_{\lambda \in \Lambda_0} \mathfrak{h}_{\lambda} \Rightarrow \mathfrak{h} \text{ cpt}$$