

$\mathbb{1}$  abel

$$1 \in \mathbb{1} \text{ mod } \mathbb{1}$$

$$\tau \in \mathbb{1} = \text{Hom}(\mathbb{1}; \mathbb{1})$$

$$\mathbb{1} \triangleleft \mathbb{1} \xleftarrow{\tau} \mathbb{1} \triangleleft \mathbb{1}$$

$$\tau(\mathbb{1} \times \mathbb{1}) = \tau(\mathbb{1}) \times \mathbb{1} + \mathbb{1} \times \tau(\mathbb{1})$$

$$\mathbb{1} \triangleleft \mathbb{1} \xleftarrow{\tau} \mathbb{1} \triangleleft \mathbb{1}$$

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$\sqcup$

$\sqcup$

$$\mathcal{I}_O \xleftarrow{\tau} \mathcal{I}_O$$

$$\tau \mathcal{I}_O \subset \mathcal{I}_O$$

$$\tau(\mathbb{1} \times \mathbb{1} \times \mathbb{1}) = \tau(\mathbb{1}) \times \underbrace{\mathbb{1} \times \mathbb{1}}_{\in \mathcal{I}_O} + \mathbb{1} \times \underbrace{\tau(\mathbb{1}) \times \mathbb{1} + \mathbb{1} \times \tau(\mathbb{1})}_{\in \mathcal{I}_O} + \mathbb{1} \times \underbrace{\mathbb{1} \times \mathbb{1}}_{\in \mathcal{I}_O} \times \tau(\mathbb{1}) \in \mathcal{I}_O$$

$$\tau(\mathbb{1} \times \mathbb{1}) = \tau(\mathbb{1}) \times \mathbb{1} + \mathbb{1} \times \tau(\mathbb{1})$$



$$\vdash \times \overline{1 \times 1} = \underbrace{\overset{0}{1} 1 \times 1}_{\vdash} + 1 \times \underbrace{\overset{0}{1} 1}_{\vdash}$$

$$\begin{aligned} \vdash \times \overline{1 \times 1 \times 1} &= \vdash \times \overline{1 \times \overline{1 \times 1}} \stackrel{\text{ind}}{=} \overbrace{\overset{0}{1} \overline{1 \times \overline{1 \times 1}}}_{\vdash} + \overbrace{\overline{1 \times \overline{1 \times \overset{0}{1} 1}}}_{\vdash} \stackrel{0}{=} \overbrace{\overset{0}{1} 1 \times \overline{1 + 1 \times \overline{\overset{0}{1} 1 \times 1}}}_{\vdash} + 1 \times \overbrace{1 \times \overline{\overset{0}{1} 1}}_{\vdash} \\ &= \underbrace{\overset{0}{1} 1 \times \overline{1 \times 1}}_{\vdash} + 1 \times \underbrace{\overline{\overset{0}{1} 1 \times 1 + 1 \times \overline{\overset{0}{1} 1}}}_{\vdash} \\ &= \underbrace{\overset{0}{1} 1 \times \overline{1 \times 1}}_{\vdash} + 1 \times \underbrace{\overline{\overset{0}{1} 1 \times 1}}_{\vdash} \end{aligned}$$