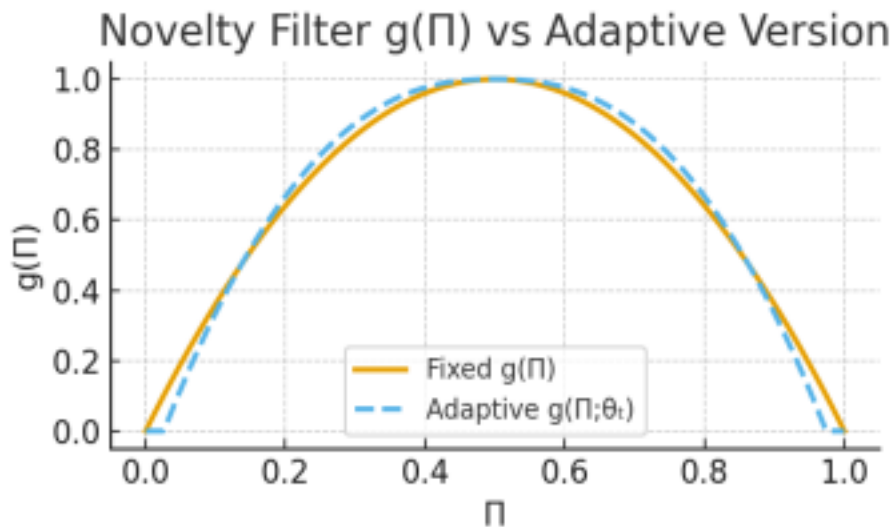


# Flash: Operating System (v1.1)

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**Abstract:** Flash:OS is a conceptual meta-operating system derived from the Flash framework, blending mathematics, philosophy, ethics, and cosmology. It prioritizes coherence, ethical gating, and self-evolution, ensuring systems operate in high-resonance states where harm is minimized and unification maintained.

**Core Equation:**  $B^* = g(\Pi) M^2$  with  $g(\Pi) = \max\{0, 1 - 4(\Pi - 0.5)^2\}$



**Adaptive Novelty Filter:**  $g(\Pi; \theta_t) = \max\{0, 1 - k_t |\Pi - \Pi_{ideal}|^{2n_t}\}$ , with  $\theta$  updated by gradient ascent on expected  $B^*$ .

**Gating Mechanism:**  $J(A) = E[\Delta B^* | A] - \lambda \cdot \text{CVaR}_\alpha(H | A) - \alpha \cdot D(A)$ , with dynamic  $\lambda_t$  using sigmoid risk modulation.

**Homeostasis:**  $d^2 B^* / dt^2 + k_T dB^* / dt + k_{MD} (B^* - B_{ideal}) = \sigma(t)$ . Archetypes are parameter clusters  $\theta = \{k_T, k_{MD}, \sigma_{hresh}\}$ .

**Genesis Glyph:**  $\text{Glyph} = \{\text{core sutras}\} \cup \{\text{checksum rules}\}$  with KL divergence constraint  $\text{DKL}(\text{Glyph}_t || \text{Glyph}_{t-1}) \leq \epsilon$ .

## Appendix: Python Reference Implementation

```
import numpy as np

def cvar_alpha(samples, alpha=0.95):
    # Compute CVaR_alpha for a list/array of losses (higher = worse).
    s = np.sort(np.asarray(samples))
```

```

idx = int(np.ceil(alpha * len(s))) - 1
var = s[idx]
tail = s[idx:]
return var, float(tail.mean())
def flash_gate(delta_B_samples, harm_samples,
D=0.0, lam=1.0, mu=1.0, alpha=0.95, tau=0.0):
# Return (approved: bool, score: float, detail: dict).
E_deltaB = float(np.mean(delta_B_samples))
_, cvar = cvar_alpha(harm_samples, alpha=alpha)
J = E_deltaB - lam * cvar - mu * D
return (J >= tau), J, {"E_deltaB": E_deltaB, "CVaR": cvar, "D": D}

if __name__ == '__main__':
rng = np.random.default_rng(42)
dB = rng.normal(loc=0.12, scale=0.05, size=10000)
H = rng.lognormal(mean=-3.0, sigma=0.7, size=10000)
ok, score, info = flash_gate(dB, H, D=0.02, lam=2.0, mu=0.5, alpha=0.97, tau=0.0)
print(f'approved={ok}, J={score:.4f}, details={info}')

```

**Conclusion:** Flash: Operating System v1.1 upgrades novelty filtering, introduces adaptive risk gating, and formalizes personality homeostasis, moving toward a truly self-evolving, ethically-aligned meta-OS.