# Aula 14

Professores:

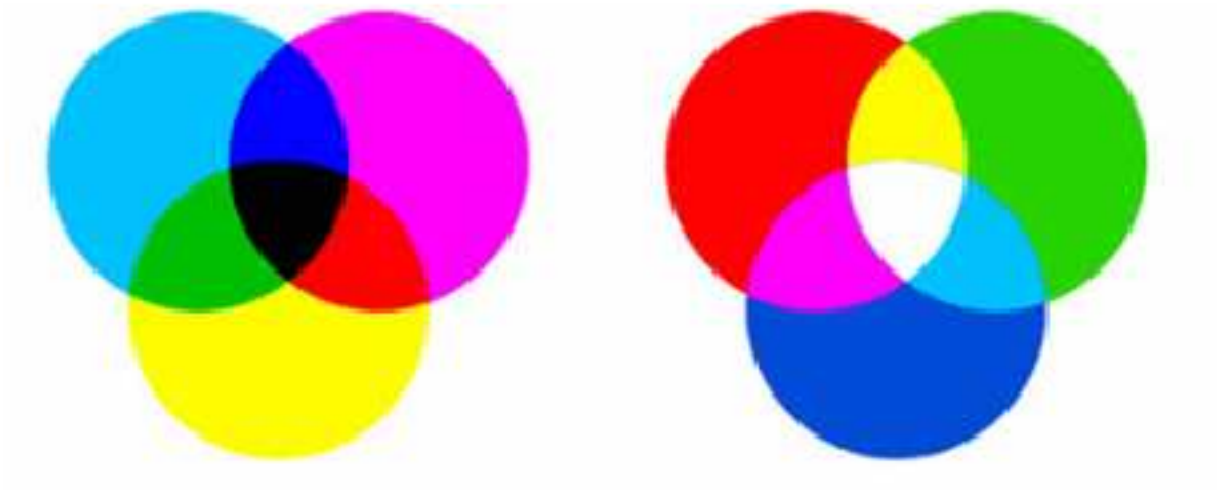
*Anselmo Montenegro*
*Esteban Clua*

## Conteúdo:

- Cores, Imagens e Texturas

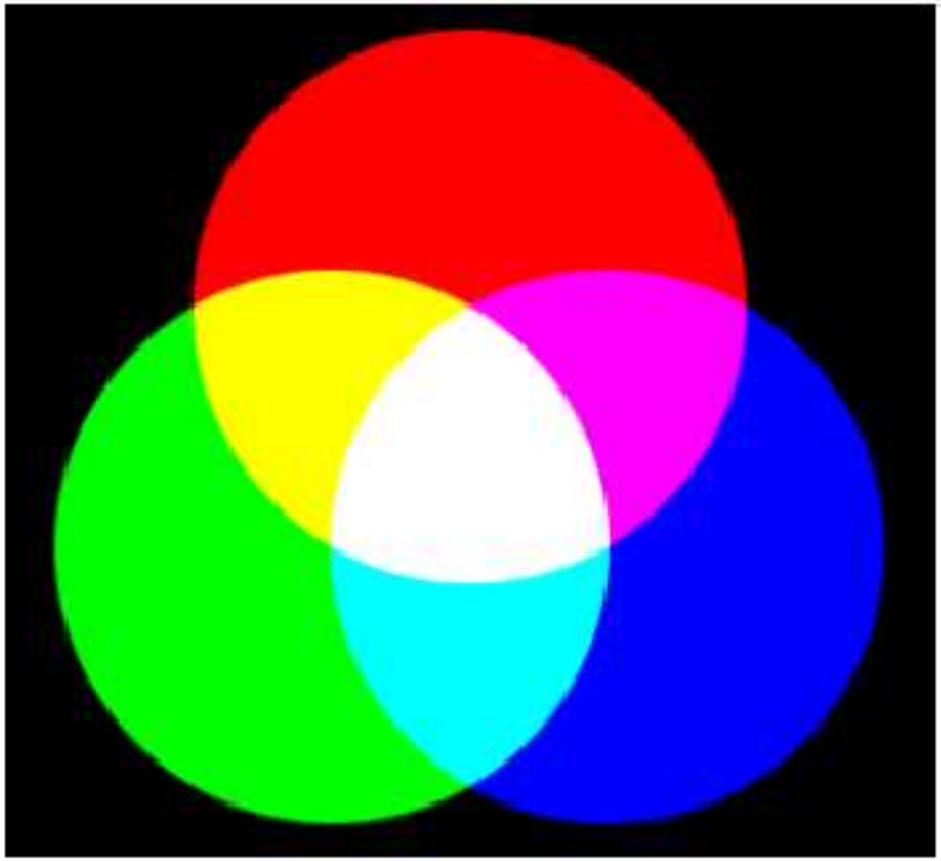
Fundação CECIERJ
Consórcio cederj

# Teoria das Cores



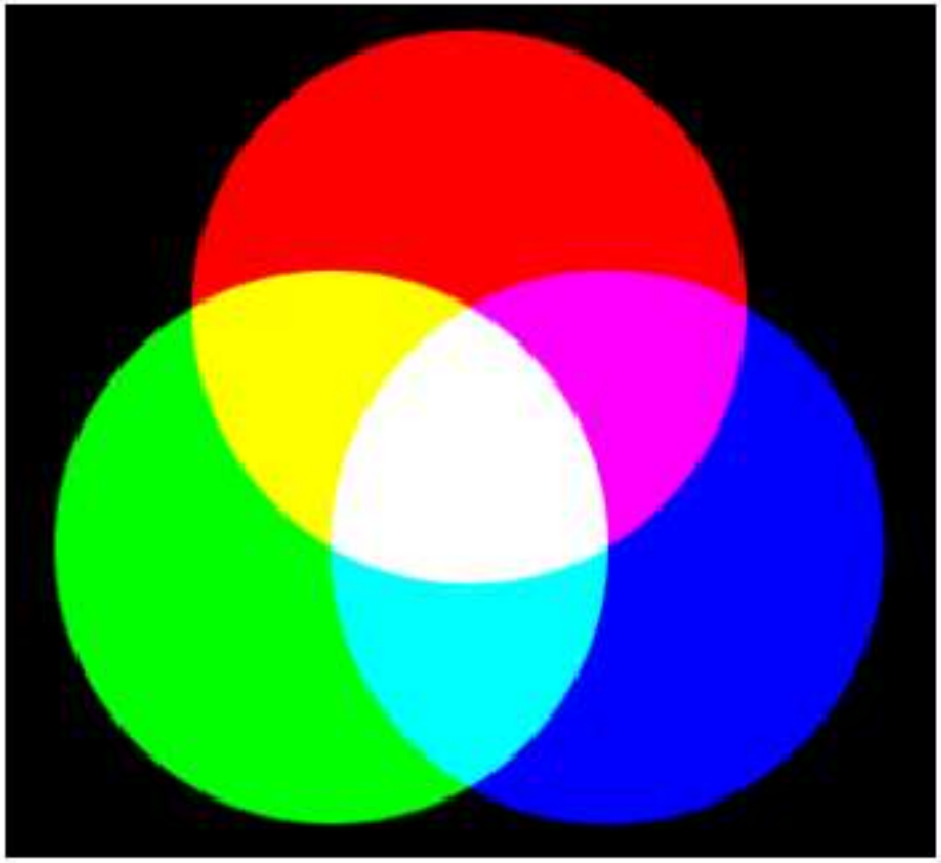
# Teoria das Cores

## Modelo RGB



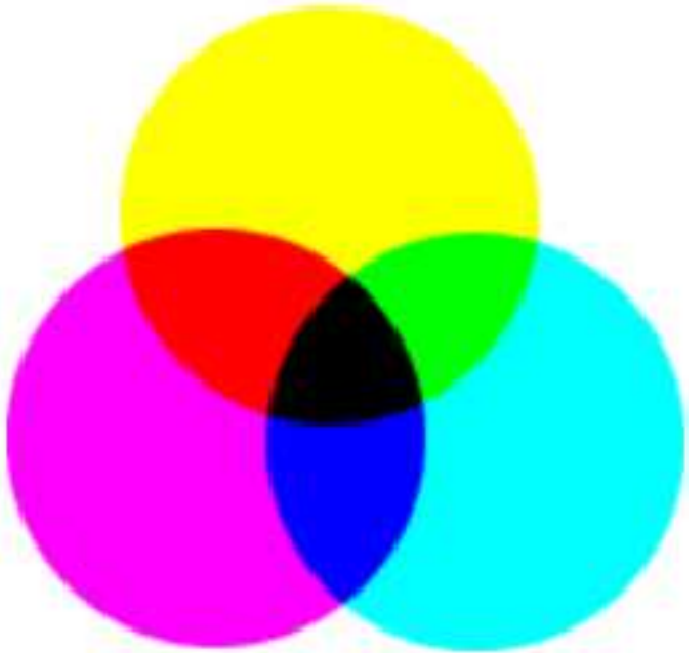
# Teoria das Cores

## Modelo RGB (Aditivo)

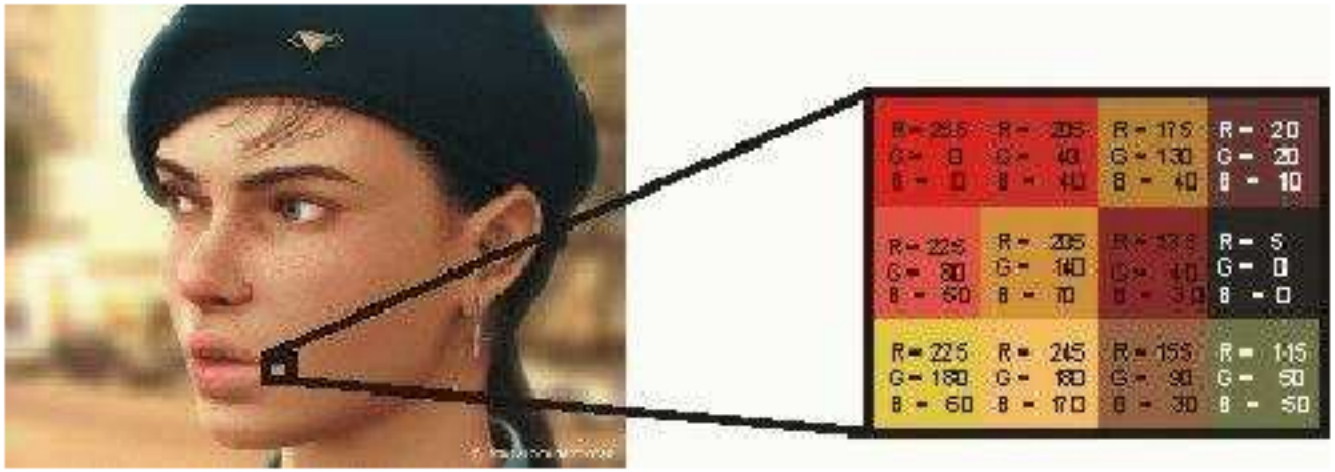


