SOEN331: Introduction to Formal Methods

for Software Engineering

Assignment 4 on algebraic specifications

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March 28, 2019

Spec: Location;

Sort: Location;

Imports:String, Point

Description: A location contains a description

Operations:

  newLocation: String × Point → Location;

  setDescription: description → Location;

  getDescription : Location → Description;

  setPoint : Point → Location;

  getPoint : Location → Point;

Variables:

  description: String; point: Point;

Axioms:

  [A1] getDescription(newLocation(newdesc, newp)) = newdesc;

  [A2] getDescription(setDescription(newDesc, newLocation(desc,p))) = newLocation(newDesc, p);

  [A3] getDescription(setPoint(newPoint, newLocation(desc,p))) = newLocation(desc, newPoint);

[A4] getPoint(newLocation(newdesc, newp)) = newp;

[A5] getPoint(setPoint(newPoint, newLocation(desc,p))) = newLocation(descesc, new-Point);

[A6] getPoint(setDescription(newDescription, newLocation(desc,p))) = newLocation(newDesc, p);

[A7] setDescription(newDesc, newLocation(d,p)) = newLocation(newDesc, p);

[A8] setDescription(getDescription(newLocation(d,p)), newLocation(d,p)) = d;