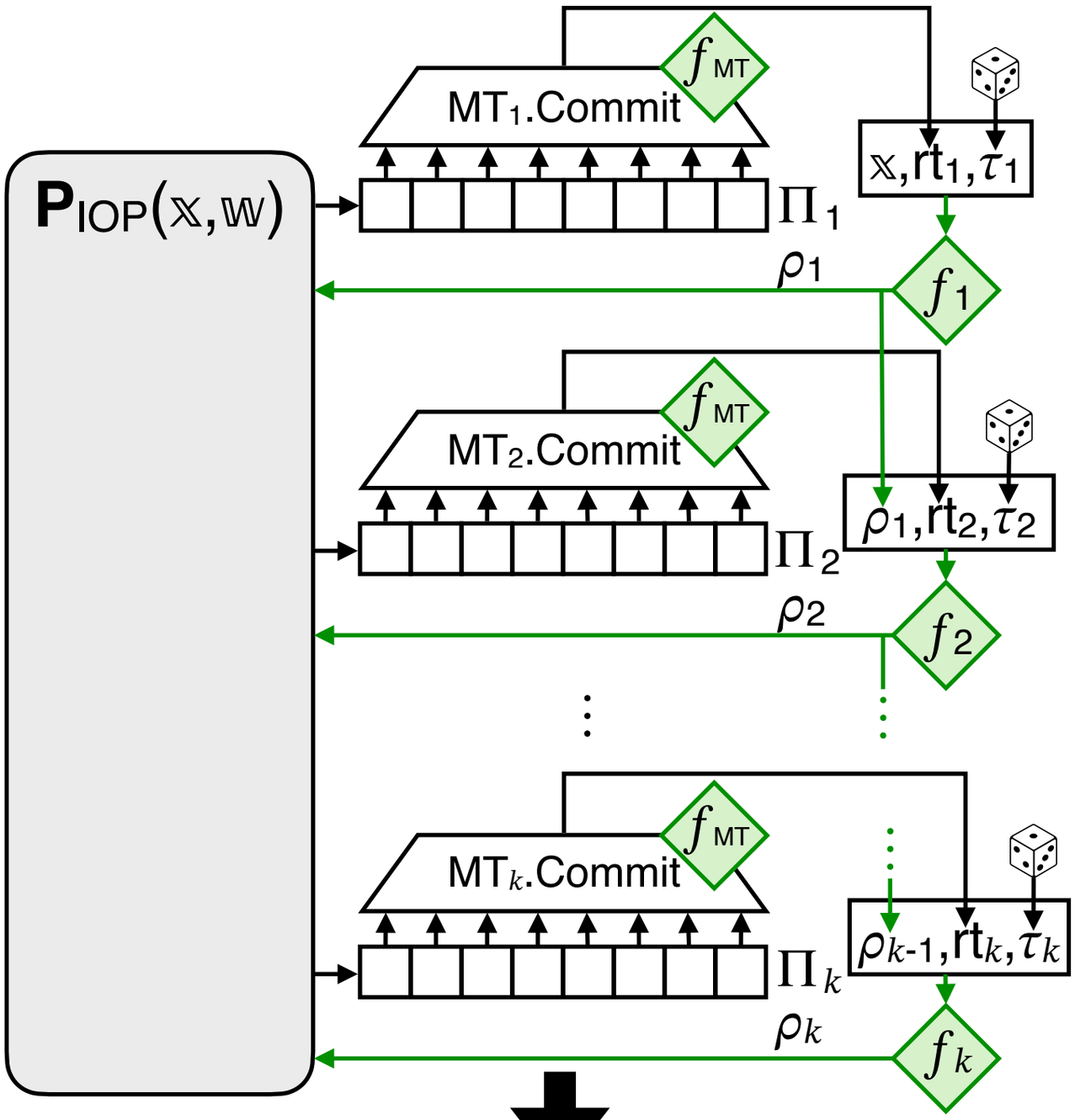
$\mathcal{P}(\mathbb{x},\mathbb{w})$



IOP verifier queries: $(Q_1,\ldots,Q_k)$

IOP oracle answers: $(\boldsymbol{a}_1,\ldots,\boldsymbol{a}_k)$

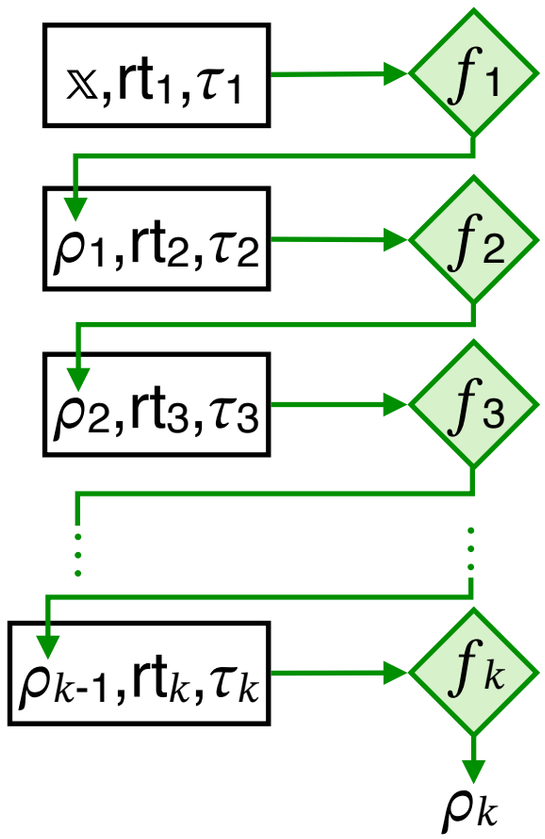
MT proofs: $(\mathsf{pf}_1,\ldots,\mathsf{pf}_k)$

$\pi := ((\mathsf{rt}_i,Q_i,\boldsymbol{a}_i,\mathsf{pf}_i,\tau_i))_{i\in[k]}$

π

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

- parse π as $((\mathsf{rt}_i,Q_i,\boldsymbol{a}_i,\mathsf{pf}_i,\tau_i))_{i\in[k]}$
- derive IOP randomness



- check MT proofs

$\wedge_{i\in[k]}\ \mathsf{MT}_i.\mathsf{Check}^{f_{\mathsf{MT}}}(\mathsf{rt}_i,Q_i,\boldsymbol{a}_i,\mathsf{pf}_i)$

- check IOP decision

$\mathbf{V}_{\mathsf{IOP}}^{[Q_i,\boldsymbol{a}_i]_{i\in[k]}}(\mathbb{x},(\rho_1,\ldots,\rho_k))$