Example reinforcement Learning Code

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Learning and Choice functions

These functions define the main learning and choice processes. The learning function `rw.fun()` is the Rescorla-Wagner prediction error learning rule. The choice function `softmax.fun()` is softmax.

```
# Rescorla-Wagner prediction error updating function
rw.fun <- function(exp.prior = c(5, 3, 7),      # A vector of prior expectations
                   new.inf = c(NA, 2, NA),        # A vector of new information (NAs except for sel
ected option)
                   alpha = .3) {   # Updating rate

  # Save new expectations as prior
  exp.new <- exp.prior

  # Determine which option was selected
  selection <- which(is.finite(new.inf))

  # Update expectation of selected option
  exp.new[selection] <- exp.prior[selection] + alpha * (new.inf[selection] - exp.prior[selection])

  return(exp.new)

}

# Softmax selection function
softmax.fun <- function(exp.current = c(5, 3, 6),
                        theta = .5
) {

  output <- exp(exp.current * theta) / sum(exp(exp.current * theta))

  return(output)

}
```

Main simulation function

The main simulation funciton is `rl.sim.fun()`. The function returns a dataframe containing the main results of the agent (and plots the agent's cumulative earnings when `plot = TRUE`)

```
# Create main simulation function
```