Lighting a Sprite with Light Nodes

Add lighting and shadows to your scene with light nodes.

Overview

You can use a sprite's lighting properties, lightingBitMask, shadowCastBitMask and shadowedBitMask, to apply effects such as illumination and shadow casting and receiving. These can be used in conjunction with normal mapping to simulate 3D lighting.

The following figure shows a normal mapped sprite node acting as background and two shadow casting sprite nodes (each with a rabbit texture).

The SKLightNode object's categoryBitMask matches the lighting bit mask of the background, and the lighting and shadow bit masks of the two rabbits:

```swift
// Create the background sprite node
let background = SKSpriteNode(texture: noiseTexture,
                             normalMap: noiseTexture.generatingNormalMap())
background.position = spriteKitViewController.center
background.lightingBitMask = 0b0001
scene.addChild(background)

let x: CGFloat = 150
let y = spriteKitViewController.scene.size.width - 150

// Create a light
let lightNode = SKLightNode()
lightNode.position = CGPoint(x: scene.size.width / 2, y: y)
lightNode.categoryBitMask = 0b0001
lightNode.lightColor = .white
scene.addChild(lightNode)

// Create two rabbit sprite nodes and assign them with both a lighting and a shadow
cast bit mask.
for position in [CGPoint(x: x, y: y), CGPoint(x: y, y: y)] {
            let rabbit = SKSpriteNode(imageNamed: "rabbit")
            rabbit.position = position
            spriteKitViewController.scene.addChild(rabbit)
            rabbit.lightingBitMask = 0b0001
            rabbit.shadowCastBitMask = 0b0001
}
```

The resulting scene shows the two rabbits casting shadows over the background (the light is rendered as a white circle). The noise texture gains a 3D look from the normal mapping: