Recursive Goblin Movement Function

Name: int stepsToTake()

File: Actors.cpp

Description of the Program

* Game class:
  + The class of the entire game that contains 4 dungeons and 1 player. It implements the initiation of the game as well as allowing the player to take their turn of the game.
  + It also contains a pointer to the current dungeon that might be shifted around.
* Dungeon class:
  + This class contains the dungeon that is stored in an array of arrays, and implements the display of the dungeon.
  + It also stores a vector of pointers to objects on the dungeon as well as a vector of pointers to monsters on the dungeon.
  + It contains a pointer to the player that is on the dungeon.
  + Behaviors implemented:
    - Create a random object
    - Place the place on an unoccupied space
    - Add a new object on to the dungeon
    - Allow the player to retrieve the object on the dungeon and save it to the player’s inventory
    - Move the player on the dungeon with the indicated command
    - Add different types/ numbers of monsters on to the dungeon according to the level of the dungeon
    - Allow the monsters to take their move according to the current situation.
* Actors class:
  + Represents all actors of the game including the player and all the monsters, it contains all the statistics of the actor
  + Allows other classes to get or set the statistics of the actor, the weapon that the actor is wielding, and the position
  + Allow the actor to regain one hit point with a chance of 1/10
  + Player class:
    - Represents the player of the game
    - Allows other classes to get its inventory and add new objects to the inventory
    - Have functions that determine whether the player is dead or wins the game
  + Monsters class:
    - Represents each Monster in the game
    - Allows other classes to get the name of each type of monster, the symbol for each monster, and have helper functions like, inNSteps(), chaseDir(), stepsToTake(), that determines which step each monster wants to take next in chooseMove().
    - Has the four types of monsters, Bogeyman, Snakewoman, Dragon, and Goblin as its subclasses.
* Objects class:
  + Represents all the weapons and scrolls in the game
  + Allows other classes to get the name, symbol, object type, and position of the object, and set the position of the object.
  + Weapon class:
    - Have the five types of weapon, mace, short sword, long sword, magic axe, and magic fangs of sleep as its five subclasses
    - Allows other classes to get the dexterity bonus and damage amount of the weapon.
  + Scroll class:
    - Have the five types of scrolls as its subclasses
    - Allows the player to read the scroll use its magic
* Inventory class:
  + It is the player’s inventory, and stores a vector of objects that the player possesses
  + Implements a function to print the inventory to the console.
  + Allows other classes to get the number of the objects in the inventory, the object name and type of a specific item, and allows other classes to get a weapon or scroll using dynamic cast
  + Implements functions to add or remove objects to and from the inventory

Known Bugs

* Goblin does not move as desired, but the stepsToTake() recursive function works successfully when tested in another program.
* Memory Leaks of all objects
* The rooms and corridors of the dungeon are not randomly generated.