Westfälische
Hochschule
Gelsenkirchen Bocholt Recklinghausen

Lecture ‘Computer Graphics’

Transformations

Behold: a real-world scenario where linear algebra actually comes in handy!

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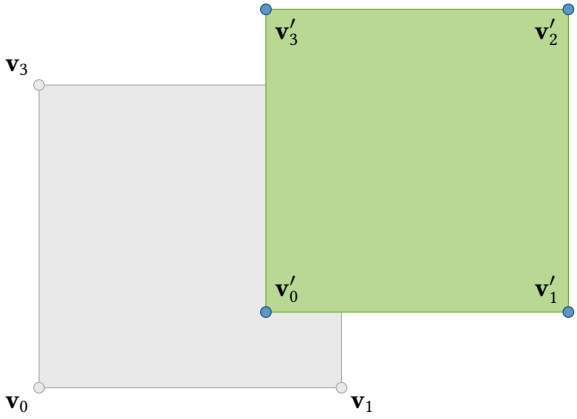
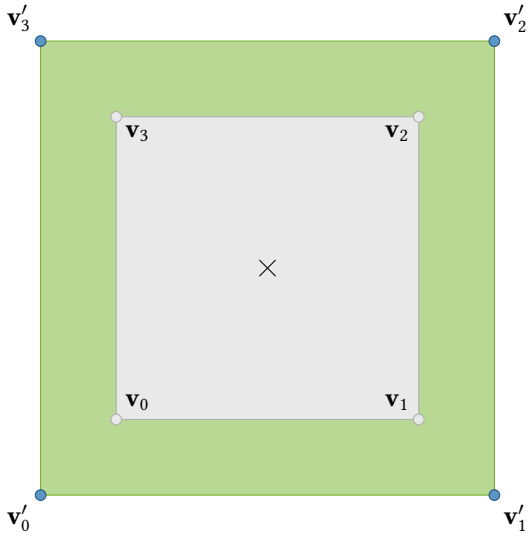
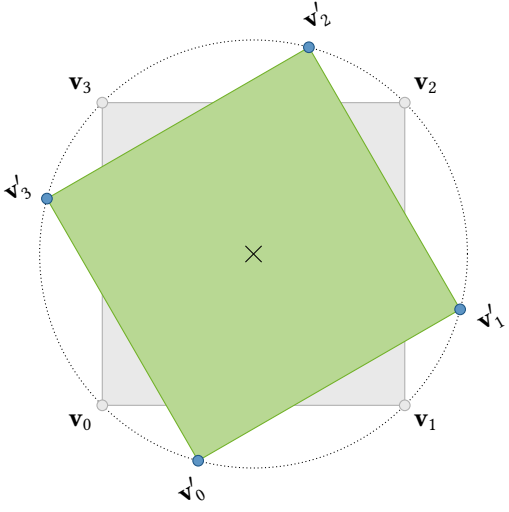
Translation



Scaling


$\mathbf{v}'_3$
$\mathbf{v}'_2$
$\mathbf{v}_3$
$\mathbf{v}_2$
$\mathbf{v}_0$
$\mathbf{v}_1$
$\mathbf{v}'_0$
$\mathbf{v}'_1$

Rotation


$\mathbf{v}'_2$
$\mathbf{v}_3$
$\mathbf{v}_2$
$\mathbf{v}'_3$
$\mathbf{v}'_1$
$\mathbf{v}_0$
$\mathbf{v}_1$
$\mathbf{v}'_0$