# Teoria das Cores

## Modelo CMYK (Subtrativo)

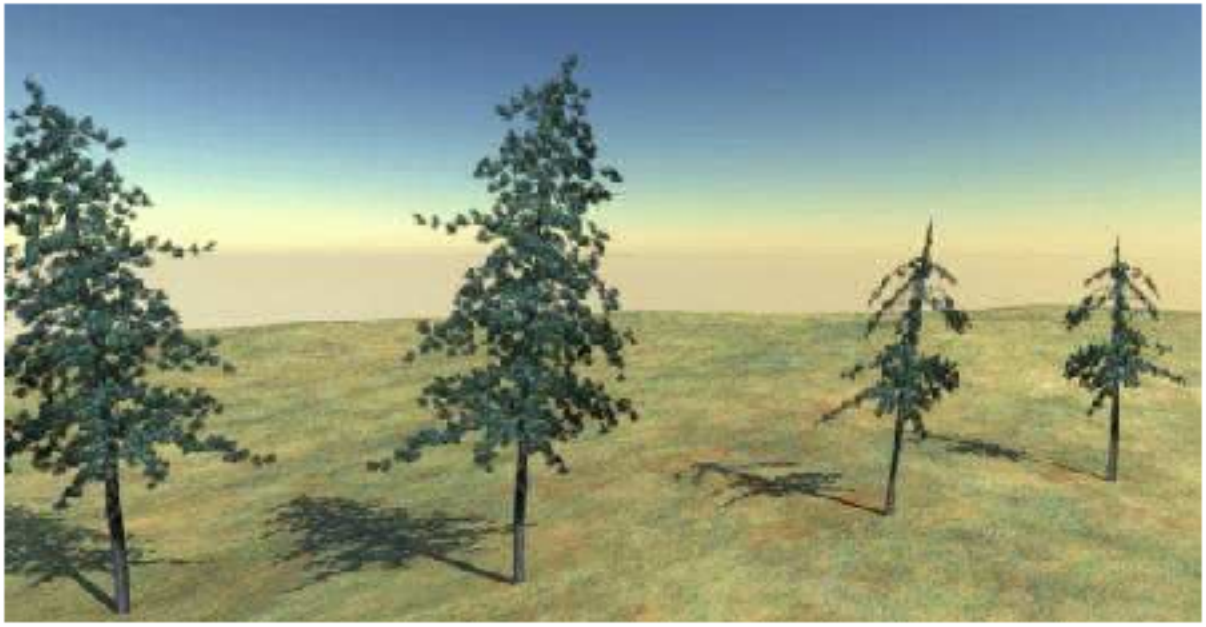


# Imagens

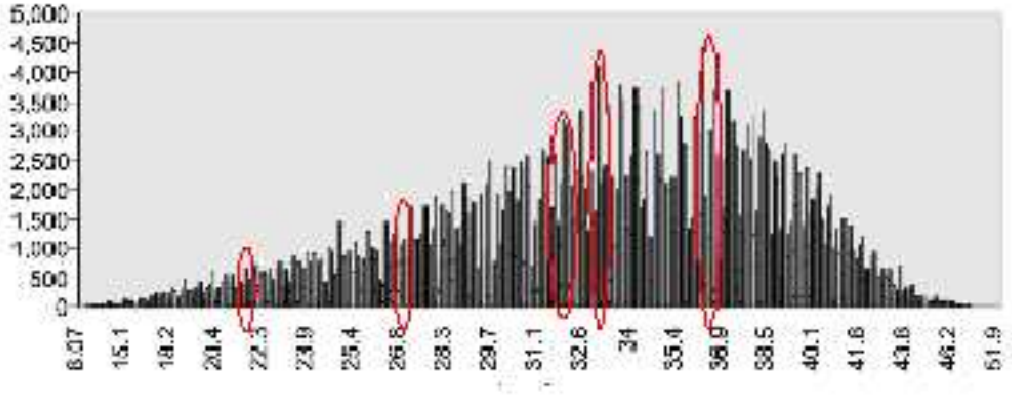

R = 225
G = 0
B = 0
R = 205
G = 40
B = 40
R = 175
G = 130
B = 40
R = 20
G = 20
B = 10
R = 225
G = 80
B = 60
R = 205
G = 140
B = 70
R = 5
G = 0
B = 0
R = 225
G = 180
B = 60
R = 245
G = 180
B = 170
R = 155
G = 30
B = 30
R = 115
G = 50
B = 50

