$\mathbb{L}$ Boolat

$$2^{\triangledown}_{\mathbb{L}} = \frac{2 \xleftarrow[\text{hom}]{\Bbbk} \mathbb{L}}{\Bbbk\underbrace{\mathbb{Y}\wedge\mathbb{H}} = \underbrace{\Bbbk\mathbb{Y}}\underbrace{\Bbbk\mathbb{H}}:\quad \Bbbk\bar{\mathbb{Y}} = 1-\Bbbk\mathbb{Y}}$$

$$\Bbbk\underbrace{\mathbb{Y}\vee\mathbb{H}} = \Bbbk\overline{\bar{\mathbb{Y}}\wedge\bar{\mathbb{H}}} = 1-\Bbbk\underbrace{\bar{\mathbb{Y}}\wedge\bar{\mathbb{H}}} = 1-\underbrace{\Bbbk\bar{\mathbb{Y}}}\underbrace{\Bbbk\bar{\mathbb{H}}} = 1-\underbrace{1-\Bbbk\mathbb{Y}}\underbrace{1-\Bbbk\mathbb{H}} = \Bbbk\mathbb{Y} \underset{\max}{\curlyvee} \Bbbk\mathbb{H}$$

$$2^{\triangledown}_{\mathbb{L}} \in \overset{0}{\underset{0}{\triangle}} \text{ tot unzush}$$

$$\mathbb{L} \underset{\text{ideal}}{\sqsubset} \mathbb{L}$$

$$\max \blacktriangledown \subset \mathbb{J} \underset{\text{ideal}}{\sqsubset} \mathbb{L} \Rightarrow \mathbb{J} = \mathbb{L}$$

$$2^{\triangledown}_{\mathbb{L}} \ni \Bbbk \Rightarrow \ker\Bbbk \overset{\max}{\underset{\text{ideal}}{\sqsubset}} \mathbb{L}$$

$$\ker\Bbbk \underset{\text{ideal}}{\sqsubset} \mathbb{L}$$

$$\Bbbk e = 1 \neq 0 \Rightarrow e \notin \ker\Bbbk$$

$$\ker\Bbbk \subset \mathbb{J} \underset{\text{ideal}}{\sqsubset} \mathbb{L} \Rightarrow \bigvee_{\mathbb{H}}^{\mathbb{J}\llcorner\ker\Bbbk} \Rightarrow \Bbbk\mathbb{H} \neq 0 \Rightarrow \Bbbk\mathbb{H} = 1 = \Bbbk e \Rightarrow \mathbb{H} \underset{\ker\Bbbk}{\sim} e \Rightarrow \mathbb{H}\wedge\bar{e} \in \ker\Bbbk \ni e \wedge \bar{\mathbb{H}}$$

$$\Rightarrow \mathbb{H}\wedge\bar{e} \in \mathbb{J} \ni e\wedge\bar{\mathbb{H}} \Rightarrow e \underset{\mathbb{J}}{\sim} \overset{\in\mathbb{J}}{\mathbb{H}} \underset{\mathbb{J}}{\sim} o \underset{\text{trans}}{\Rightarrow} e \underset{\mathbb{J}}{\sim} o \Rightarrow e \in \mathbb{J} \Rightarrow \mathbb{J} = \mathbb{L} \Rightarrow \ker\Bbbk \max$$

$$\max I \underset{\text{ideal}}{\sqsubset} J \Rightarrow \bigwedge_{x}^{J} \vee \begin{cases} x \in I \\ \bar{x} \in I \end{cases}$$

$$x \not\ni I \text{ If } x = e \Rightarrow \bar{x} = o \in I$$

$$\text{If } x \neq e \Rightarrow I \subset \langle I \cup x \rangle = \frac{y \in J}{\bigvee_{x_1 \cdots x_n}^{I \cup x} y \leqslant x_1 \vee \cdots \vee x_n} \underset{\text{ideal}}{\sqsubset} J \underset{\max}{\Rightarrow} \langle I \cup x \rangle = J$$

$$\Rightarrow e \in \langle I \cup x \rangle \Rightarrow \bigvee_{x_1 \cdots x_n}^{I \cup x} e = x_1 \vee \cdots \vee x_n$$

