Wrapping (graphics)

In computer graphics, **wrapping** is the process of limiting a position to an area. A good example of wrapping is wallpaper, a single pattern repeated indefinitely over a wall. Wrapping is used in 3D computer graphics to repeat a texture over a polygon, eliminating the need for large textures or multiple polygons.

To wrap a position x to an area of width w, calculate the value $x' = x \bmod w$.

Implementation

For computational purposes the wrapped value x' of x can be expressed as

$$x' = x - \lfloor (x - x_{\min})/(x_{\max} - x_{\min}) \rfloor \cdot (x_{\max} - x_{\min})$$

where $x_{\max}$ is the highest value in the range, and $x_{\min}$ is the lowest value in the range.

Pseudocode for wrapping of a value to a range other than 0–1 is

```
function wrap(X, Min, Max: Real): Real;
    X := X - Int((X - Min) / (Max - Min)) * (Max - Min);
    if X < 0 then // This corrects the problem caused by using Int instead of Floor
        X := X + Max - Min;
    return X;
```

Pseudocode for wrapping of a value to a range of 0–1 is

```
function wrap(X: Real): Real;
    X := X - Int(X);
    if X < 0 then
        X := X + 1;
    return X;
```

Pseudocode for wrapping of a value to a range of 0–1 without branching is,

```
function wrap(X: Real): Real;
    return ((X mod 1.0) + 1.0) mod 1.0;
```

See also text wrapping

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