

-- xv\_a\_ghost . txt

formula\_list(usable)

$[\forall y, \forall z, \forall v \mid (y \cap z) \circ v \subseteq y \circ v]$

$[\forall x, \forall y, \forall z, \forall v \mid (y \cap z) \circ (v \cap x) \cup (y \cap z) \circ (v \cap \bar{x}) \subseteq (y \cap z) \circ (v \cap x) \cup y \circ (v \cap \bar{x})]$

end\_of\_list

-- xv\_a . txt

formula\_list(usable) -- Dedekind's law :

$[\forall x, \forall y, \forall z, \forall v, \forall w \mid w \cap (y \cap z) \circ v \subseteq w \cap ((y \cap z) \circ (v \cap x) \cup y \circ (v \cap \bar{x}))]$

$[\forall y, \forall v, \forall w \mid y \circ v \cap w \subseteq (y \cap w \circ v) \circ (v \cap y \circ w)]$  -- !!

$[\forall y, \forall v, \forall w \mid y \circ v \cap w \subseteq y \circ (v \cap y \circ w)]$  -- ( xv )<sub>1</sub>

end\_of\_list

-- xv\_b . txt

formula\_list(usable)

$[\forall x, \forall y, \forall z \mid x \circ y \cap z \subseteq (z \circ y \circ x) \circ y]$  -- ( xv )<sub>2</sub>

end\_of\_list

-- xvii\_a . txt

formula\_list(usable)

$[\forall x \mid x \subseteq x \circ x \circ x]$  -- ( xvii )<sub>1</sub>

end\_of\_list

-- xviii\_ghost . txt

formula\_list(usable)

$$[\forall x, \forall y, \forall z \mid x \smile oy \subseteq z \rightarrow xoz \subseteq \bar{y}]$$

$$[\forall x, \forall y, \forall z \mid xoy\bar{oz} \subseteq \overline{xoyoz}]$$

end\_of\_list

-- xviii . txt

formula\_list(usable)

$$[\forall x, \forall y, \forall z \mid xo(y\uparrow z) \subseteq xoy\uparrow z] \quad \text{-- ( xviii )}$$

end\_of\_list

-- xix\_a\_ghost . txt

formula\_list(usable)

$$[\forall x, \forall y \mid \overline{xoy} = \emptyset \leftrightarrow \mathbb{1}ox \subseteq y]$$

$$[\forall x, \forall y \mid \overline{xoy} = \mathbb{1} \leftrightarrow \mathbb{1}ox \subseteq y]$$

$$[\forall x, \forall y \mid x \subseteq y \leftrightarrow \bar{x} \cup y = \mathbb{1}]$$

$$[\forall x, \forall y \mid \overline{xoy} = \mathbb{1} \leftrightarrow \overline{\mathbb{1}ox \cup y} = \mathbb{1}]$$

end\_of\_list

-- xix\_b\_ghost . txt

formula\_list(usable)

$$[\forall x, \forall y \mid xoy = \emptyset \rightarrow \mathbb{1}ox \cap \mathbb{1}oy = \emptyset]$$

```

[ $\forall x, \forall y \mid \mathbb{1} \circ x \cap \mathbb{1} \circ y = \emptyset \rightarrow x \circ y \smile = \emptyset$ ]
[ $\forall x, \forall y \mid \emptyset \dagger x \cup \emptyset \dagger y = \mathbb{1} \rightarrow x \dagger y \smile = \mathbb{1}$ ]
[ $\forall x, \forall y \mid x \dagger y \smile = \mathbb{1} \rightarrow \emptyset \dagger x \cup \emptyset \dagger y = \mathbb{1}$ ]

```

end\_of\_list

-- xix . txt

formula\_list(usable)

```

[ $\forall x, \forall y \mid x \dagger y \smile = \mathbb{1} \leftrightarrow \emptyset \dagger x \cup y = \mathbb{1}$ ] -- ( xix )1
[ $\forall x, \forall y \mid x \dagger y \smile = \mathbb{1} \leftrightarrow \emptyset \dagger x \cup \emptyset \dagger y = \mathbb{1}$ ] -- ( xix )2

```

end\_of\_list

-- xxi\_a\_ghost . txt

formula\_list(usable)

```

[ $\forall x \mid x \cap \iota = x \smile \cap \iota$ ]
[ $\forall x, \forall y \mid x \circ (x \smile \cap y) \cap \iota = x \circ y \cap \iota$ ]
[ $\forall x, \forall y \mid (x \cap y \smile) \circ (x \smile \cap y) \cap \iota = x \circ y \cap \iota$ ]

