

PSE-Übungsblatt 5

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Aufgabe 2

(a)

(b) putGrain();

```
/*@ requires !mouthEmpty();  
  @ requires isInitialized();  
  @*/
```

turnRight();

```
/* @requires isInitialized();  
  @*/
```

(c)

```
/*@ requires that back of the hamster is clear;  
  @ requires isInitialized;  
  @ ensures getDirection() == Direction.NORTH ==>  
  @   \old(getLocation().getRow() == getLocation().getRow() - 1 &&  
  @   \old(getLocation().getColumn() == getLocation().getColumn());  
  @ ensures getDirection() == Direction.SOUTH ==>  
  @   \old(getLocation().getRow() == getLocation().getRow() + 1 &&  
  @   \old(getLocation().getColumn() == getLocation().getColumn());  
  @ ensures getDirection() == Direction.EAST ==>  
  @   \old(getLocation().getRow() == getLocation().getRow() &&  
  @   \old(getLocation().getColumn() == getLocation().getColumn() + 1;  
  @ ensures getDirection() == Direction.WEST ==>  
  @   \old(getLocation().getRow() == getLocation().getRow() &&  
  @   \old(getLocation().getColumn() == getLocation().getColumn() - 1;  
  @*/
```

(d) int grainCount;

/*@ invariant grainCount >= 0;
@*/

location;

/*@ invariant location != null;
@*/

direction;

/*@ invariant direction != null;
@*/