Glossary

action (also called **action formula**)
: A *formula* containing no temporal operators. It may (and usually does) contain primed variables. Its meaning is an assignment of Boolean values to *steps*.

behavior
: A sequence of states.

behavior specification
: A temporal formula that describes the possible behaviors of a system. An initial predicate *Init* and next-state action *Next* are taken to be the behavior specification that is the temporal formula $Init \wedge [Next]_{vars}$, where *vars* is a tuple containing all the system's variables.

expression
: A syntactic element of a TLA$^+$ specification or PlusCal algorithm that can be the right-hand side of a definition.

formula
: A Boolean-valued *expression*.

inductive invariant
: An inductive invariant of an *action* is a *state predicate* that cannot be true in the first state and false in the second state of any *step* that satisfies the action.

  An inductive invariant of a specification is an inductive invariant of the next-state action that is true of every initial state (and hence is an *invariant* of the specification).

invariant
: An invariant of a specification is a *state predicate* that is true in every *reachable state* of the specification.

reachable state
: A reachable state of a specification is a *state* that occurs in some possible *behavior* of the specification.

specification
: Can mean either a *behavior specification* or the collection of modules that define a behavior specification.

state
: An assignment of values to variables.

state function (also called **state expression**)
: An *expression* containing no action operators or temporal operators. Thus, it contains no primes but may (and usually does) contain unprimed variables. Its meaning is an assignment of values to *states*.

state predicate
: A Boolean-valued *state function*. Its meaning is an assignment of Boolean values to *states*. Viewed as a temporal formula, it is true of a behavior iff it is true of the behavior's first state.

step
: A pair of states.

subaction
: An *action* that is a disjunct of the next-state action of a specification.

temporal formula
: A formula that is either a state predicate or contains one or more temporal operators. Its meaning is an assignment of Boolean values to *behaviors*. A