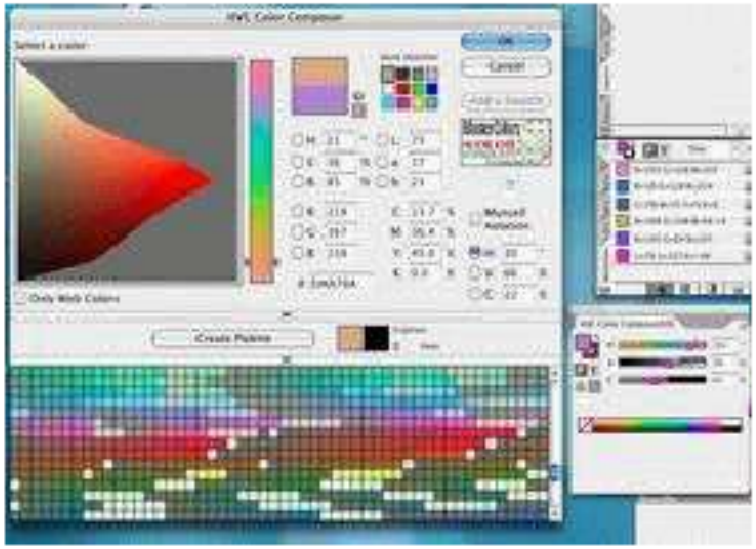
# Teoria das Cores

## Canal Alpha



# Quantização de Cores



# Quantização de Cores

True Color: 24 bits

Tamanho: 2,36Mb

64 cores, 6 bits

Tamanho: 589Kb

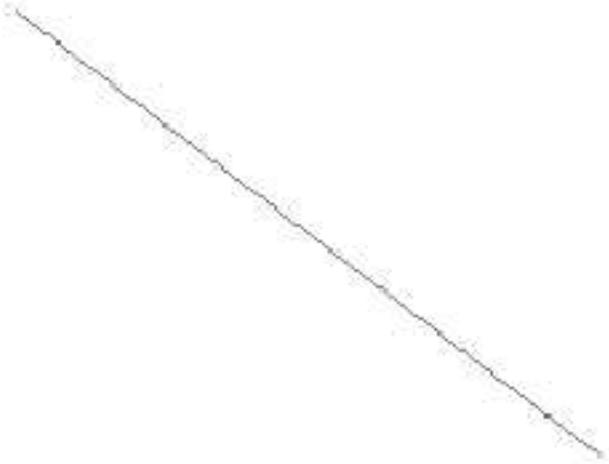
32 cores, 5 bits

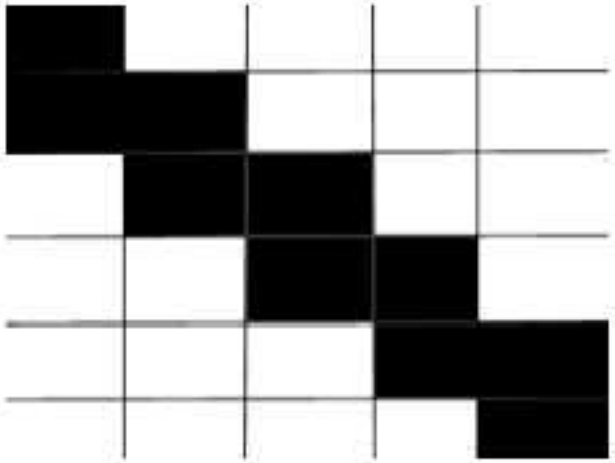
Tamanho: 491Kb

16 cores, 4 bits

Tamanho: 393Kb

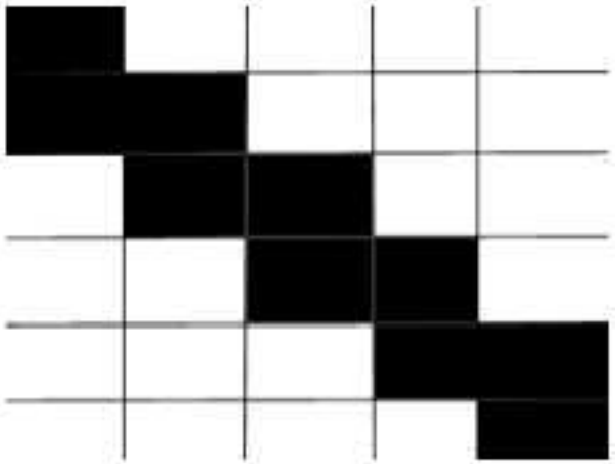
