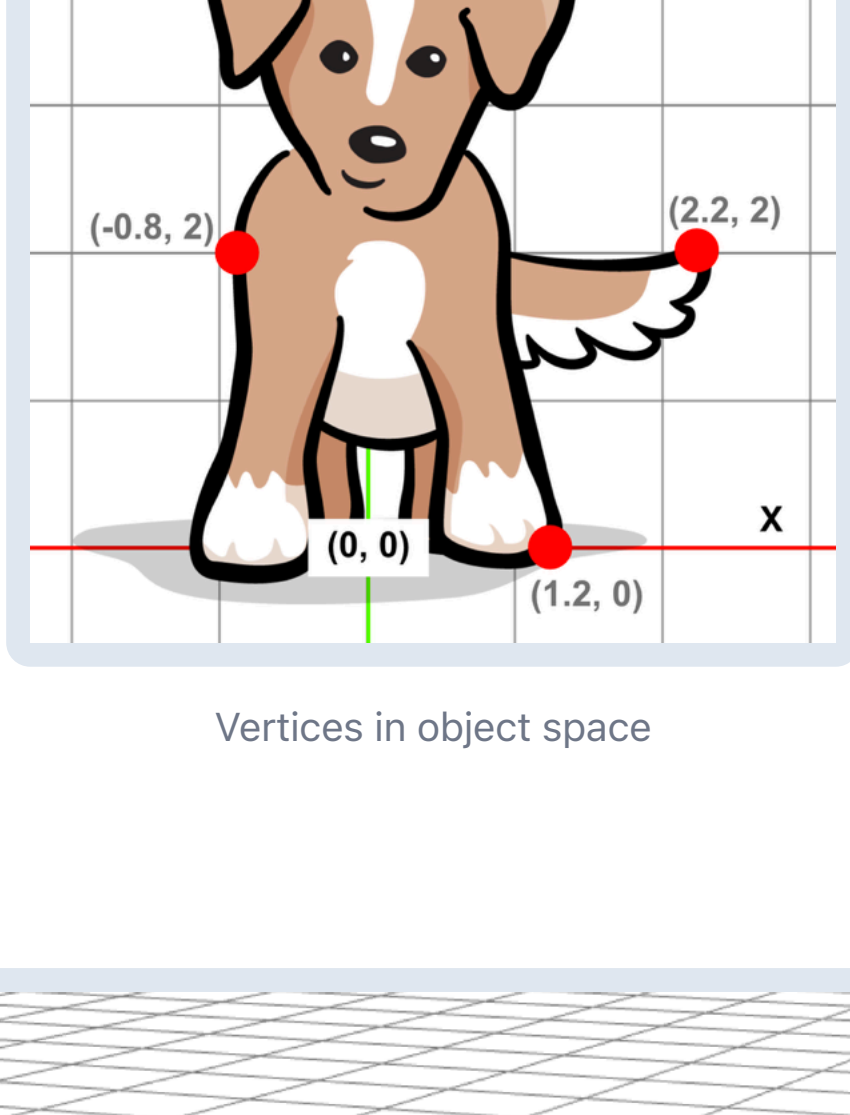


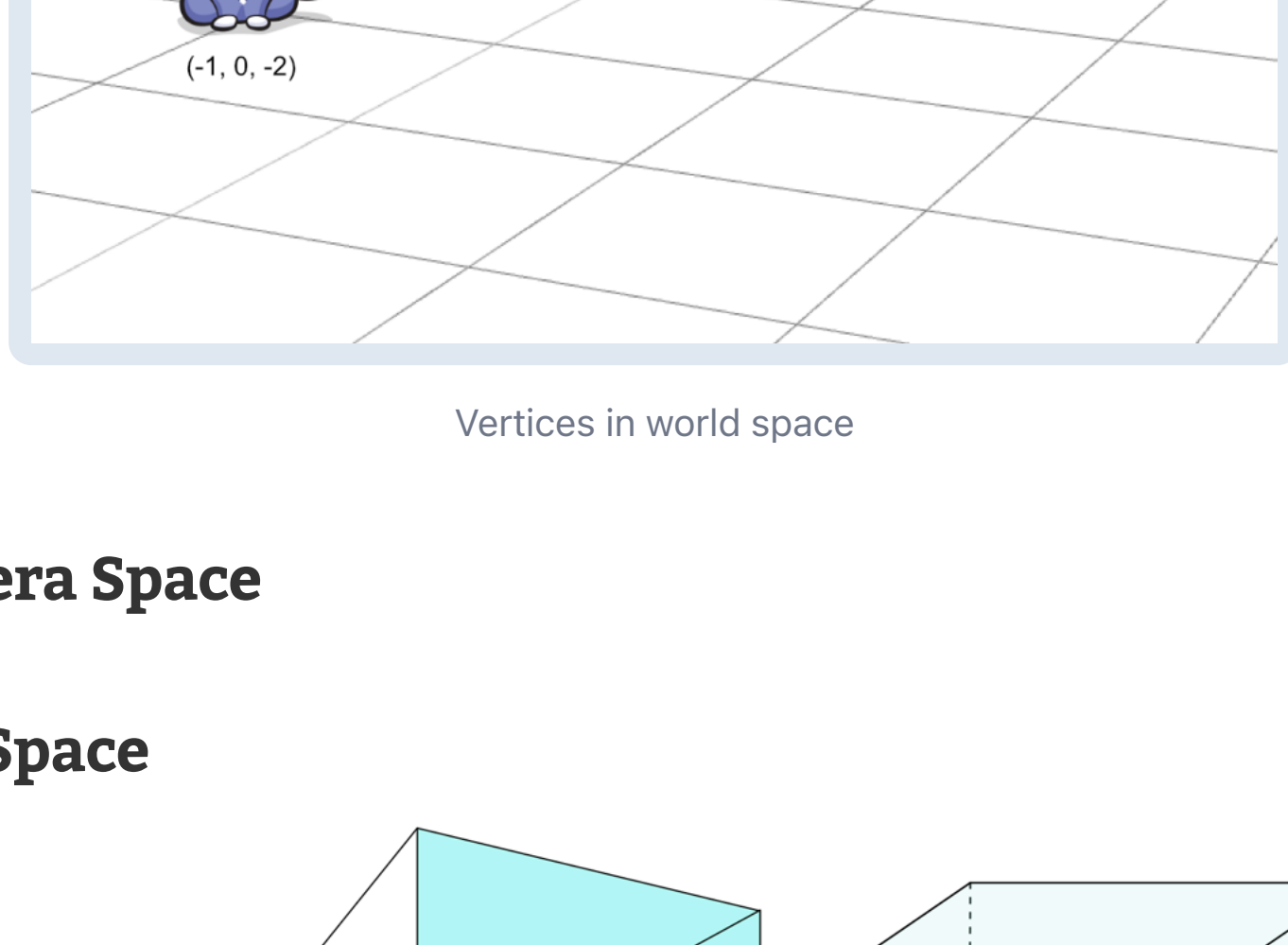
6 Coordinate Spaces

Object Space



