

Table 1: Basic tactics

| what do you want to do?  | tactics   |
|--|---|
| directly provide a proof term $M$  | <code>exact M</code>  |
| provide a proof term $M$ with wildcards $_$ for subgoals                 | <code>refine M</code>   |
| use an assumption  | <code>exact, assumption, eassumption</code>                       |
| replace $M$ in the goal by a variable and generalize over it             | <code>generalize M</code>   |
| add the type of $M$ to the context                                       | <code>pose proof M as H; generalize M and then intro H</code>     |
| prove $A$ and introduce it to the context                                | <code>assert (H: A)</code>  |
| change the goal to $G$   | <code>enough G</code>   |
| unfold the definition of $c$ (in the goal, in $H$ , everywhere)          | <code>unfold c; unfold c in H; unfold c in *</code>               |
| fold back the definition of $c$  | <code>fold c</code>   |
| move hypothesis $H$ back to the goal (“reverting” <code>intro H</code> ) | <code>revert H</code>   |
| remove hypothesis $H$  | <code>clear H</code>  |
| find a contradiction in the context                                      | <code>contradiction</code>  |
| simple Prolog-like automation  | <code>auto, eauto</code>  |
| automatically solve an “easy” goal                                       | <code>easy, trivial</code>  |
| automatically solve a linear arithmetic goal                             | <code>lia</code> (needs <code>Require Import Psatz</code> )       |
| automatically prove a propositional formula                              | <code>tauto</code>  |
| automatically prove a first-order formula                                | <code>firstorder</code>   |
| combine <code>tauto</code> with <code>auto</code>                        | <code>intuition</code>  |
| induction on $t$   | <code>induction t as [ ... ]</code>                               |
| reasoning by cases on an object $t$                                      | <code>destruct t as [ ... ]</code>                                |
| reasoning by cases on a proof $H$ of an inductive predicate              | <code>inversion H as [ ... ]; inversion_clear H as [ ... ]</code> |
| replace $t$ with $x$ and add $x = t$ to the context                      | <code>remember t as x</code>                                      |
| give up on the goal  | <code>admit</code>  |