$\mathcal{P}(\mathbb{x},\mathbb{w})$

PIP$(\mathbb{x},\mathbb{w})$

α_1

$\mathbb{x},\alpha_1,\tau_1$

f

ρ_1

α_2

$\mathbb{x},(\alpha_1,\alpha_2),(\tau_1,\tau_2)$

f

ρ_2

α_3

$\mathbb{x},(\alpha_1,\alpha_2,\alpha_3),(\tau_1,\tau_2,\tau_3)$

f

ρ_3

$\vdots$

α_k

$\mathbb{x},(\alpha_1,\ldots,\alpha_k),(\tau_1,\ldots,\tau_k)$

f

ρ_k

$\pi := ((\alpha_1,\ldots,\alpha_k),(\tau_1,\ldots,\tau_k))$

π

$\mathcal{V}(\mathbb{x},\pi)$

- parse π as $((\alpha_1,\ldots,\alpha_k),(\tau_1,\ldots,\tau_k))$
- derive IP randomness

$\mathbb{x},\alpha_1,\tau_1$ → f → ρ_1

$\mathbb{x},(\alpha_1,\alpha_2),(\tau_1,\tau_2)$ → f → ρ_2

$\mathbb{x},(\alpha_1,\alpha_2,\alpha_3),(\tau_1,\tau_2,\tau_3)$ → f → ρ_3

$\vdots$ $\quad\quad$ $\vdots$

$\mathbb{x},(\alpha_1,\ldots,\alpha_k),(\tau_1,\ldots,\tau_k)$ → f → ρ_k

- check IP decision

VIP$(\mathbb{x},(\alpha_1,\ldots,\alpha_k),(\rho_1,\ldots,\rho_k))$