Vertices in object space

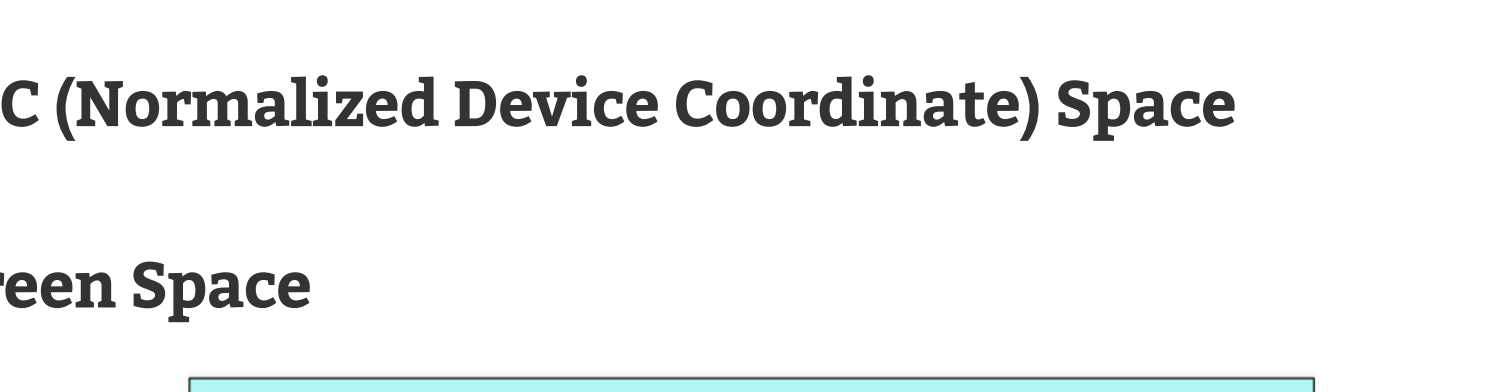
World Space



Vertices in world space

Camera Space