# Aliasing





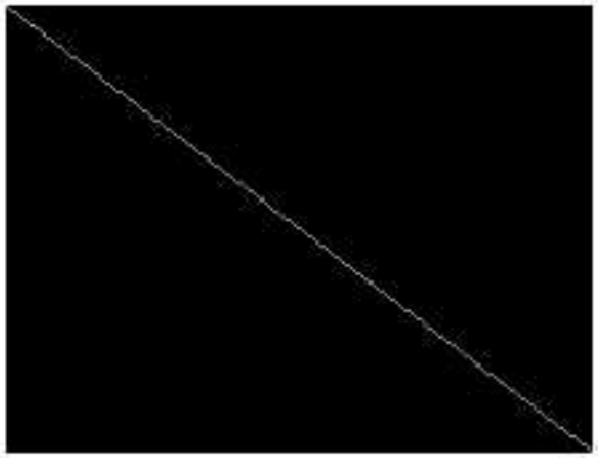
# Aliasing

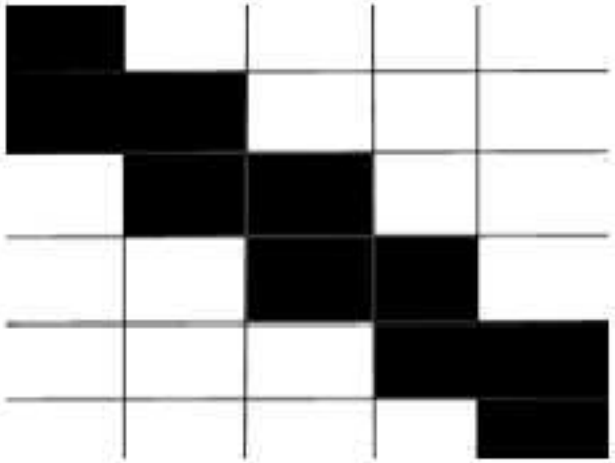
Contínuo x Discreto



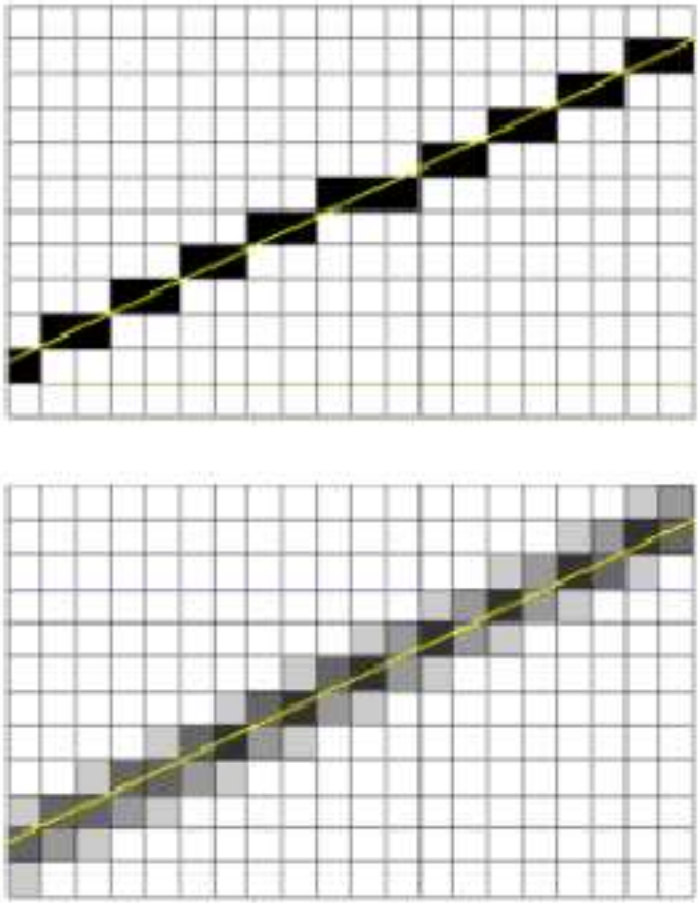
# Aliasing

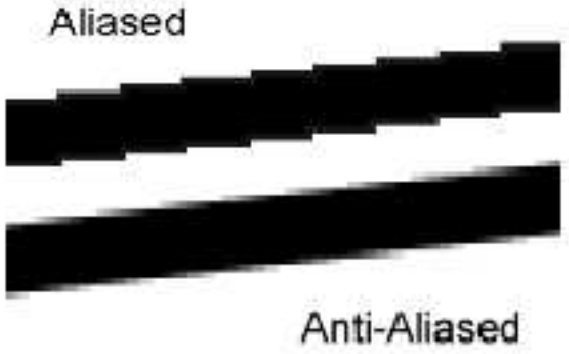
Contínuo x Discreto





# Anti-Aliasing



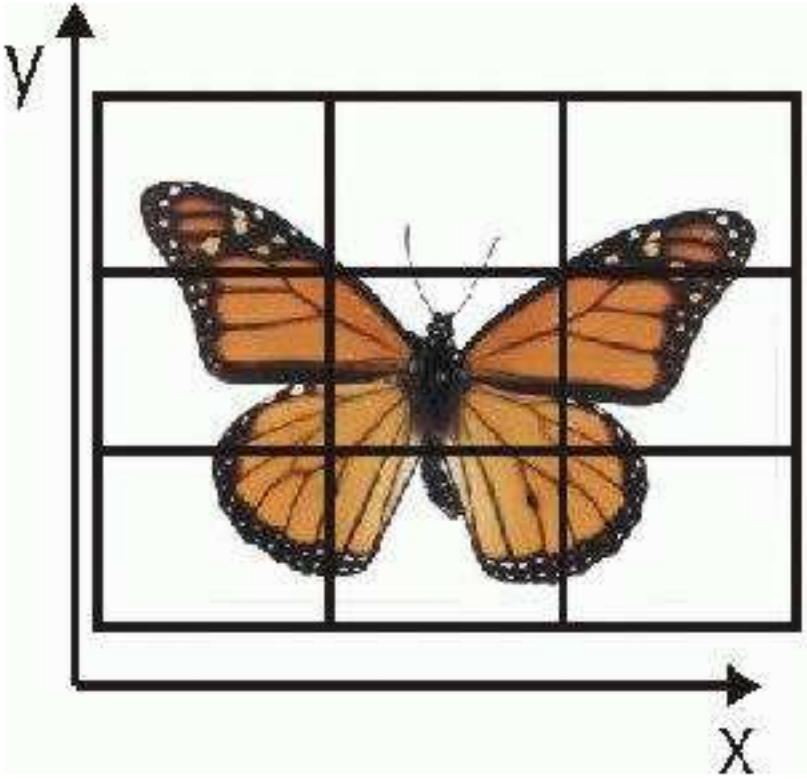


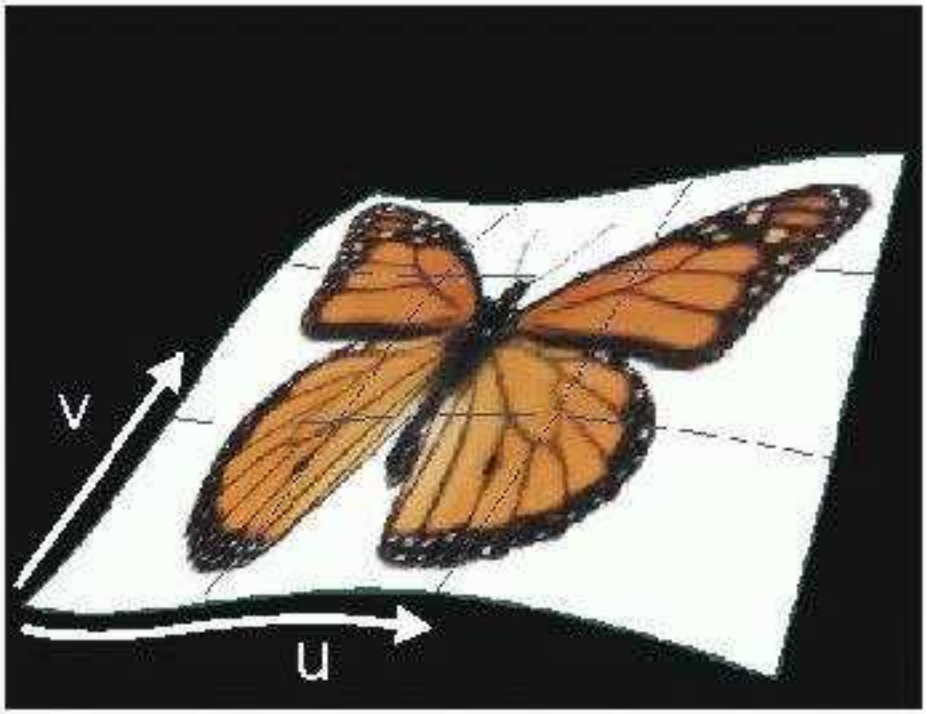
