

$$\begin{aligned}
 q &= \sum_{i=0}^m k_i P_i \quad \text{--- l. p.} \\
 &\in M \\
 -q &= \sum_{i=0}^m -k_i P_i \quad \text{--- l. p.} \\
 &\in M \\
 &\Rightarrow M \Rightarrow (m+1) \\
 &= \sum_{i=0}^{m+1} k_i P_i \quad \text{--- l. p.} \\
 &= \sum_{i=0}^m k_i P_i + k_{m+1} P_{m+1} \\
 &= 1 \quad \text{--- l. p.}
 \end{aligned}$$

$$\begin{aligned}
 -q + P_m + P_{m+1} &? \\
 &= P_m + P_{m+1} \\
 (1)q + 2 \left(\frac{1}{2} P_m + \frac{1}{2} P_{m+1} \right) &\in M \\
 &\in M
 \end{aligned}$$

$$\begin{aligned}
 q) \quad \sum_{i=0}^{m+1} k_i &= 1 \quad k_{i_0} = k_0 \\
 \sum_{i=1}^{m+1} \frac{k_i}{1-k_0} &= \frac{\sum_{i=1}^{m+1} k_i}{1-k_0} = \frac{1-k_0}{1-k_0} = 1 \\
 \sum_{i=1}^{m+1} \frac{k_i}{1-k_0} P_i &\in M
 \end{aligned}$$

$$\begin{aligned}
 P_0, P_1 \in M \quad \lambda \in K &\stackrel{?}{\implies} \lambda P_0 + (1-\lambda)P_1 \in M \\
 P_0 = P + u_0, \quad P_1 = P + u_1 \\
 &\quad \quad \quad \in S \quad \quad \quad \in S \\
 \lambda(P + u_0) + (1-\lambda)(P + u_1) &= P + (\lambda u_0 + (1-\lambda)u_1) \\
 &\quad \quad \quad \in S \quad \quad \quad \in S \\
 &\quad \quad \quad \underbrace{\hspace{10em}}_{\in S}
 \end{aligned}$$

g - 11 E S
E 11

(S4)

$$\begin{array}{l}
 M_i \quad \Delta P \quad i \in I \\
 \bigcap_{i \in I} M_i \neq \emptyset \\
 \downarrow \\
 P, q, \Delta \in \mathbb{K} \\
 \hline
 \Rightarrow \underbrace{M_i}_{(1-\Delta)P + \Delta q} \neq \emptyset \quad q \in \bigcap_{i \in I} M_i. \\
 \in M_i \quad \in M_i
 \end{array}$$

$$\begin{aligned}
 \text{Dom} \left(\bigcap_{i \in I} M_i \right) &= \bigcap_{i \in I} \text{Dom}(M_i) \\
 &= \{ q - p \mid q \in \bigcap M_i \} \subseteq \bigcap_{i \in I} \text{Dom}(M_i) \\
 p &\in \bigcap M_i \\
 p + u &\in M_i \quad \forall i \in I \\
 q = p + u &\in \bigcap M_i
 \end{aligned}$$

$$I \cap M + \text{Dir } N = \mathbb{R} \implies M \cap N \neq \emptyset$$

$$p \in M, q \in N$$

$$q - p = u = u_0 + u_1$$

$\in \mathbb{R}$ $\in \text{Dir } M$ $\in \text{Dir } N$

$$\sum_{i=1}^n \lambda_i v_i + \sum_{j=1}^m \mu_j w_j$$

$$q + u_1 = p + u_0$$

$\in N$ $\in M$

$$M \sqcup N = M + D_{in} N = P + (D_{in} M + D_{in} N)$$

$$q = \sum_{i=1}^m \alpha_i q_i + \sum_{j=1}^n \alpha_j \wedge_j$$

$\in M$ $\in M \cup N$

$$\sum_{i=1}^m \alpha_i + \sum_{j=1}^n \alpha_j = 1 \quad q = P + (q - P)$$

$$q - P = \sum_{i=1}^m \alpha_i (q_i - P) + \sum_{j=1}^n \alpha_j (\wedge_j - P) \in D_{in} M + D_{in} N$$

$\in D_{in} M$ $\in D_{in} N$

$$\begin{aligned}
 q &= (\underbrace{1}_{\in \mathbb{P}} + \underbrace{u}_{\in \mathbb{P} \cup \mathbb{M}}) + \underbrace{1}_{\in \mathbb{P} \cup \mathbb{N}} \\
 &= 1 \underbrace{(\underbrace{1}_{\in \mathbb{P}} + u)_{\in \mathbb{P}}}_{\in \mathbb{M} \cup \mathbb{N}} + 1 \underbrace{(\underbrace{1}_{\in \mathbb{P}} + v)_{\in \mathbb{N}}}_{\in \mathbb{M} \cup \mathbb{N}} - \underbrace{1}_{\in \mathbb{M}}
 \end{aligned}$$

$q \in \mathbb{Q}$

$$M \cap N = \emptyset \quad p \in M, q \in N$$

$$\lambda + \alpha = 1$$

$$p_i = p + u_i$$

$\hat{=}$
 $p_i \in M$

$$q_j = q + v_j$$

$$\sum \lambda_i = \lambda$$

$$\sum \alpha_j = \alpha$$

$$\sum_i \lambda_i (p + u_i) + \sum_j \alpha_j (q + v_j) =$$

$$1 \cdot p = q$$

$$= \underbrace{\sum_i \lambda_i p + (1 - \lambda) p}_p + \sum_{u_i \in R, M} \lambda_i u_i$$

$$= (1 - \lambda) p + \sum_j \alpha_j q$$

$$\sum_j \alpha_j (q - p) = \alpha (q - p)$$

$$+ \sum_j \alpha_j v_j$$

$\in D \cap N$