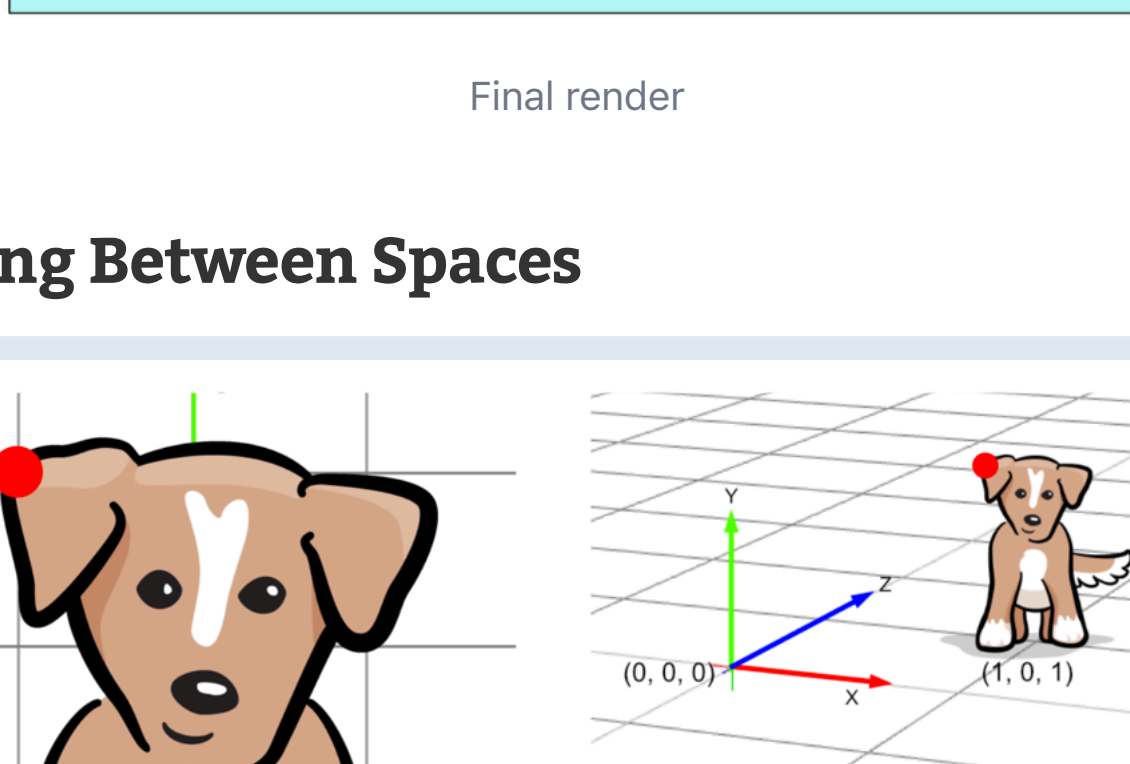
Clip Space



Clip space

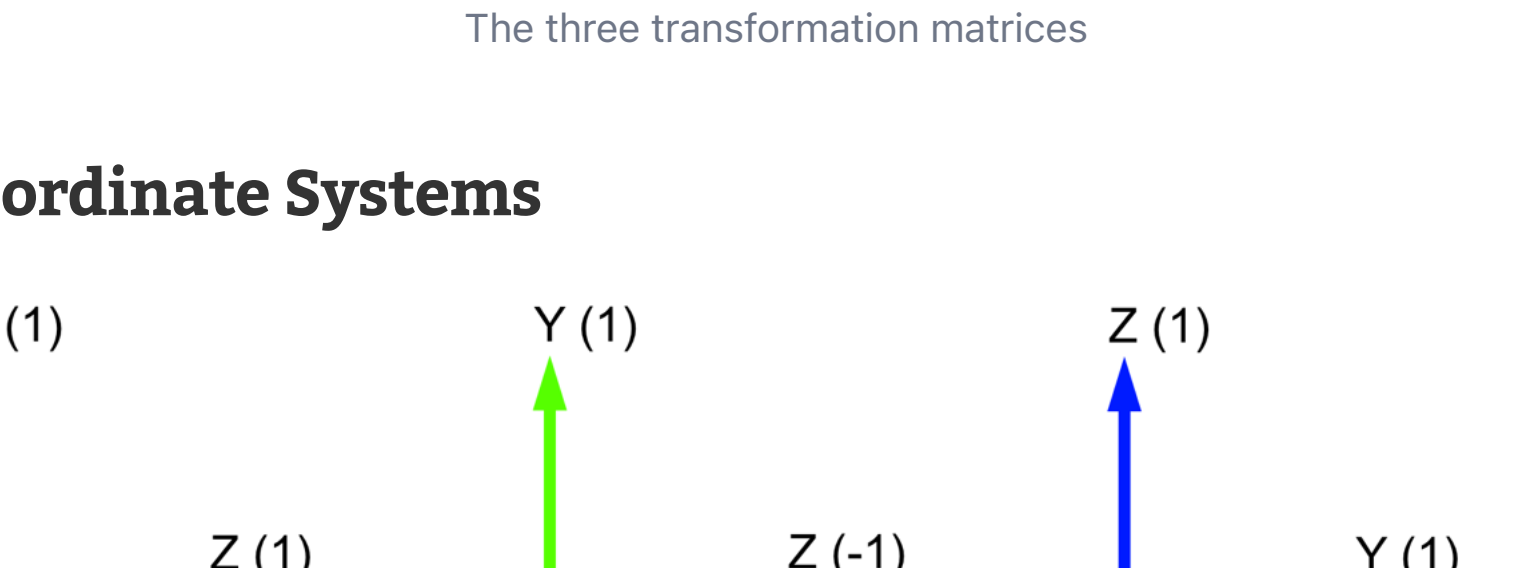
NDC (Normalized Device Coordinate) Space