# Texturas

# Projeção de Textura

Problema: Aplicar um objeto 2D sobre outro 3D

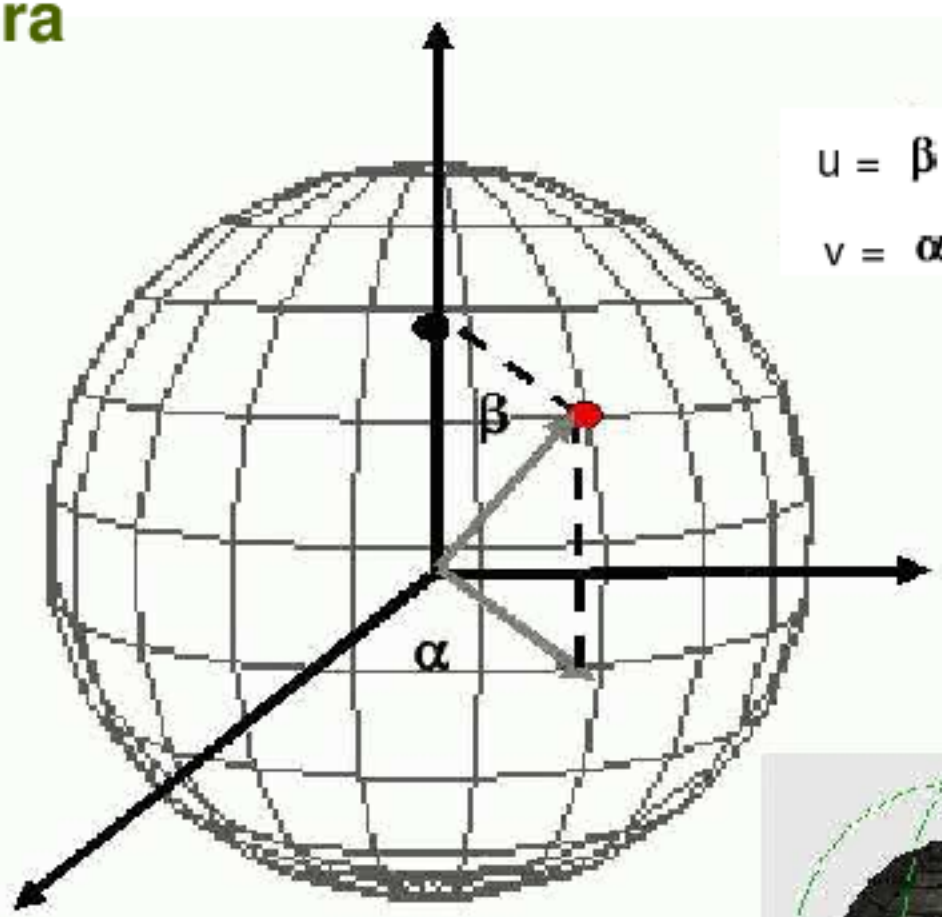
Parametrização de uma superfície



# Projeção de Textura

## Esfera

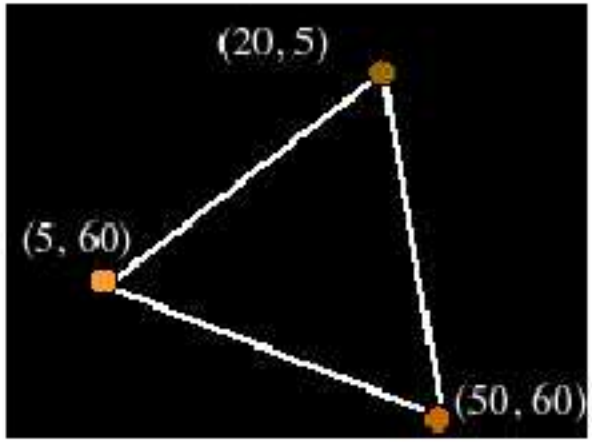


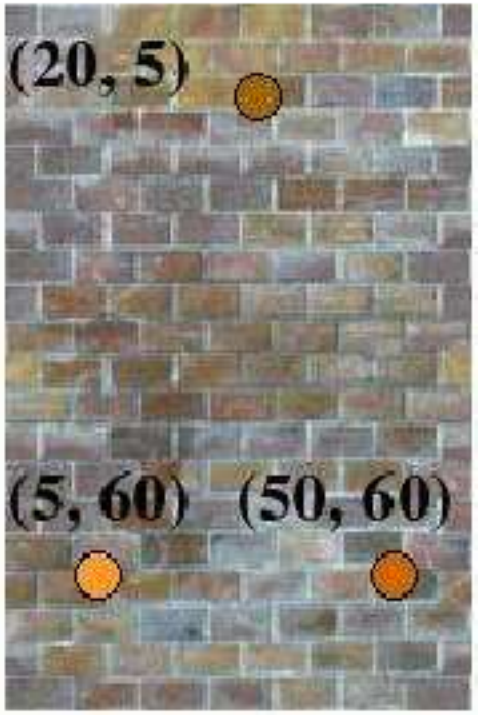

u = β / 180 . resoluçãoY

v = α / 360 . resoluçãoX

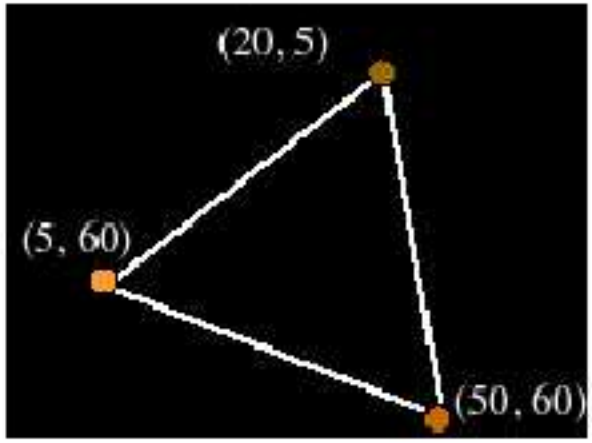

