

Software Foundations

Coq Basics

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- Gallina terms: The specification/programming language
- The Vernacular: The proof management system
- Ltac: The proof scripting language

- Types: `nat`, `nat -> nat`, `forall n, ble_nat 0 n = true`
- Expressions:
 - `5 + 3`,
 - `double x`
 - `match ... with | ... | ... end`,
- Inductive definitions/Type definitions
“that what comes after” `Inductive ... :=`
 - | `0 : nat`
 - | `S : nat -> nat`

- Proof and definition management
- The **keywords**:
Definition, Fixpoint, Inductive, Eval, Example
- Also: SearchAbout
- The dots
- Associate **names** with Gallina **terms** (types, expressions and type definitions)

- Everything between Proof and Qed.
- Examples:
 - `destruct n as [| n']`.
 - `simpl`.
 - `induction l as [| x l']`.
- Many more to come
- ...each with their own syntax and meaning