Abstract: We formalize a unified framework for verified decision procedures for regular expression equivalence. Five recently published formalizations of such decision procedures (three based on derivatives, two on marked regular expressions) can be obtained as instances of the framework. We discover that the two approaches based on marked regular expressions, which were previously thought to be the same, are different, and we prove a quotient relation between the automata produced by them. The common framework makes it possible to compare the performance of the different decision procedures in a meaningful way.