What is a scene graph?

(in Panda3D)

What is a scene graph?

Geometry (a.k.a. meshes)
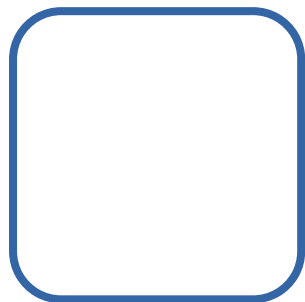
Cameras (to view the scene through
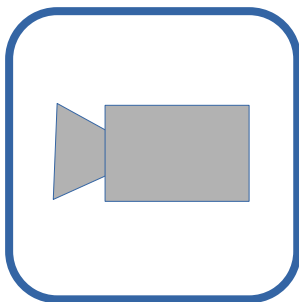
Light sources

Collision volumes

Sound sources

When creating 3D (or 2D) worlds, there are a lot of things that go into it, These are only a small selection.
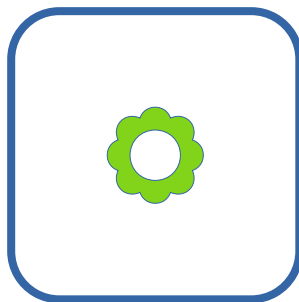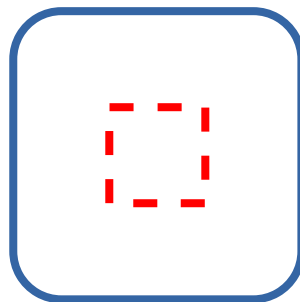
What is a scene graph?
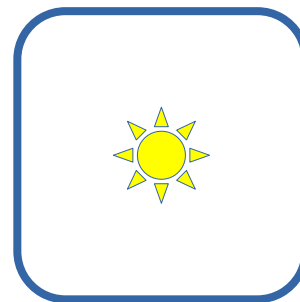
PandaNode:
Empty node,
does nothing

Camera:
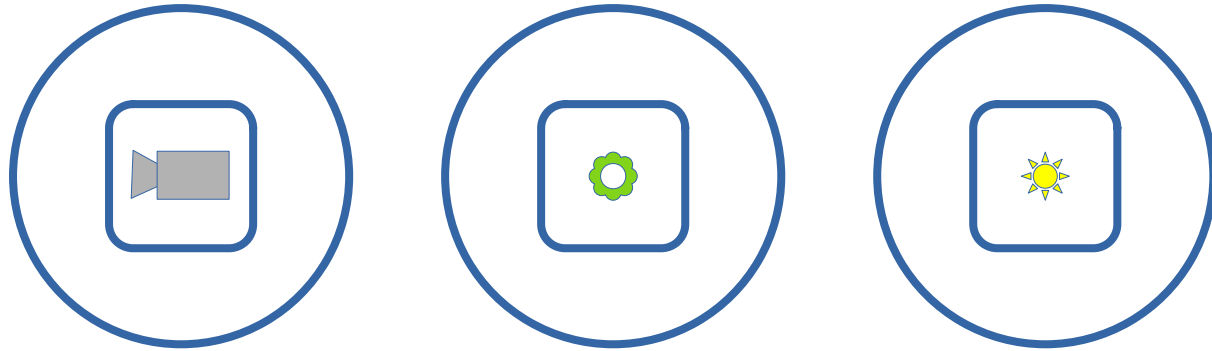Subtypes
PandaNode

GeomNode:
Subtypes
PandaNode

CollisionNode:
Subtypes
PandaNode
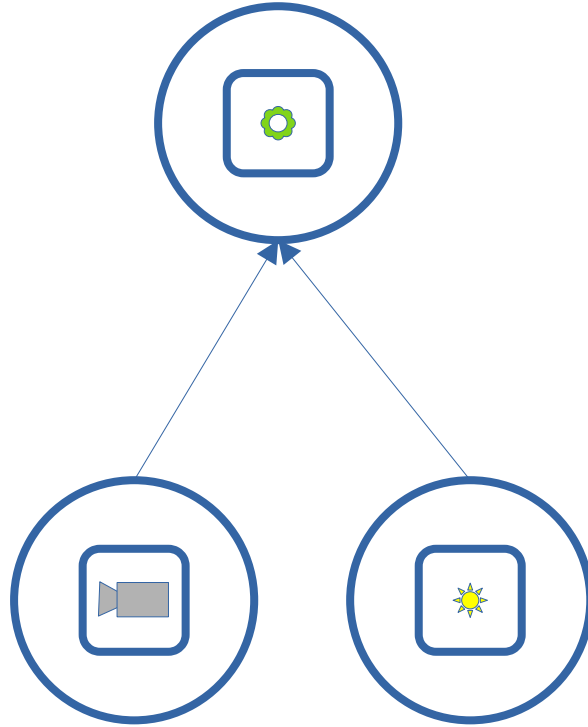
PointLight:
Subtypes
PandaNode

By themselves, they just exist (as subtypes of PandaNode, called nodes for ease).
They have no position in any space, nor do they exist in the same space.
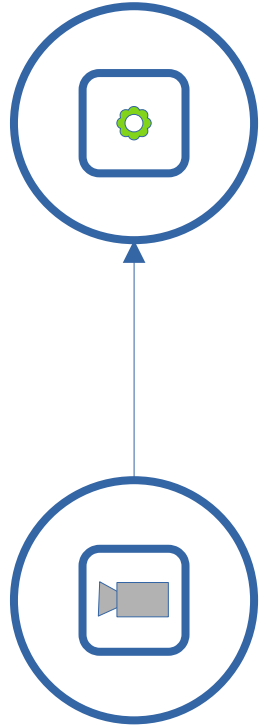
What is a scene graph?

