Π_{fruit}: FruitChain **protocol**

Initialize: $chain := genesis$, $F = \emptyset$

Upon receiving a valid *fruit*,

- let $F := F \cup \{fruit\}$

Upon receiving a valid $chain'$, if $|chain'| > |chain|$:

- let $chain := chain'$

Every time step, upon receiving input m from the environment:

- let F' be all fruits $f \in F$ that are recent w.r.t. $chain$;
- let h' be the reference of $chain[pos]$ where $pos = max(1, |chain| - \kappa)$;
- let h_{-1} be the reference of $chain[-1]$;
- Pick random $\eta \in \{0,1\}^\kappa$ and let $h := \mathsf{H}(h_{-1}; h'; \eta; \mathsf{d}(F'); \mathsf{m})$
- If $[h]_{-\kappa:} < D_{p_f}$ (i.e., we "mined a fuit")
  - let $fruit := (h_{-1}; h'; \eta; \mathsf{d}(F'); \mathsf{m}, h)$, $F := F \cup \{fruit\}$, and broadcast *fruit*
- If $[h]_{:\kappa} < D_p$ (i.e., we "mined a block")
  - let $chain := chain||((h_{-1}; h'; \eta, \mathsf{d}(F'); \mathsf{m}, h), F)$, and broadcast *chain*