```

end\_of\_list

-- xxiv\_a . txt

formula\_list(usable)

```

[ $\forall x \mid (\iota \cap x) \circ \mathbb{1} \cap (\iota \cap \bar{x}) \circ \mathbb{1} = \emptyset$ ] -- ( xxiva )
[ $\forall x \mid (\iota \cap x) \circ \mathbb{1} \cup (\iota \cap \bar{x}) \circ \mathbb{1} = \mathbb{1}$ ] -- ( xxivb )

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end\_of\_list

-- xxiv . txt

formula\_list(usable)

$[\forall x \mid \overline{(\iota \cap x) \circ \mathbb{1}} = (\iota \cap \bar{x}) \circ \mathbb{1}] \quad \text{-- ( xxiv )}$

end\_of\_list

-- xxvii\_a\_ghost . txt

formula\_list(usable) -- echo of lemmas proved earlier

$[\forall x, \forall z \mid x \cup \iota = \iota \rightarrow x \circ z \cup z = z]$

$[\forall x, \forall y, \forall z \mid x \subseteq y \rightarrow z \circ x \subseteq z \circ y]$

$[\forall x, \forall y \mid x \cap y = y \cap x]$

$[\forall x, \forall y, \forall i \mid x \cap y, y]$

$[\forall x, \forall y, \forall z \mid x \subseteq y \rightarrow z \cap x \subseteq z \cap y]$

$[\forall x \mid \iota \circ x = x]$

$[\forall x, \forall y, \forall z \mid x \subseteq y \rightarrow x \circ z \subseteq y \circ z] \quad \text{-- ( vii )}_1$

end\_of\_list

-- xxvii\_a . txt

formula\_list(usable)

$[\forall x, \forall y, \forall z \mid x \smile \circ x \subseteq \iota \rightarrow x \circ y \cap x \circ z \subseteq x \circ (y \cap z)]$

$[\forall x, \forall y, \forall z \mid x \smile \circ x \subseteq \iota \rightarrow x \circ (y \cap z) = x \circ y \cap x \circ z] \quad \text{-- ( xxvii )}_1$

end\_of\_list

-- xxvii\_b\_ghost . txt

formula\_list(usable)

$$[\forall x, \forall y, \forall z \mid x \smile \circ x \subseteq \iota \rightarrow x \circ (y \cap z) \smile = x \circ y \smile \cap x \circ z \smile]$$

$$[\forall x, \forall y, \forall z \mid (x \circ (y \cap z) \smile) \smile = (y \cap z) \circ x \smile]$$

$$[\forall x, \forall y, \forall z \mid (x \circ y \smile \cap x \circ z \smile) \smile = y \circ x \smile \cap z \circ x \smile]$$

end\_of\_list

-- xxvii . txt

formula\_list(usable)

$$[\forall x, \forall y, \forall z \mid x \smile \circ x \subseteq \iota \rightarrow (y \cap z) \circ x \smile = y \circ x \smile \cap z \circ x \smile] \quad \text{-- ( xxvii )}_2$$

$$[\forall x, \forall y, \forall z \mid x \smile \circ x \subseteq \iota \rightarrow x \circ (y \cap z) = x \circ y \cap x \circ z] \quad \text{-- ( xxvii )}_1$$

end\_of\_list

-- xxix\_ghost . txt

formula\_list(usable)

$$[\forall x \mid x \circ \bar{\iota} \subseteq \overline{x \cap x \circ \bar{\iota}}]$$

$$[\forall x \mid x \smile \circ (x \cap (\bar{x} \dagger \iota)) \subseteq \iota]$$

end\_of\_list

-- xxix\_b\_ghost . txt

formula\_list(usable)

$[\forall x, \forall y \mid (x \cap (\bar{x} \uparrow \iota)) \smile_{oy} \subseteq x \smile_{oy}]$

end\_of\_list

-- xxix . txt

formula\_list(usable)

$[\forall x \mid (x \cap (\bar{x} \uparrow \iota)) \smile_{o(x \cap (\bar{x} \uparrow \iota))} \subseteq \iota]$  -- ( xxix )

end\_of\_list

-- xxxi\_ghost . txt

formula\_list(usable)

$[\forall x, \forall y \mid x \circ \mathbb{1} \cap y \circ \mathbb{1} = \emptyset \rightarrow x \smile_{oy} = \emptyset]$

end\_of\_list

-- xxxi . txt

formula\_list(usable)

$[\forall x, \forall y \mid x \smile_{ox} \subseteq \iota \ \& \ y \smile_{oy} \subseteq \iota \ \& \ x \circ \mathbb{1} \cap y \circ \mathbb{1} = \emptyset \rightarrow (x \cup y) \smile_{o(x \cup y)} \subseteq \iota]$  --(xxxix)

end\_of\_list