# Mapeamento genérico

# Interpolação de coordenadas de texturas

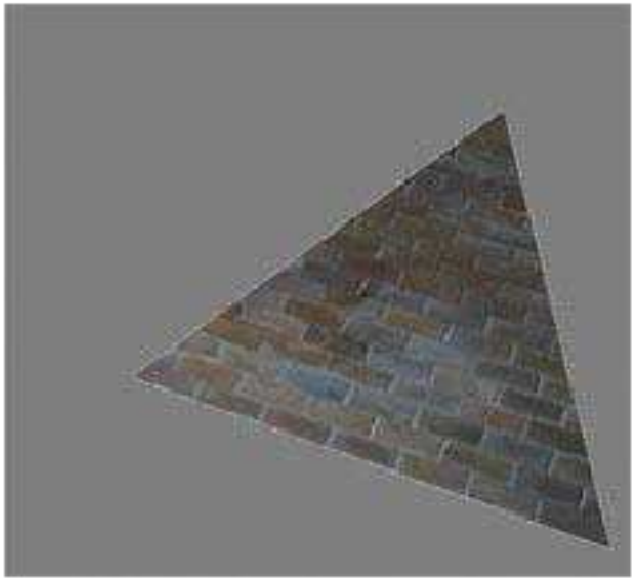


# Interpolação de coordenadas de texturas



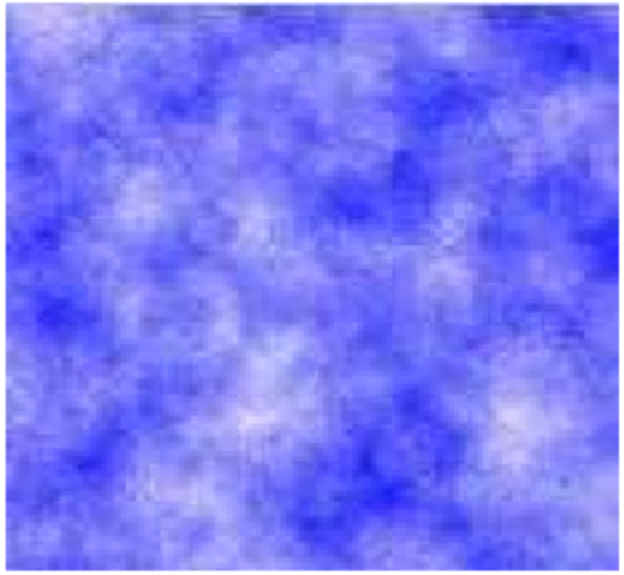




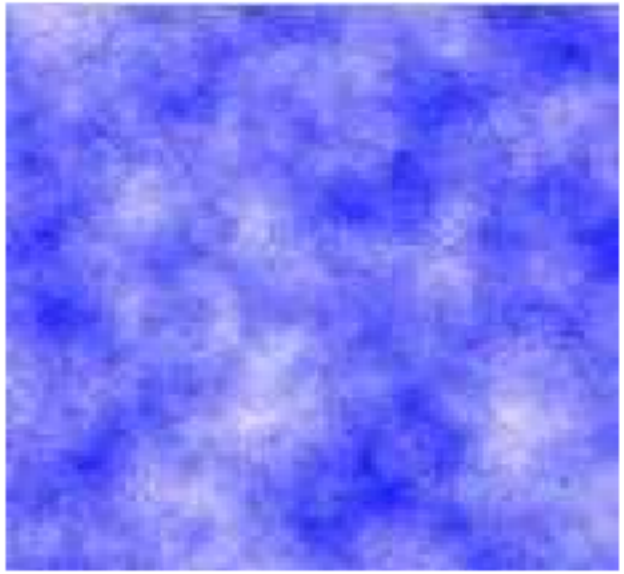
# Texturas Proceduarais

- Funções Básicas (contra exemplo: função random)
  - Pseudo-randomicidade;
  - Não pode haver periodicidade de padrões;
  - Funções devem ser estacionárias  e isotrópicas.