To put them into relation with each other, we put nodes into NodePaths.

What is a scene graph?

NodePaths are put into a parent-child relationship, forming a tree.

What is a scene graph?

- TransformState: Translation, rotation, scaling
- RenderState: Antialias, texture, shader, fog, ...
- Effects: billboard, compass, …
- tags

NodePaths also have several attributes that influences how they are rendered.

What is a scene graph?

Base color = green

Base color not set, and inherited from above

Base color = green
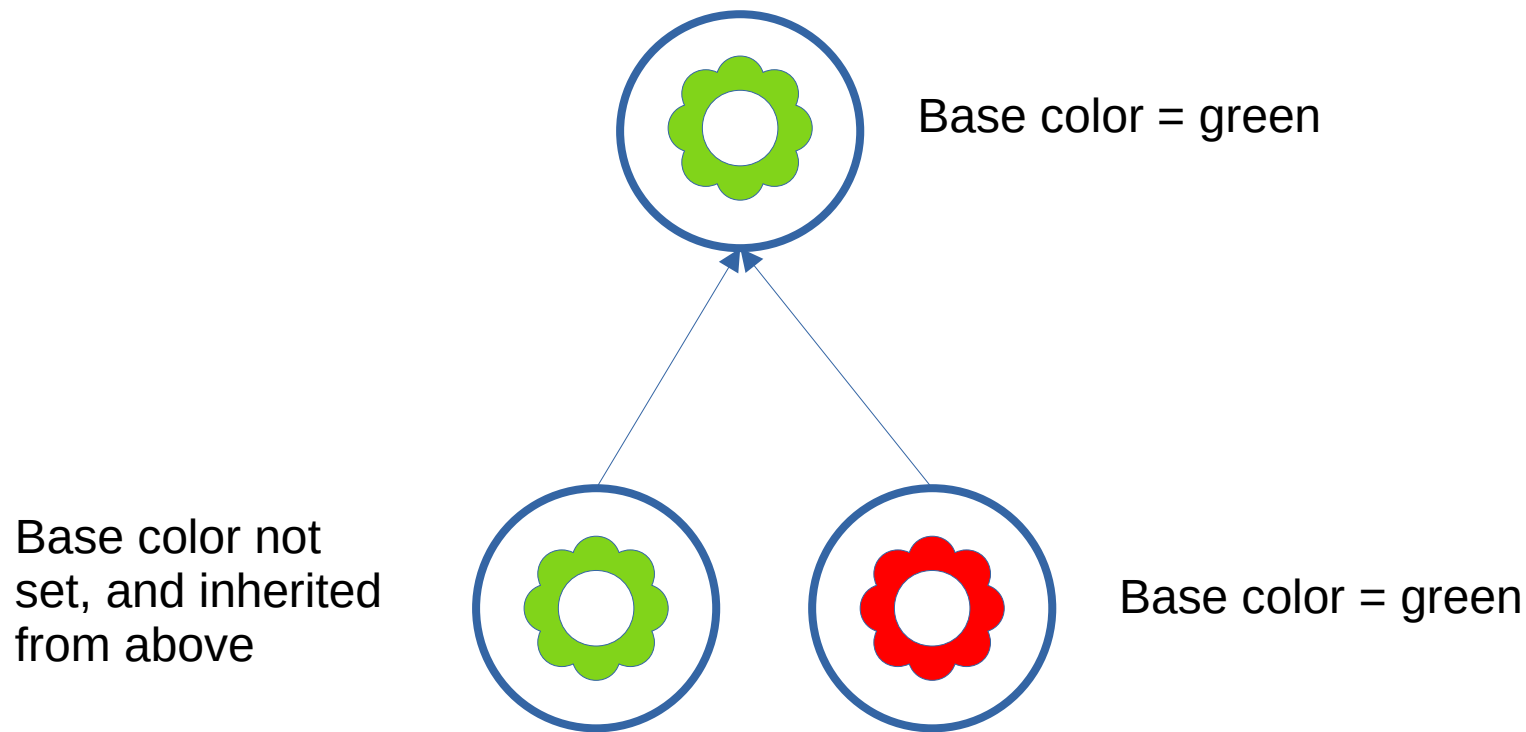
Some render attributes are inherited (transitively) from parents unless set.
(Boxes for PandaNode subtypes are omitted.)