

VIR

↓ *structural representation*

Level 0

$\text{itree } \text{VellvmE } \mathcal{V}_u$

↓ *intrinsic*

Level 1

$\text{itree } E_0 \mathcal{V}_u$

↓ *global environment*

Level 2

$\text{stateT}_{Env_G} (\text{itree } E_1) \mathcal{V}_u$

↓ *local environment*

Level 3

$\text{stateT}_{Env_L * Env_G} (\text{itree } E_2) \mathcal{V}_u$

↓ *memory model*

Level 4

$\text{stateT}_{Mem * Env_L * Env_G} (\text{itree } E_3) \mathcal{V}_u$

*propositional model*

$\text{stateT}_{Mem * Env_L * Env_G} (\text{itree } E_4) \mathcal{V}_u \rightarrow \mathbb{P}$

model undef<sub>τ</sub> ↓

$\text{stateT}_{Mem * Env_L * Env_G} (\text{itree } E_5) \mathcal{V}_u \rightarrow \mathbb{P}$

⊃

*executable interpreter*

$\text{stateT}_{Mem * Env_L * Env_G} (\text{itree } E_4) \mathcal{V}_u$

↓ interpret undef<sub>τ</sub> = 0<sub>τ</sub>

$\text{stateT}_{Mem * Env_L * Env_G} (\text{itree } E_5) \mathcal{V}_u$