

Supplement S-AI

γ -Knob and Lesion Architecture

1. γ -Knob Specification

1.1 Semantics

- $\gamma = 1.0$: Full integration
- $\gamma = 0.0$: No integration
- Intermediate: Graded integration

1.2 Grid

$$G_0 = \{1.00, 0.75, 0.50, 0.25, 0.00\}$$

2. Lesion Architecture

- L1**: Integration lesion (disable cross-module communication)
L2: Rollout lesion (disable predictive simulation)
L3: Meta-signaling lesion (disable confidence signals)

3. Selective Collapse

Expected pattern under proper CM:

Metric	L1	L2	L3
F1_IG	Strong	Moderate	Weak
F4_meta_lead	Moderate	Weak	Strong
F4_recovery	Weak	Strong	Moderate

4. Evaluation

- CLAIM_A = crossing \wedge max_onset \geq P_PASS
- CLAIM_B = CLAIM_A \wedge $\exists \gamma$: robust(OR)
- CLAIM_C = CLAIM_B \wedge $\exists \gamma$: selective_all