Basic Inheritance for ArenaEntities:

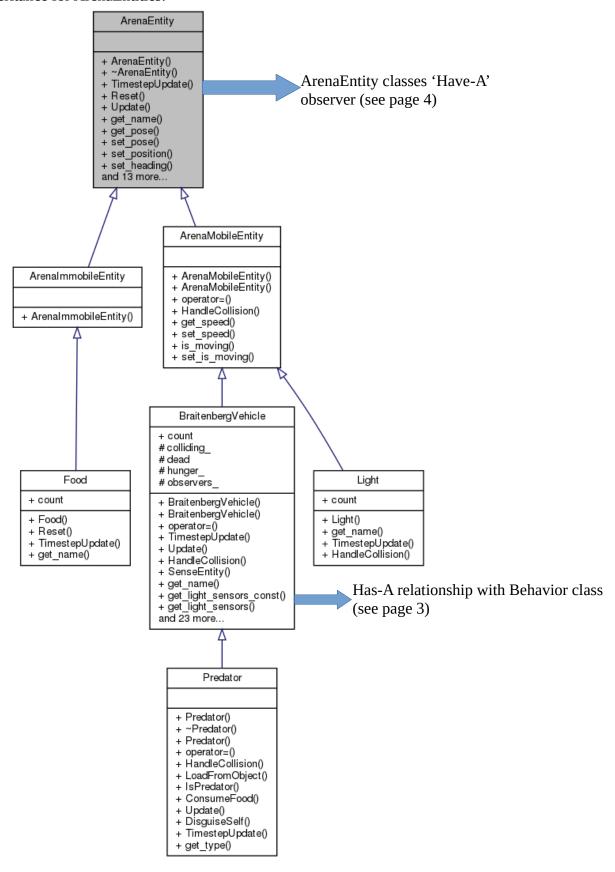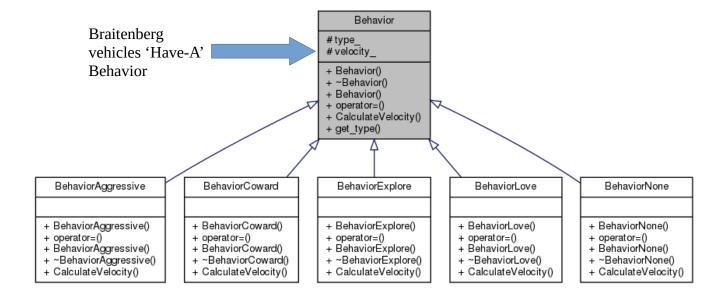
Factories can create any ArenaEntity. The reason there are two different methods for each type of construction is because one constructs an entity from a passed in JSON file and the other constructs an entity with 'default' values. These are mostly used as predator disguises.

Detailed Inheritance for ArenaEntities:

ArenaEntity

+ ArenaEntity()
+ ~ArenaEntity()
+ TimestepUpdate()
+ Reset()
+ Update()
+ get_name()
+ get_pose()
+ set_pose()
+ set_position()
+ set_heading()
and 13 more...

ArenaEntity classes 'Have-A'
observer (see page 4)

ArenaImmobileEntity

+ ArenaImmobileEntity()

ArenaMobileEntity

+ ArenaMobileEntity()
+ ArenaMobileEntity()
+ operator=()
+ HandleCollision()
+ get_speed()
+ set_speed()
+ is_moving()
+ set_is_moving()

Food

+ count

+ Food()
+ Reset()
+ TimestepUpdate()
+ get_name()

BraitenbergVehicle

+ count
# colliding_
# dead
# hunger_
# observers_

+ BraitenbergVehicle()
+ BraitenbergVehicle()
+ operator=()
+ TimestepUpdate()
+ Update()
+ HandleCollision()
+ SenseEntity()
+ get_name()
+ get_light_sensors_const()
+ get_light_sensors()
and 23 more...

Has-A relationship with Behavior class
(see page 3)

Light

+ count

+ Light()
+ get_name()
+ TimestepUpdate()
+ HandleCollision()

Predator

+ Predator()
+ ~Predator()
+ Predator()
+ operator=()
+ HandleCollision()
+ LoadFromObject()
+ IsPredator()
+ ConsumeFood()
+ Update()
+ DisguiseSelf()
+ TimestepUpdate()
+ get_type()

Braitenberg
vehicles 'Have-A'
Behavior

Behavior

\# type_
\# velocity_

+ Behavior()
+ ~Behavior()
+ Behavior()
+ operator=()
+ CalculateVelocity()
+ get_type()

BehaviorAggressive

+ BehaviorAggressive()
+ operator=()
+ BehaviorAggressive()
+ ~BehaviorAggressive()
+ CalculateVelocity()

BehaviorCoward

+ BehaviorCoward()
+ operator=()
+ BehaviorCoward()
+ ~BehaviorCoward()
+ CalculateVelocity()

BehaviorExplore

+ BehaviorExplore()
+ operator=()
+ BehaviorExplore()
+ ~BehaviorExplore()
+ CalculateVelocity()

BehaviorLove

+ BehaviorLove()
+ operator=()
+ BehaviorLove()
+ ~BehaviorLove()
+ CalculateVelocity()

BehaviorNone

+ BehaviorNone()
+ operator=()
+ BehaviorNone()
+ ~BehaviorNone()
+ CalculateVelocity()

```
┌─────────────────────────────────┐
│            ArenaEntity           │
├─────────────────────────────────┤
│                                  │
├─────────────────────────────────┤
│  + ArenaEntity()                 │
│  + ~ArenaEntity()                │
│  + TimestepUpdate()              │
│  + Reset()                       │
│  + Update()                      │
│  + get_name()                    │
│  + get_pose()                    │
│  + set_pose()                    │
│  + set_position()                │
│  + set_heading()                 │
│  and 13 more...                  │
└─────────────────────────────────┘
```

ArenaEntities "Have-A"
Observer   #subject_

```
┌─────────────────────────────────┐
│             Observer             │
├─────────────────────────────────┤
│  # subject_                      │
├─────────────────────────────────┤
│  + Observer()                    │
│  + ~Observer()                   │
│  + operator=()                   │
│  + Observer()                    │
│  + Update()                      │
│  + RequestUnsubscribe()          │
│  + SetSubscribed()               │
│  + IsSubscribed()                │
└─────────────────────────────────┘
```

GraphicsArenaViewer
inherits from Observer

```
┌─────────────────────────────────┐
│        GraphicsArenaViewer        │
├─────────────────────────────────┤
│                                  │
├─────────────────────────────────┤
│  + GraphicsArenaViewer()         │
│  + ~GraphicsArenaViewer()        │
│  + InitNanoGUI()                 │
│  + UpdateSimulation()            │
│  + OnPlayingBtnPressed()         │
│  + OnResetButtonPressed()        │
│  + SetArena()                    │
│  + OnMouseMove()                 │
│  + OnLeftMouseDown()             │
│  + OnLeftMouseUp()               │
│  and 11 more...                  │
└─────────────────────────────────┘
```