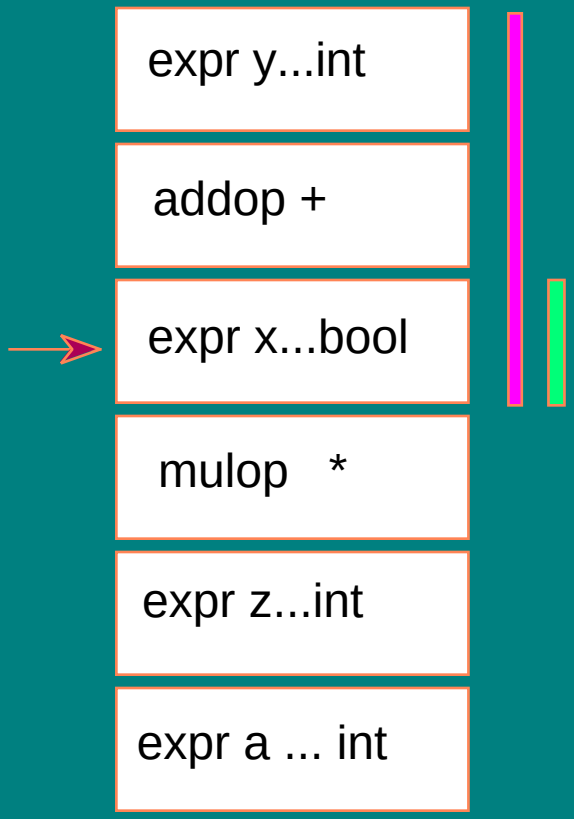
Semantic Error Recovery

a := z * (x + y) • ;



Check ST & ST-2 (oops)

semError (int reqd)

NO codegen -- instead

ST := ST - 2 and insert the following

expr. errorentry

to get →

We complain if we see a new error.

Semantic Error Recovery

a := z * (x + y) • ;

Check ST & ST-2 (previous error)

~~semError (int reqd)~~

NO codegen -- instead ST := ST - 2 and insert the following

expr. errorentry

to get →

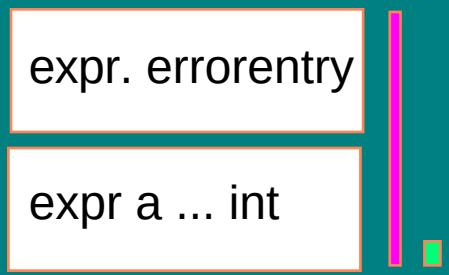
We don't complain if we see an old error, but we propagate it if possible.

MultExpr

Semantic Error Recovery

a := z * (x + y) • ;

Check ST & ST-1
(previous error)
~~semError (int reqd)~~
NO codegen -- instead
ST := ST - 2



We don't leave a special entry because the genStore protocol doesn't leave any entries at all.

Assign

Semantic Error Recovery

Rules:

(a) Check for previous errors (special entry)
    if seen, tear down & propagate - silently

(b) Check for current errors (illegal types...)
    if seen, tear down & propagate - complaining

(c) Otherwise, do the right thing.

Note: When tearing down, propagate any error to some remaining entry. If none remain the evidence of the error disappears from the run.

Semantic Error Recovery

Notes:

(a) Only one error message is issued.

(b) All other action routines have a normal input protocol - except for the special entry.

(c) Eventually the error entry disappears and you are back to normal processing.

Semantic Error Recovery

Hint:

1. Build procedures to do this checking. Otherwise your logic will get convoluted.
2. Pass entry numbers to these procedures.
3. You can also build two layers (or more) of procedures: genAdd calls “okForArithmetic” which calls procedures at a lower layer. “okForArithmetic” can be reused in genMult, and the lower layer procedures can be used by several of the first layer procedures.