Screen Space

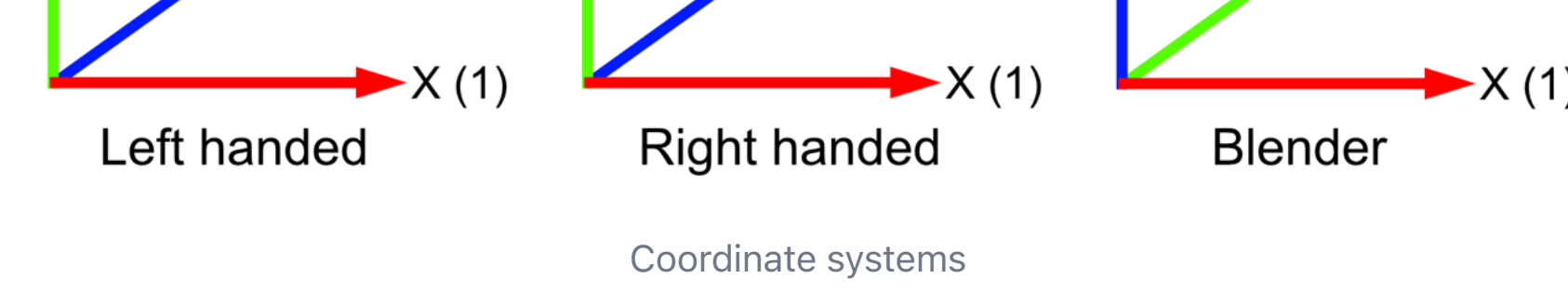


Final render

Converting Between Spaces

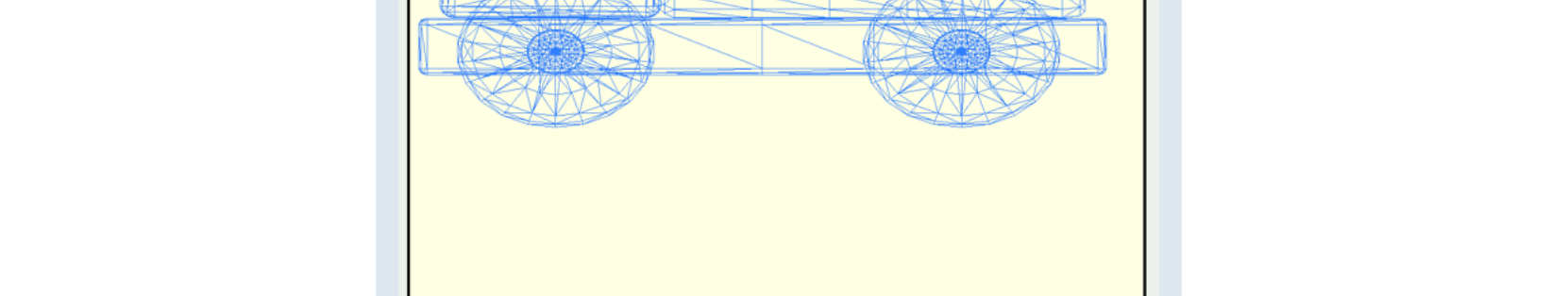


