SOEN331: Introduction to Formal Methods

for Software Engineering

Assignment 4 on algebraic specifications

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Spec: Location;

Sort: Location;

Imports:String, Point

Description: A location contains a description

Operations:

   newLocation: String $\times$ Point $\to$ Location;

   setDescription: String $\times$ Location $\to$ Location;

   getDescription : Location $\to$ String;

   setPoint : Point $\times$ Location $\to$ Location;

   getPoint : Location $\to$ Point;

Variables:

   newDesc, desc, d: String; newPoint, p: Point;

Axioms:

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

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

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

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

   [A5] getPoint(setPoint(newPoint, newLocation(desc,p))) = newPoint;

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

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

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

[A9] setPoint(newPoint, newLocation(d,p)) = newLocation(d, newPoint);

[A10] setPoint(getPoint(newLocation(d,p)), newLocation(d,p)) = newLocation(d, p);