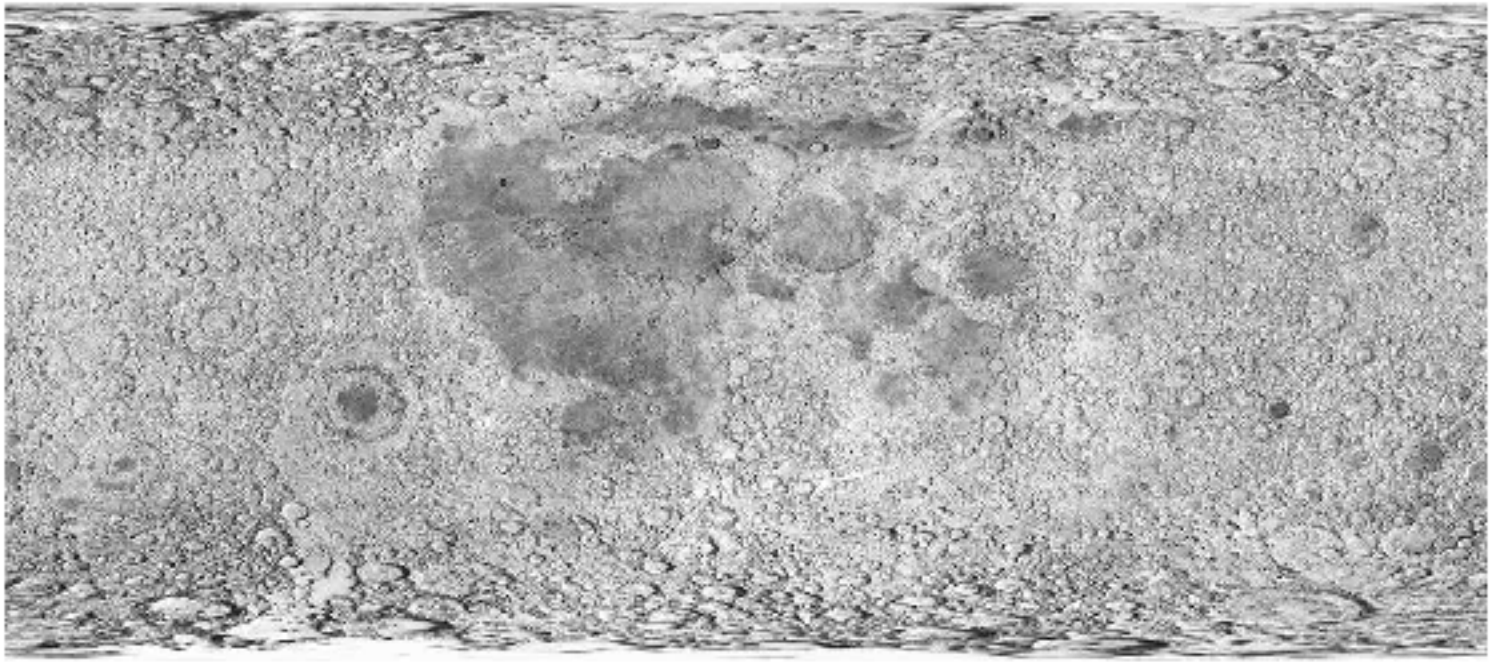
# Texturas Procedurais



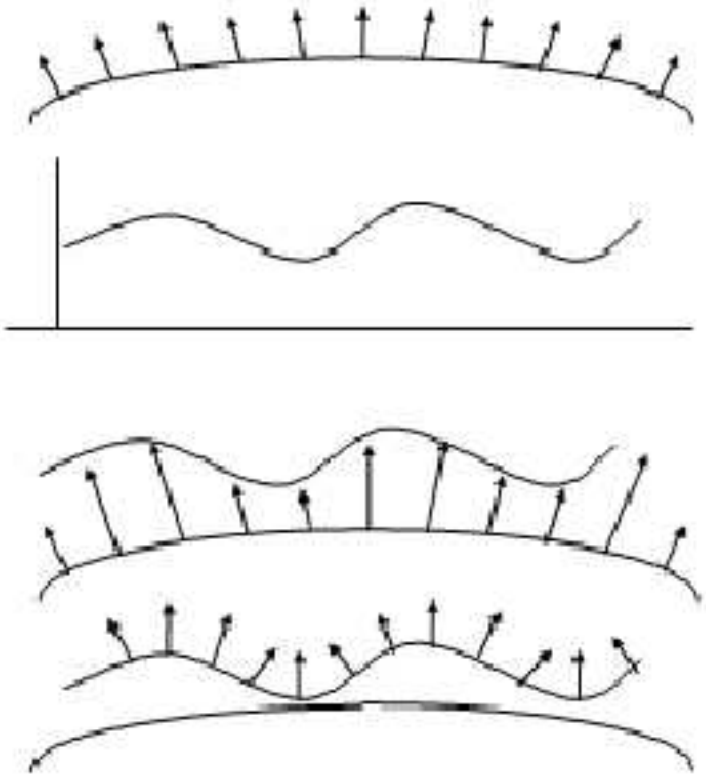
# Texturas Procedurais



# Bump Mapping



# Bump Mapping



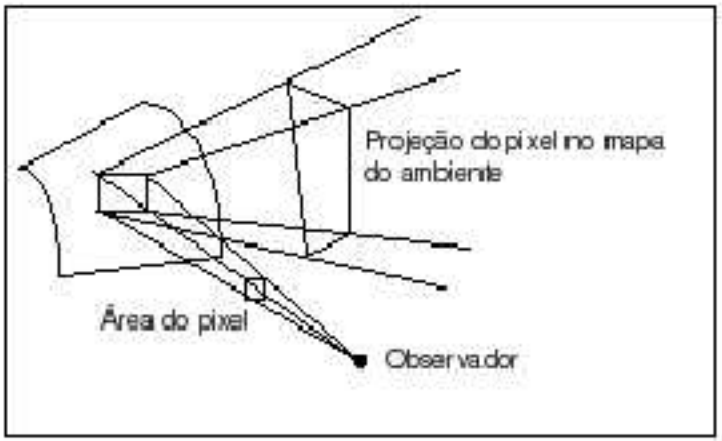
Superfície original O(u)

Uma bump map B(u) qualquer

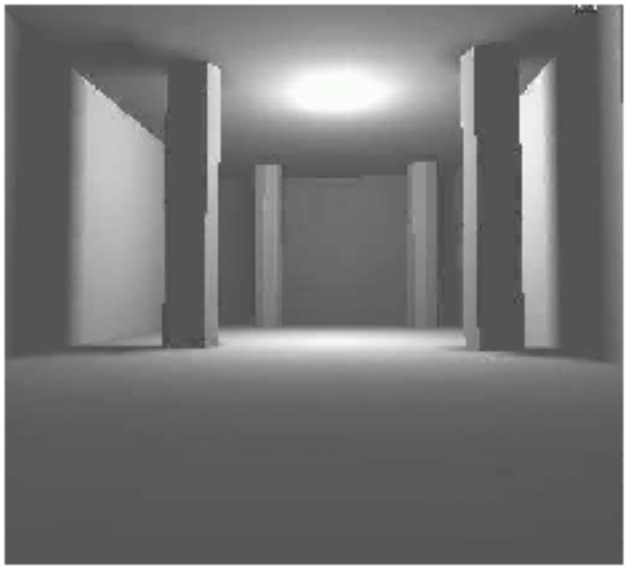
Ajustando O(u) usando B(u)

Novos Vetores da Superfície O(u)

