6.005 Elements of Software Construction
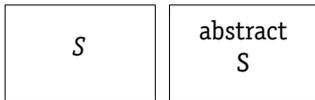Fall 2008

S
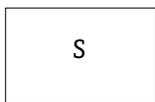
S is a set
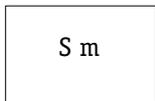
Multiplicity symbols
* any number (default)
? zero or one
! exactly one
+ one or more
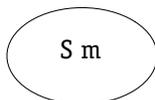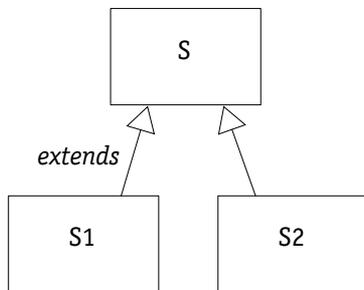
S | abstract S

S is an abstract set:
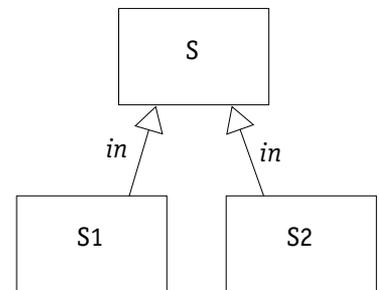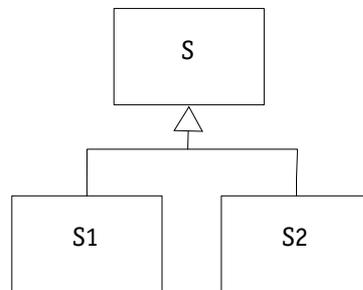all its elements are contained
by subsets that extend it

S m

S is a set with multiplicity *m*

(S m)

S is a set with multiplicity *m* ;
if present, m must be ? or !
and defaults to ! if missing

S
△ △
extends
S1   S2

S
△
S1   S2

S1 and *S2* are subsets of *S*,
and are disjoint;
no label means extends

S
△ △
in   *in*
S1   S2

S1 and *S2* are subsets of *S*
and are not necessarily disjoint
from each other (or from other sets
that extend *S*)

S —— m R n ——> T
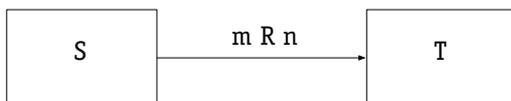
R is a relation from *S* to *T* with multiplicities *m* and *n*
Maps m atoms in S to each atom in T, and each atom in S to n atoms in T
Corresponds to the textual constraint *R: S m -> n T*
R may be any relational expression

S —— m <A>.R n ——> T
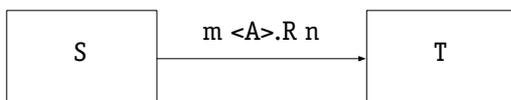
R is a ternary relation from *A* to *S* to *T*
for each atom *a* in *A*, *a.R* is a relation with multiplicities *m* and *n*
Corresponds to the textual constraint *all a: A | a.R : S m -> n T*