object models: semantics

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an object model

› for discussion groups
› what does it denote?
relationship

color

kinds of relation

› property
› containment
› association
› naming

a 'homogeneous' or 'recursive' relation
object model semantics

meaning = set of instances
› an instance is an object diagram

non-instances
› violate some rule in the object model
semantics examples

Ceramics (Moderated Group)

Alice (Moderator)
Bob (Member)

M1 (Message)
M2 (Message)

moderators
posts
respondsTo
messages

Group
Member
Moderated Group
Moderator
Message

members
posts
respondsTo
messages

? ∈ ✔
semantics examples
semantics examples

Digital Photography (Group) → members
Indian Food (Group) → members
Javascript Hackers (Group) → members

Bob (Member) ∈

Group → members
Member → posts
Moderator → ? approves
Message → respondsTo

.members
.members
.moderators
.posts
.messages
semantics examples
graphical limitations

consider this instance
› Alice is not a member of Ceramics

can we say moderators should be members?
› not in this graphical notation
delving into semantics

- Only a group (i.e., not a message, e.g.) can have members.
- Every ModeratedGroup is a Group.
- Only a group in ModeratedGroup can have moderators.
- A group’s members must be in the set Member.
- Every Moderator is a Member.
- But not every moderator of g is a member of g.
- A group’s moderators must be in the set Moderator.
textual constraints

- moderators must be members of the group
- member only posts message in group she belongs to
- moderators approve messages in groups they moderate
- message only responds to message in same group

in this course, just informal text; more advanced: express in Alloy