# Enviroment Mapping

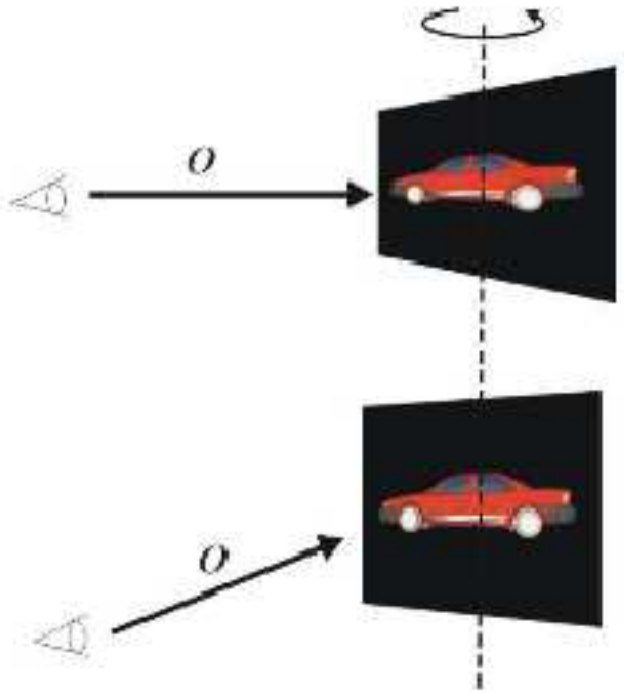



# Light Maps

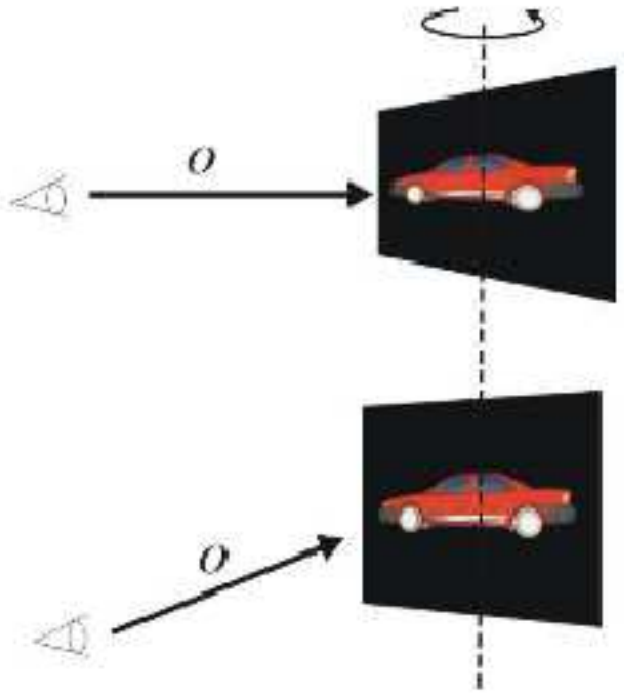


# Sprites

# Sprites

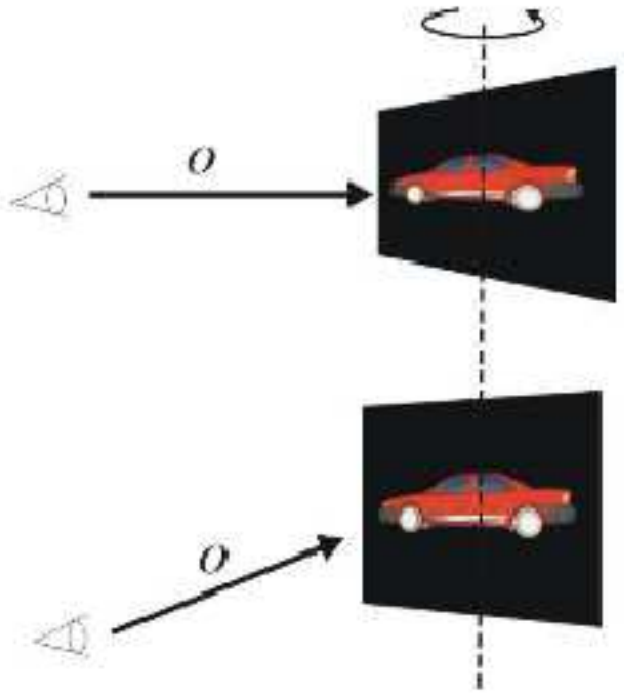


# Sprites




Operador R(E, O)

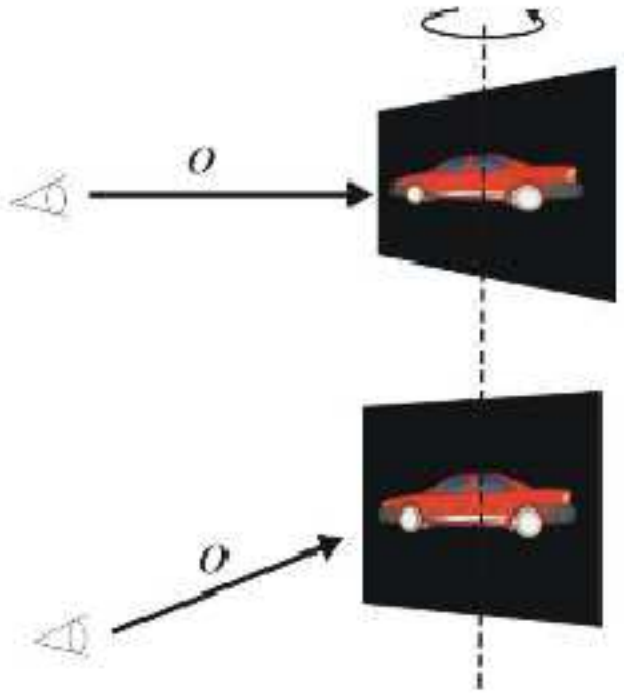
# Sprites




Operador R(E, O)

Garante a propriedade:

# Sprites

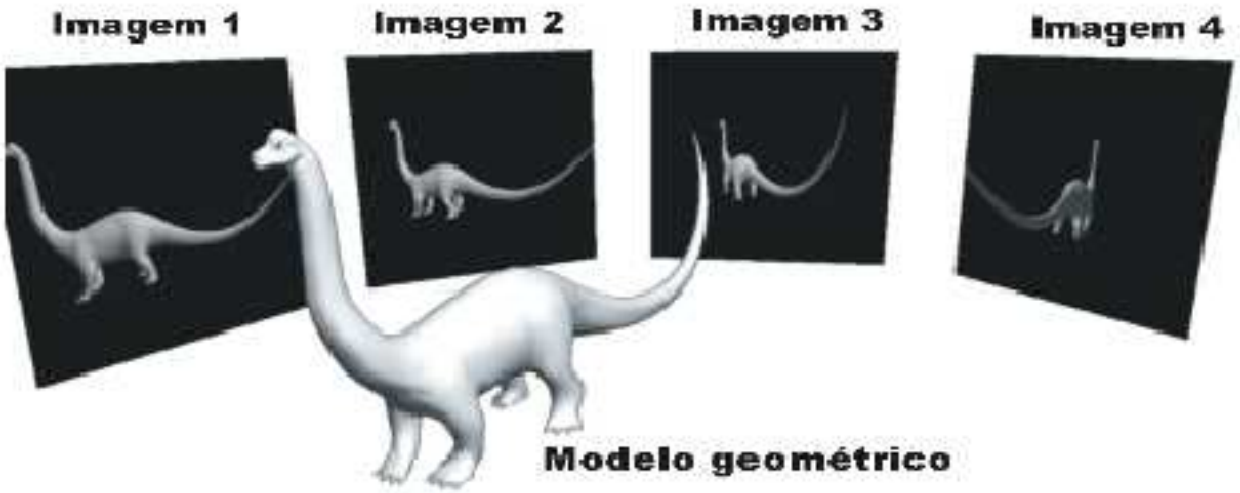



Operador R(E, O)

Garante a propriedade:

$$\Theta = \cos^1(O \cdot N_E) = 0$$

# Sprites Alternáveis



# Aula 14

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Conteúdo:

- Cores, Imagens e Texturas