Converting object to world



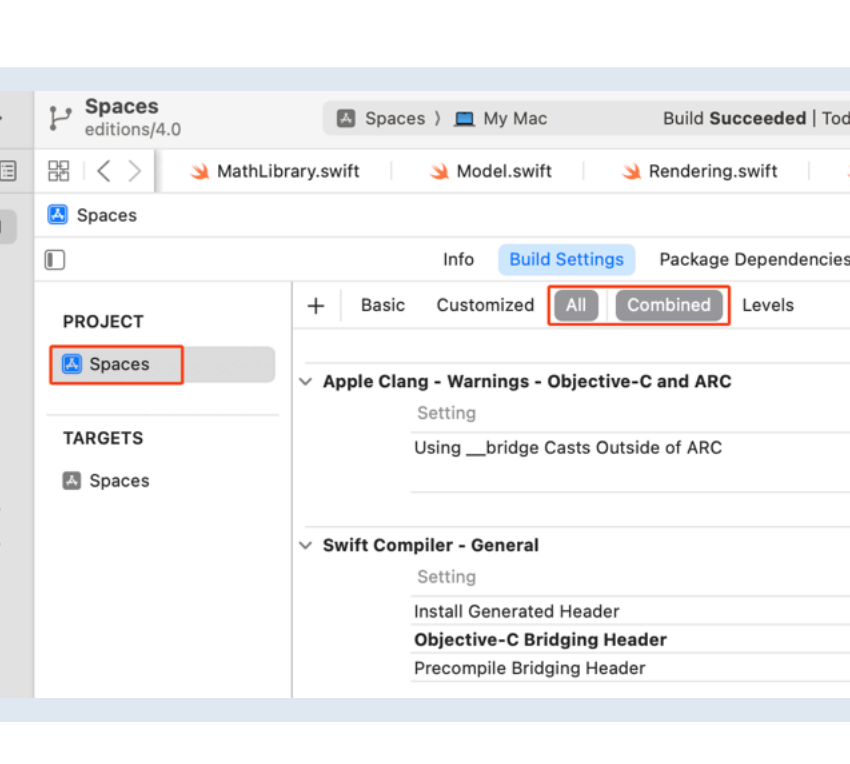
The three transformation matrices

Coordinate Systems