$$\lightning\ x_1 \cdots x_n \in I \Rightarrow e = x_1 \vee \cdots \vee x_n \in I \Rightarrow I = J\ \lightning$$

$$\lightning\ x_1 = \cdots = x_n = x \Rightarrow x = x_1 \vee \cdots \vee x_n \in I\ \lightning$$

$$\underset{\text{OE}}{\Rightarrow} \begin{cases} 1 \leqslant m & x_1 \cdots x_m \in I \\ m < n & x_{m+1} = \cdots = x_n = x \end{cases} \Rightarrow e = \underbrace{x_1 \vee \cdots \vee x_m}_{\in I} \vee x$$

$$\Rightarrow \bar{x} = e \wedge \bar{x} = \overbrace{\underbrace{x_1 \vee \cdots \vee x_m} \vee x} \wedge \bar{x} \underset{\text{distr}}{=} \overbrace{\underbrace{x_1 \vee \cdots \vee x_m} \wedge \bar{x}} \vee \underbrace{x \wedge \bar{x}}_{= o} = \underbrace{x_1 \vee \cdots \vee x_m} \wedge \bar{x} \leqslant x_1 \vee \cdots \vee x_m \in I$$

$$\underset{\text{ideal}}{\Rightarrow} \bar{x} \in I$$

$$\bigwedge_{x}^{J} \vee \begin{cases} x \in I \\ \bar{x} \in I \end{cases} \Rightarrow \bigwedge_{x:y}^{J} x \wedge y \in I \Rightarrow \vee \begin{cases} x \in I \\ y \in I \end{cases}$$

$$x \notin I \not\ni y \Rightarrow \bar{x} \in I \ni \bar{y} \Rightarrow \overline{x \wedge y} = \bar{x} \vee \bar{y} \in I \underset{e \notin I}{\Rightarrow} x \wedge y \notin I$$

$$\bigwedge_{a:\,b}^{L} a \wedge b \in I \Rightarrow \vee \begin{cases} a \in I \\ b \in I \end{cases} \Rightarrow \bigvee_{\chi}^{2 \triangleleft L} \ker \chi = I$$

$$2 \xleftarrow{\chi} L$$

$$\chi a = \begin{cases} 0 & a \in I \\ 1 & a \notin I \end{cases}$$

$$\chi \underbrace{a \wedge b} = \underbrace{\chi a}\underbrace{\chi b}$$

$$\text{If } \chi \underbrace{a \wedge b} = 0 \Rightarrow a \wedge b \in I \Rightarrow \vee \begin{cases} a \in I & \Rightarrow \chi a = 0 \\ b \in I & \Rightarrow \chi b = 0 \end{cases} \Rightarrow \underbrace{\chi a}\underbrace{\chi b} = 0$$

$$\text{If } \chi \underbrace{a \wedge b} = 1 \Rightarrow a \wedge b \notin I$$

$$a \geqslant a \wedge b \leqslant b \underset{\text{ideal}}{\Rightarrow} a \notin I \not\ni b \Rightarrow \chi a = 1 = \chi b \Rightarrow \underbrace{\chi a}\underbrace{\chi b} = 1$$

$$\chi \bar{a} = 1 - \chi a$$

$$\text{If } \chi a = 0 \Rightarrow a \in I \underset{e \notin I}{\Rightarrow} \bar{a} \notin I \Rightarrow \chi \bar{a} = 0 = 1 - \chi a$$

$$\text{If } \chi a = 1 \Rightarrow a \notin I$$

$$a \wedge \bar{a} = o \in I \underset{\text{Vor}}{\Rightarrow} \bar{a} \in I \Rightarrow \chi \bar{a} = 0 = 1 - \chi a$$

$$\Rightarrow 2 \xleftarrow[\text{hom}]{\chi} L$$

$$\ker \chi = I$$

$$e \notin \mathfrak{a} \underset{\text{ideal}}{\sqsubset} \triangledown 2 \ni \mathbb{L} \text{ BooLat } \Rightarrow \bigvee_{\max} \mathfrak{a} \sqsubset \mathfrak{m} \underset{\text{ideal}}{\overset{\max}{\sqsubset}} \mathbb{L}$$

