Contractualism is a theory of moral philosophy that posits that an act is morally permissible if all the parties affected by the act would agree to it. We take this theory of moral philosophy as an inspiration for a theory of moral cognition. In this paper, we present evidence that subjects have contractualist intuitions and use explicit contractualist reasoning. These data are poorly accounted for by current theories of moral cognition which rely mostly on the use of rules or calculations of consequences. We sketch out a rational model that captures these phenomena by predicting subjects’ moral judgments as a function of their representation of the interests of agents who are engaged in a mentally simulated bargaining process. We conclude by discussing how a computational cognitive science of contractualism fits into a unified theory of moral cognition, a “Triple Theory”, which integrates elements of rule-based, consequence-based and contract-based cognitive mechanisms.