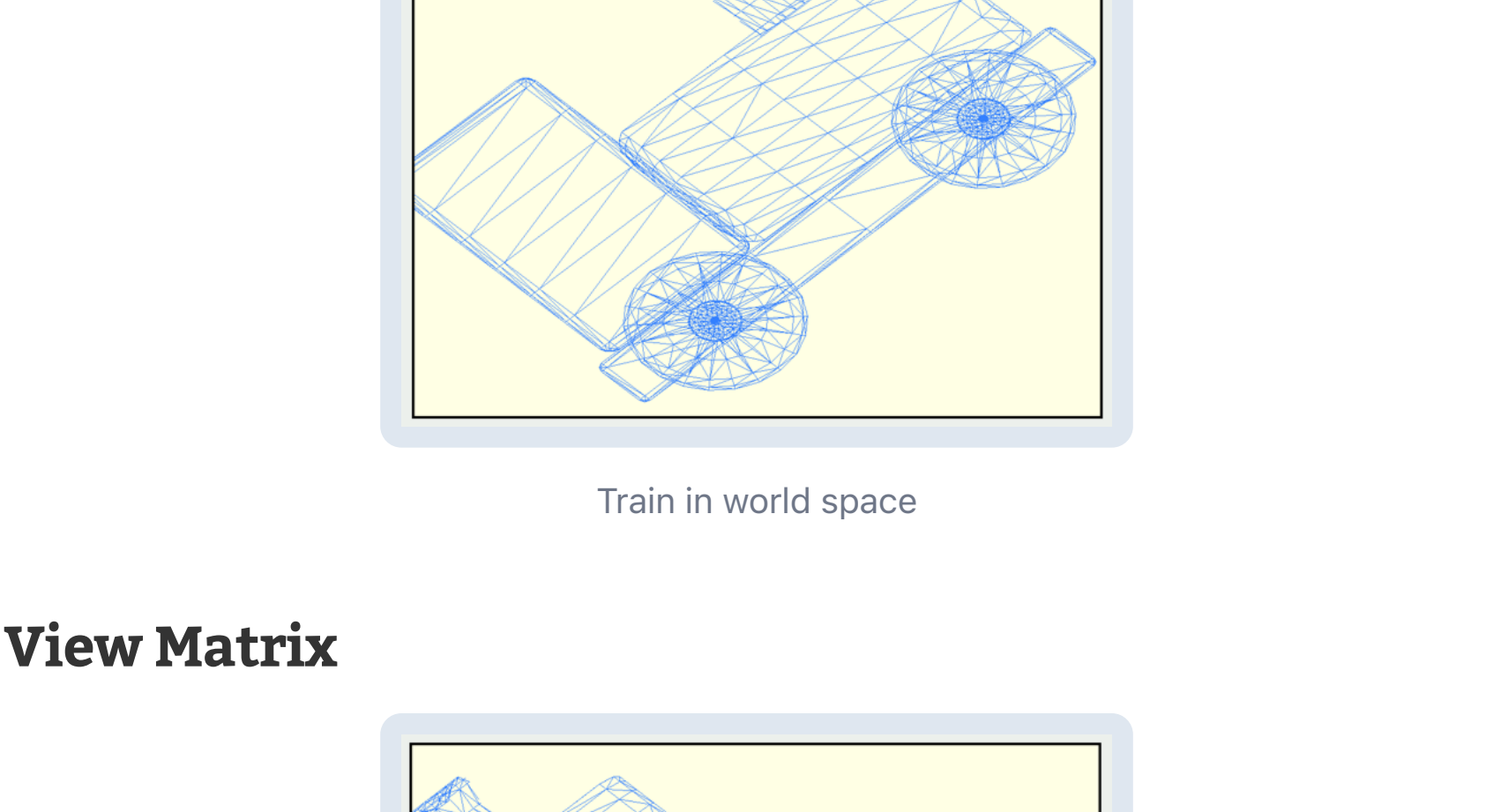
Coordinate systems

The Starter Project



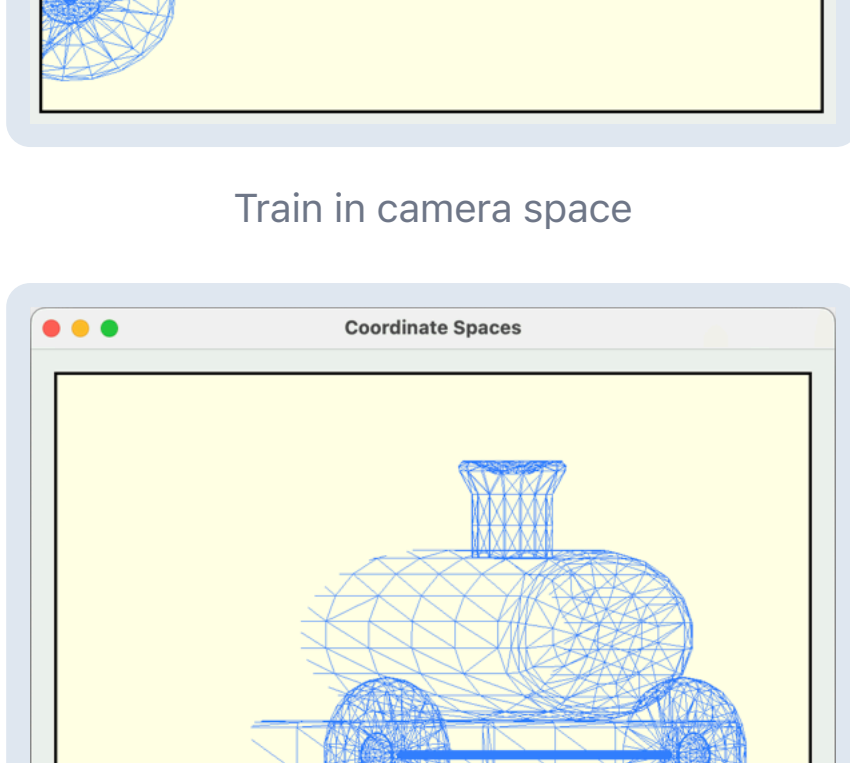
Starter project

Uniforms