$$\mathfrak{a} \in \mathcal{J} = \frac{\mathfrak{b} \underset{\text{ideal}}{\sqsubset} \mathbb{L}}{\mathfrak{a} \sqsubset \mathfrak{b}} \neq \varnothing$$

$$\text{order}: \quad \mathfrak{b} \prec \acute{\mathfrak{b}} \Leftrightarrow \mathfrak{b} \subset \acute{\mathfrak{b}}$$

$$\text{Kette=tot ord nonvoid } \mathcal{C} \subset \mathcal{J} \Rightarrow \bigwedge_{\mathfrak{b}:\acute{\mathfrak{b}}}^{\mathcal{C}} \vee \begin{cases} \mathfrak{b} \subset \acute{\mathfrak{b}} \\ \mathfrak{b} \supset \acute{\mathfrak{b}} \end{cases}$$

$$e \notin \bigcup \mathcal{C} = \frac{\mathfrak{x} \in \mathbb{L}}{\bigvee_{\mathfrak{b}}^{\mathcal{C}} \mathfrak{x} \in \mathfrak{b}} \underset{\text{ideal}}{\sqsubset} \mathbb{L}$$

$$\mathcal{C} \geqslant \bigcup \mathcal{C} \in \mathcal{J} \text{ ob Schr}$$

$$\mathfrak{x} \in \mathfrak{b} \ni \mathfrak{y} \Rightarrow \bigvee_{\mathfrak{b}:\mathfrak{b}}^{\mathcal{C}} \begin{cases} \mathfrak{x} \in \mathfrak{b} \\ \mathfrak{y} \in \mathfrak{b} \end{cases} \underset{\text{OE}}{\Rightarrow} \mathfrak{b} \subset \mathfrak{b} \Rightarrow \mathfrak{x} \vee \mathfrak{y} \in \mathfrak{b} \subset \bigcup \mathcal{C}$$

$$\bigcup \mathcal{C} \ni \mathfrak{x} \geqslant \mathfrak{y} \Rightarrow \bigvee_{\mathfrak{b}}^{\mathcal{C}} \mathfrak{x} \in \mathfrak{b} \Rightarrow \mathfrak{y} \in \mathfrak{b} \subset \bigcup \mathcal{C}$$

$$\mathcal{C} \neq \varnothing \Rightarrow \bigvee_{\mathfrak{b}}^{\mathcal{C}} \Rightarrow o \in \mathfrak{b} \subset \bigcup \mathcal{C}$$

$$\bigwedge_{\mathfrak{b}}^{\mathcal{C}} e \notin \mathfrak{b} \Rightarrow e \notin \bigcup \mathcal{C}$$

$$\underset{\text{Zorn}}{\Rightarrow} \quad \max \bigvee_{\mathfrak{m}}^{\mathcal{J}} \Rightarrow \mathfrak{a} \sqsubset \mathfrak{m} \underset{\text{ideal}}{\overset{\max}{\sqsubset}} \mathbb{L} \Rightarrow \begin{cases} \bigvee \mathfrak{h} \in 2^{\triangledown}_{\mathbb{L}} \\ \ker \mathfrak{h} = \mathfrak{m} \end{cases}$$

$$\triangledown 2 \ni \mathbb{L}\ \mathrm{BooLat} \implies 2^{\triangledown}{}_{\mathbb{L}} \neq \varnothing$$

$$\mathrm{BooLat}\ \triangledown 2 \ni \mathbb{L} \ni \mathbb{Y} \neq e \implies \begin{cases} \bigvee \mathbb{k} \in 2^{\triangledown}{}_{\mathbb{L}} \\ \mathbb{k}\,\mathbb{Y} = 0 \end{cases}$$

$$e \notin <\mathbb{Y}> = \frac{\mathbb{x} \in \mathbb{L}}{\mathbb{Y} \geqslant \mathbb{x}} \underset{\text{ideal}}{\sqsubset} \mathbb{L} \implies \bigvee <\mathbb{Y}> \sqsubset \mathfrak{m} \underset{\text{ideal}}{\overset{\max}{\sqsubset}} \mathbb{L} \implies \begin{cases} \bigvee \mathbb{k} \in 2^{\triangledown}{}_{\mathbb{L}} \\ \ker \mathbb{k} = \mathfrak{m} \end{cases} \implies \mathbb{k}\,\mathbb{Y} = 0$$