We offer an alternative approach to cooperation in repeated games of private monitoring, designed to preserve the original intuition from games of perfect monitoring of using future play to create current incentives. Participants in the interaction play best responses to beliefs that they form by observing the frequencies of play in a record of past plays of the game. Players group the histories in the record into a relatively small number of analogy classes to which they attach probabilities. We provide conditions for the existence of equilibria supporting cooperation and supporting high payoffs, and show that more detailed analogy classes (i.e., a "better specified" model) need not lead to better outcomes.