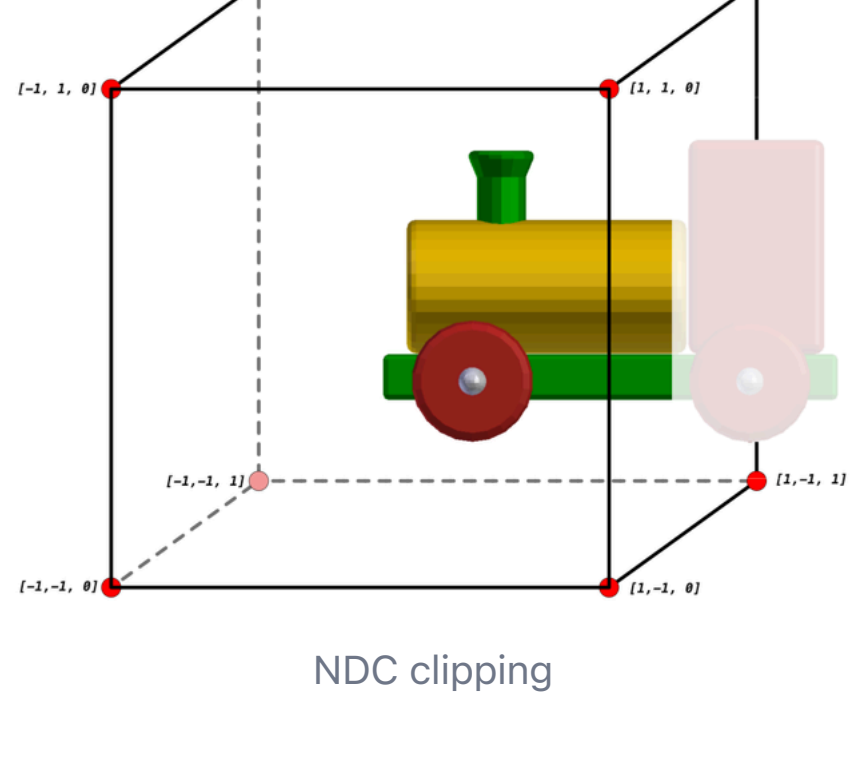
Setting up the bridging header

The Model Matrix

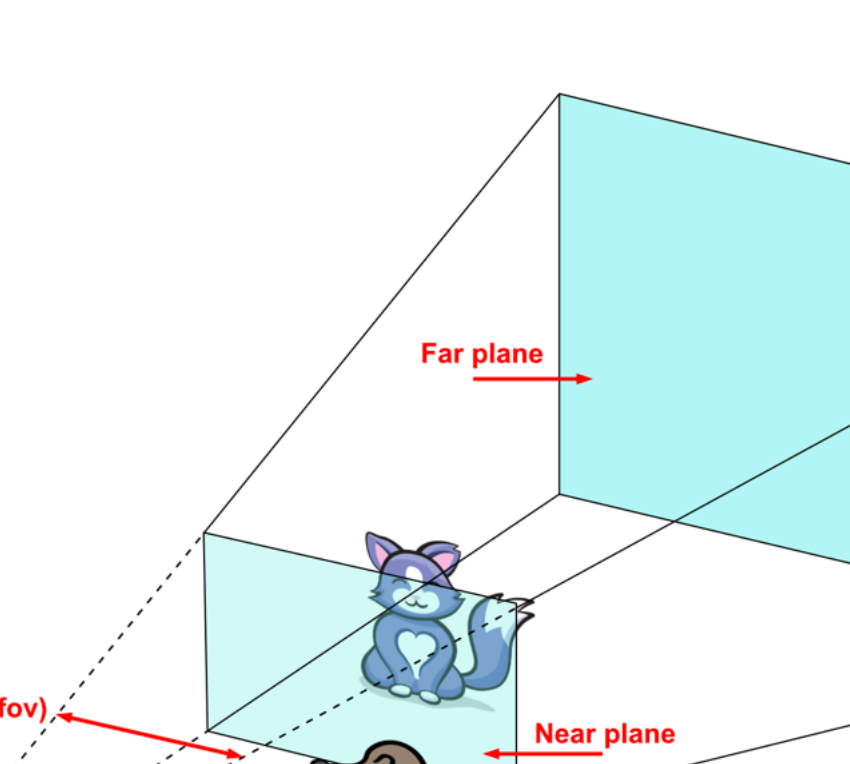


Train in world space

