A LIST OF NOTATION

$:=$	defined to be equal
$\mathbb{N}$	the natural numbers, starting with 0
$\mathbb{Q}$	the rational numbers
$\mathbb{R}$	the real numbers
t	(current) time step, $t \in \mathbb{N}$
k, n, i	time steps, natural numbers
p	a rational number
$\mathcal{X}^*$	the set of all finite strings over the alphabet $\mathcal{X}$
$\mathcal{X}^\infty$	the set of all infinite strings over the alphabet $\mathcal{X}$
$\mathcal{X}^\sharp$	the set of all finite and infinite strings over the alphabet $\mathcal{X}$
O	a reflective oracle
$\tilde{O}$	a partial oracle
q	a query to a reflective oracle
$\mathcal{T}$	the set of all probabilistic Turing machines that can query an oracle
T, T'	probabilistic Turing machines that can query an oracle, $T, T' \in \mathcal{T}$
$K(x)$	the Kolmogorov complexity of a string x
λ_T	the semimeasure corresponding to the probabilistic Turing machine T
λ_T^O	the semimeasure corresponding to the probabilistic Turing machine T with reflective oracle O
$\overline{\lambda}_T^O$	the completion of λ_T^O into a measure using the reflective oracle O
$\mathcal{A}$	the finite set of possible actions
$\mathcal{O}$	the finite set of possible observations
$\mathcal{E}$	the finite set of possible percepts, $\mathcal{E} \subset \mathcal{O} \times \mathbb{R}$
α, β	two different actions, $\alpha, \beta \in \mathcal{A}$
a_t	the action in time step t
o_t	the observation in time step t
r_t	the reward in time step t, bounded between 0 and 1
e_t	the percept in time step t, we use $e_t = (o_t, r_t)$ implicitly
$æ_{<t}$	the first $t-1$ interactions, $a_1 e_1 a_2 e_2 \ldots a_{t-1} e_{t-1}$ (a history of length $t-1$)
ϵ	the empty string/the history of length 0
ε	a small positive real number
γ	the discount function $\gamma : \mathbb{N} \to \mathbb{R}_{\geq 0}$
Γ_t	a discount normalization factor, $\Gamma_t := \sum_{k=t}^\infty \gamma_k$
ν, μ	environments/semimeasures
σ	multi-agent environment
$\sigma^{\pi_{1:n}}$	history distribution induced by policies $\pi_1, \ldots, \pi_n$ acting in the multi-agent environment σ
σ_i	subjective environment of agent i
π	a policy, $\pi : (\mathcal{A} \times \mathcal{E})^* \to \mathcal{A}$
π_ν^*	an optimal policy for environment ν
V_ν^π	the ν-expected value of the policy π
V_ν^*	the optimal value in environment ν
$\mathcal{M}$	a countable class of environments
$\mathcal{M}_{\text{refl}}^O$	the class of all reflective-oracle-computable environments
w	a universal prior, $w \in \Delta\mathcal{M}_{\text{refl}}^O$
ξ	the universal mixture over all environments $\mathcal{M}_{\text{refl}}^O$, a semimeasure
$\overline{\xi}$	the completion of λ_T^O into a measure using the reflective oracle O