Expressiveness of Temporal Logics
Conclusions
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Summary of the course
Three levels for measuring expressiveness:

- **distinguishing power:**
  - very coarse measure: $L(X)$ and $LTL+Past$ have the same distinguishing power;
  - proofs generally easy.

- **expressive power:**
  - finer relation;
  - proofs generally hard:
    - ad hoc techniques: families of models;
    - via other formalisms: first-order logic, automata theory, ...

- **succinctness:**
  - very precise measure;
  - proofs generally very involved:
    - through automata theory,
    - Ehrenfeucht-Fraissé games, ...

LTL
CTL
$CTL^*$
$CTL^*$

Linear time
Branching time

LTL
$LTL+Past$
$L(X)$
$L(U)$

$CTL^*$
$ECTL^*$