- Execute program $\mathcal{P}$.
- While executing $\mathcal{P}$ if a `sample`, `observe`, or `predict` is reached do:
  - `sample`: $\mathcal{P}$ passes us a continuation `k` and an object (f, θ) consisting of a distribution f with parameter θ. We sample a value $x \sim f(\cdot|\theta)$, store sample tuple $(x$,`k`,f,$\theta)$, then call `(k x)`.
  - `observe`: $\mathcal{P}$ passes us a continuation `k`, an object (g, ϕ) consisting of a distribution g with parameter ϕ, and a observed value y. We store observe tuple (y,`k`,g,ϕ), and call `(k)`.
  - `predict`: $\mathcal{P}$ passes us a continuation `k`, a label ℓ, and a value z. We store predict tuple (ℓ, z) and call `(k)`.
- When $\mathcal{P}$ terminates "output" all stored predict tuples (ℓ, z).