

surfaceType

Bounding box

setSurfaceType:andDescendants:

setSelectable:

read:

write:
awake

ancestor

Returns the receiving object's ancestor—the N3DShape above it in the shape hierarchy. If the receiver is at the top of its hierarchy, returns nil. The class description includes an illustration and discussion of the

awake

Invoked after unarchiving to reinitialize the N3DShape object. Do not invoke this method directly

write:

concatTransformMatrix:(RtMatrix)aTransform premultiply:(BOOL)flag

Concatenates aTransform to the N3DShape's current transform matrix. If flag is YES, this method pre-multiplies the transform matrix by the aTransform that is, it applies the effect of aTransform to the receiving shape's coordinate system before applying the effect of its transform matrix. Otherwise, it postmultiplies the transform matrix by aTransform, applying the effect of the transform matrix before applying the effect of aTransform. In either case, it places the result in the transform instance variable. Returns self.

convertObjectPoints:(RtPoint *)points
count:(int)n
toCamera:camera

Converts points from the receiver's coordinate system to camera's 2D (PostScript) coordinate system

Converts points from theShape's coordinate system to the coordinate system of the receiver. If the receiver is above the receiver in its shape hierarchy, this method converts from the shape at the top of the receiver's hierarchy (its first ancestor). Returns the converted values by reference in points. Returns self. See the class description and diagram of the shape hierarchy.

firstAncestor

convertPoints:(RtPoint *)points count:(int)n toAncestor:(N3DShape *)theShape

Converts points from the receiver's coordinate system to the coordinate system of theShape. If the receiver is above the receiver in its shape hierarchy, this method converts to the world shape at the top of the receiver's hierarchy. Returns self. See the class description for a discussion and diagram of the shape hierarchy.

descendant

Returns the receiver's descendantN3DShape below it in the object hierarchy. If the receiver has no descendant, returns nil. See the class description for a discussion and diagram of the shape hierarchy.

(BOOL)doesDrawAsBox

Returns YES if the receiver is set to draw its bounding box when it renders. For an instance of N3DShape to draw its bounding box, you must explicitly set the bounding box when it is initialized and when it is rendered (when values passed to RenderMan geometric primitives in the renderSelf: method change). By default, the receiver does not draw its bounding box.

firstPeer

Returns the left-most peer in the receiver's peer group. The first peer is the direct descendant of the receiver. See the class description for a discussion and diagram of the shape hierarchy.

free

freeAll

Frees the receiver, its next peer (and all subsequent peers) and its descendants. This method first sends a free message to the next peer, then sends a free message to self. See the class description for a discussion and details of the hierarchy. Returns nil.

getBoundingBox:(RtBound *)boundingBox

Returns, by reference in boundingBox, the union of the receiver's bounding box and its descendants. Thus, the six coordinates in boundingBox represent the volume of the receiver and all its descendants. The coordinates are in the coordinates of the receiving N3DShape.

Note that for your subclass of N3DShape to return the correct value in boundingBox, your code must update the instance variable when an instance is initialized and whenever it changes size (that is, when values of geometric primitives in the renderSelf: method change). Returns self.

renderSelf:, renderSelfAsBox:, doesDrawAsBox, setDrawAsBox:

getBounds:(NXRect *)boundingRect inCamera:theCamera

Returns, by reference in boundingRect, the rectangle that bounds the receiver in theCamera's 2D coordinate system. If theCamera isn't an N3DCamera object, this method generates an exception. Returns self.

getCompositeTransformMatrix:(RtMatrix)theMatrix relativeToAncestor:(N3DShape *)theAncestor

Returns, by reference in theMatrix, the matrix representing the transformation from theAncestor's coordinate system to the receiver's coordinate system. If theAncestor is nil or if the receiving N3DShape isn't a descendant of theAncestor, theMatrix represents the transformation from world space to the receiver's coordinate system. See the class description for discussions of the shape hierarchy and transformations. Returns self.

concatTransformMatrix:premultiply:
getInverseCompositeTransformationMatrix:relativeToAncestor:

getInverseCompositeTransformMatrix:(RtMatrix)theMatrix relativeToAncestor:(N3DShape *)theAncestor

Returns, by reference in theMatrix, the matrix representing the transformation from the receiver's coordinate system to theAncestor's coordinate system. If theAncestor is nil or if the receiving N3DShape isn't a descendant of theAncestor, theMatrix represents the transformation from the receiver's coordinate system to world space. See the class description for discussions of the shape hierarchy and transformations. Returns self.

from toShape. This method is useful, for example, to group a set of N3DShapes after they've been
This method modifies the receiver's transform matrix to reflect the transformation from toShape to
position. If toShape has no descendant, the receiver is made its direct descendant using the linkDe
Otherwise, the receiver is linked by invoking linkPeer: on toShape's descendant. Returns self.

selectShapesIn: (N3DCamera)

selectShapesIn: (N3DCamera)

white.

getTransformMatrix:,
set (N3DShader)

selectShapesIn: (N3DCamera)

setSurfaceTypeForAll:chooseHider: (N3DCamera)

linkDescendant:, linkAncestor:

write:(NXTypedStream *)stream

Writes the receiving N3DShape to the typed stream stream. Returns self.

awake, read: