Java 3D: Collision Detection

CO2016

Multimedia and Computer Graphics
Wake-Up Conditions and Criteria

- **WakeUpCondition** is an abstract class specifying a single wakeup Condition.
- It has a subclass called **WakeUpCriterion** ...
- ... and it has subclasses called **WakeUpOr**, **WakeUpAnd** (and others ...).
- The class **WakeUpCriterion** has subclasses **WakeUpOnExit**, **WakeUpOnEntry** (and others ...).
- These wake up criteria can be logically combined:

  \[
  \text{WakeupOr}\left([\, \text{WakeUpOnExit}, \text{WakeUpOnEntry} \,]\right)
  \]

  arrayof **WakeupCriterion**
The Behavior Class

A Behavior *leaf node* in a scene graph allows the addition of user-defined “actions” to the scene graph, for example:

- movements, rotations, color changes . . .

Behavior is an abstract class; it defines two methods that must be over-ridden (see *CollisionBehavior1*) by a subclass:

- Initialization method: called once when the behavior becomes "live". Sets the initial state of a Behavior object, and specifies its initial wakeup condition(s).

- processStimulus method: This is the important method . . .
The Behavior Class

- A Behavior leaf node hands a WakeupCondition object to the behavior scheduler which returns criteria, an enumeration (Enum) of the conditions.
- criteria is produced by the wakeupOn method.
- The processStimulus method provides:
  - Code to extract wake up details, from criteria, that caused the object’s awakening.
  - Code to perform the manipulations associated with the wake up details (eg a green sphere goes red),
  - Code to establish this behavior’s next new WakeupCondition