$$\mathbb{R} \supset H \text{ conv } \Leftrightarrow H \text{ conn}$$

$$\Rightarrow: \quad \lightning\ H \text{ not conn } \Rightarrow H = \underbrace{A \cap H}_{\ni a} \ \dot{\cup}\ \underbrace{B \cap H}_{\ni b} \Rightarrow a \neq b \underset{\text{OE}}{\Rightarrow} a < b \underset{\text{conv}}{\Rightarrow} {}^a\mathbb{R}^b \subset H$$

$$a \in {}^aA^b = {}^aA^b \leqslant b \text{ ob Schr } \Rightarrow a \leqslant {}^a\overset{\bullet}{A}{}^b \leqslant b \Rightarrow {}^a\overset{\bullet}{A}{}^b \in H$$

$${}^a\overset{\bullet}{A}{}^b \in A$$

$$\bigwedge_n^{\mathbb{N}} \underbrace{{}^a\overset{\bullet}{A}{}^b - \frac{1}{n}}_{\text{not ob Schr}} < {}^a\overset{\bullet}{A}{}^b \Rightarrow \bigvee_{a_n}^{{}^aA^b} {}^a\overset{\bullet}{A}{}^b - \frac{1}{n} < a_n \leqslant {}^a\overset{\bullet}{A}{}^b \Rightarrow {}^aA^b \ni a_n \rightsquigarrow {}^a\overset{\bullet}{A}{}^b \in {}^aA^b \subset \mathbb{R}$$

$${}^a\overset{\bullet}{A}{}^b \in B$$

$$\text{if } {}^a\overset{\bullet}{A}{}^b = b \Rightarrow {}^a\overset{\bullet}{A}{}^b = b \in B$$

$$\text{if } {}^a\overset{\bullet}{A}{}^b < b \Rightarrow \bigwedge_{n >> 1} {}^a\overset{\bullet}{A}{}^b < {}^a\overset{\bullet}{A}{}^b + \frac{1}{n} \leqslant b \Rightarrow {}^aA^b \not\ni {}^a\overset{\bullet}{A}{}^b + \frac{1}{n} \Rightarrow B \ni {}^a\overset{\bullet}{A}{}^b + \frac{1}{n} \rightsquigarrow {}^a\overset{\bullet}{A}{}^b \in B \subset \mathbb{R}$$

$${}^a\overset{\bullet}{A}{}^b \in A \cap B = \varnothing\ \lightning$$

$$\Leftarrow: \quad H \text{ not conv } \Rightarrow \bigvee_{a < b < c} \begin{cases} a \in H \ni c \\ b \notin H \end{cases} \Rightarrow a \in \frac{x \in H}{x < b} \subsetneq H \supset \frac{y \in H}{b < y}$$

$$H = H \llcorner b = \frac{x \in H}{x < b} \ \dot{\cup}\ \frac{y \in H}{b < y} \Rightarrow H \text{ not conn}$$

$$\text{conv } H \xrightarrow[\text{stet}]{\wr} \mathbb{R} \underset{\text{ZWS}}{\Longrightarrow} {}^{H}\wr \text{ conv}$$

$$\bigwedge_{a<b}^{H} {}^{a}\wr\,|\,{}^{b}\wr \subset {}^{a|b}\wr : \quad \bigwedge_{y}^{{}^{a}\wr|{}^{b}\wr} \bigvee_{x}^{a|b} {}^{x}\wr = y$$

$$\text{OE } {}^{a}\wr \leqslant y \leqslant {}^{b}\wr \Longrightarrow a \in S = \frac{x \in {}^{a}\mathbb{R}^{b}}{{}^{x}\wr \leqslant y} \leqslant b \text{ ob Schr } \Longrightarrow a \leqslant \dot{S} \leqslant b \Longrightarrow \dot{S} \in H$$

$${}^{\dot{S}}\wr \leqslant y$$

$$\bigwedge_{n}^{\mathbb{N}} \underbrace{\dot{S} - \frac{1}{n}}_{\text{not ob Schr}} < \dot{S} \Longrightarrow \bigvee_{x_n}^{S} \dot{S} - \frac{1}{n} < x_n \leqslant \dot{S} \Longrightarrow x_n \rightsquigarrow \dot{S} \Longrightarrow y \geqslant {}^{x_n}\wr \underset{\text{stet}}{\rightsquigarrow} {}^{\dot{S}}\wr \underset{\text{Mon}}{\leqslant} y$$

$${}^{\dot{S}}\wr \geqslant y$$

$$\text{if } \dot{S} = b \Longrightarrow {}^{\dot{S}}\wr = {}^{b}\wr \geqslant y$$

$$\text{if } \dot{S} < b \Longrightarrow \bigwedge_{n>>1} \dot{S} < \dot{S} + \frac{1}{n} \leqslant b \Longrightarrow S \not\ni \dot{S} + \frac{1}{n} \rightsquigarrow \dot{S} \Longrightarrow y < {}^{\dot{S}+1/n}\wr \underset{\text{stet}}{\rightsquigarrow} {}^{\dot{S}}\wr \underset{\text{Mon}}{\geqslant} y$$

$$y = {}^{\dot{S}}\wr$$

$$0|1 \xrightarrow[\text{stet}]{\wr'} 0|1 \underset{\text{FIX}}{\Longrightarrow} \bigvee_{o}^{0|1} {}^{o}\wr' = o \text{ fixed point}$$

$${}^{x}\wr = {}^{x}\wr' - x \text{ stet } \Longrightarrow {}^{0}\wr = {}^{0}\wr' \geqslant 0 \geqslant {}^{1}\wr' - 1 = {}^{1}\wr \Longrightarrow \bigvee_{o}^{0|1} 0 = {}^{o}\wr \Longrightarrow {}^{o}\wr' = o$$

$$\rceil \in {}^{\mathbb{R}}\underset{\bullet}{\triangle}\mathbb{R} \text{ polynom } \bar{\deg} \rceil = 2n + 1 \text{ odd} \quad \underset{\text{NST}}{\Longrightarrow} \bigwedge_{o}^{\mathbb{R}} {}^{o}\rceil = 0$$

$$\ulcorner x \urcorner >> 0 \Longrightarrow {}^{x}\rceil = \sum_{n \leqslant N} x^{n} \, {}^{\sharp}_{n}\rceil = x^{N} \underbrace{1 + \sum_{n < N} \frac{{}^{\sharp}_{n}\rceil}{x^{N-n}}}_{>0}$$

$$\Longrightarrow \begin{cases} {}^{x}\rceil > 0 & x >> 0 \\ {}^{x}\rceil < 0 & x << 0 \end{cases} \Longrightarrow \begin{cases} \bigvee_{a} {}^{a}\rceil < 0 \\ \bigvee_{b} 0 < {}^{b}\rceil \end{cases} \Longrightarrow \bigvee_{a < c < b} {}^{c}\rceil = 0$$