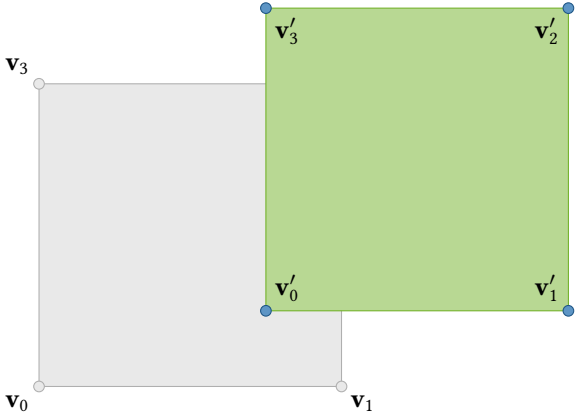
Vector

Westfälische Hochschule

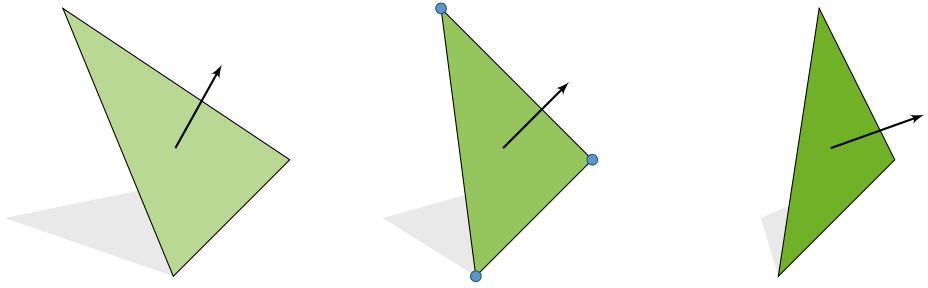
$$\mathbf{v} =$$

Translation

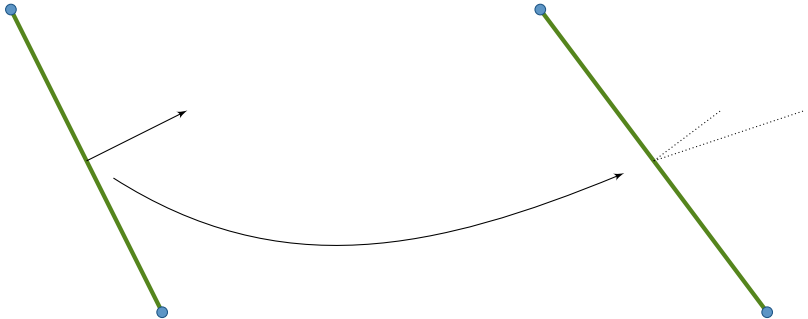
revisited



Surface Normals

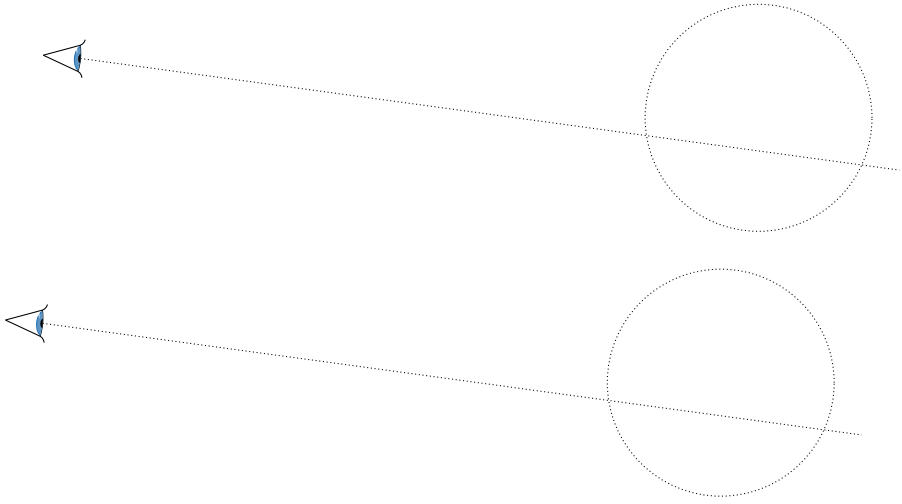


Transforming Surface Normals



Transformations in Ray Tracing

Westfälische Hochschule



Summary

Westfälische Hochschule

- Translation
- Scaling
- Rotation
- Brief Introduction to Homogeneous Coordinates
- Transforming Surface Normals
- Transformations in Ray Tracing

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