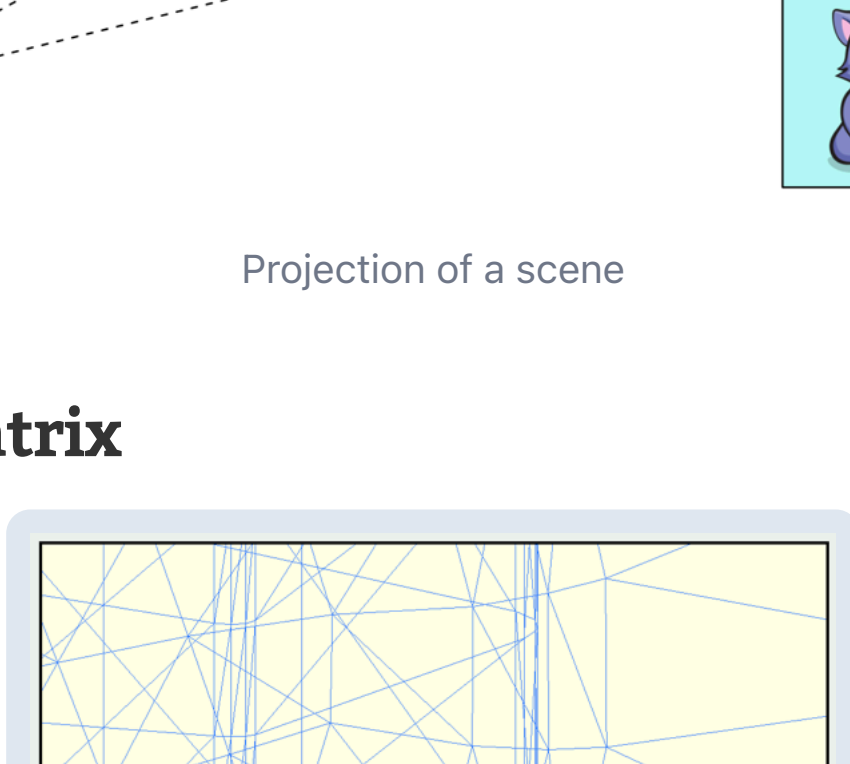
View Matrix



Train in camera space

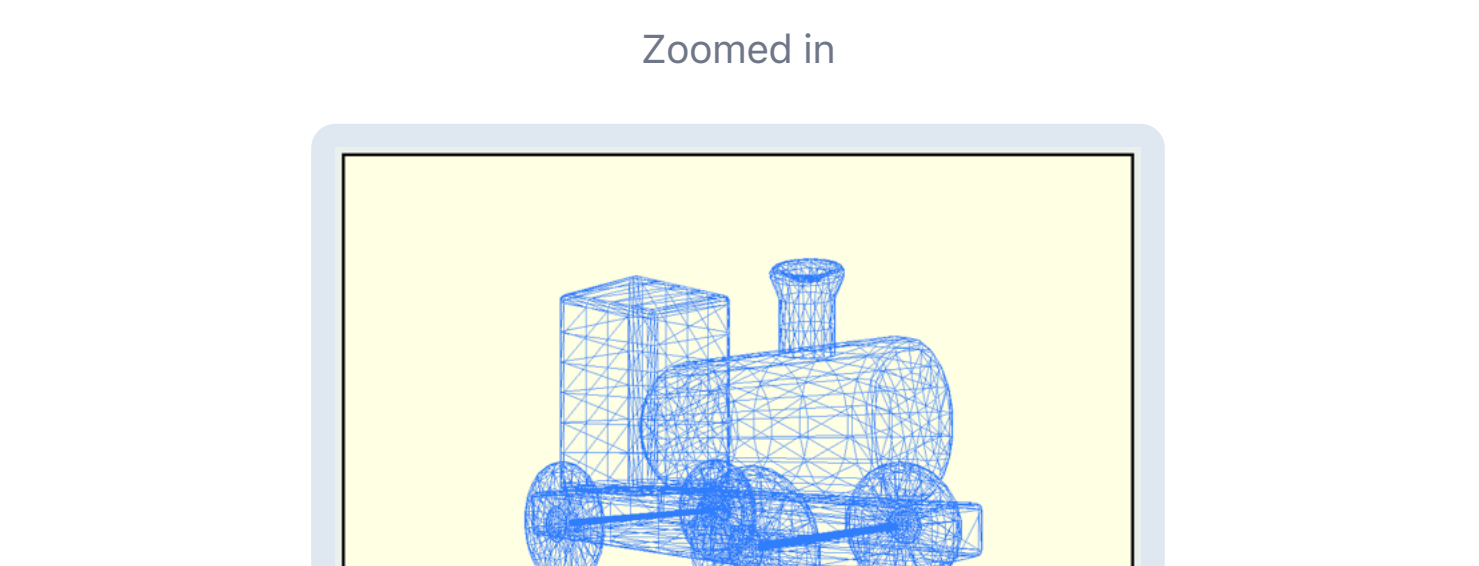


A clipped train



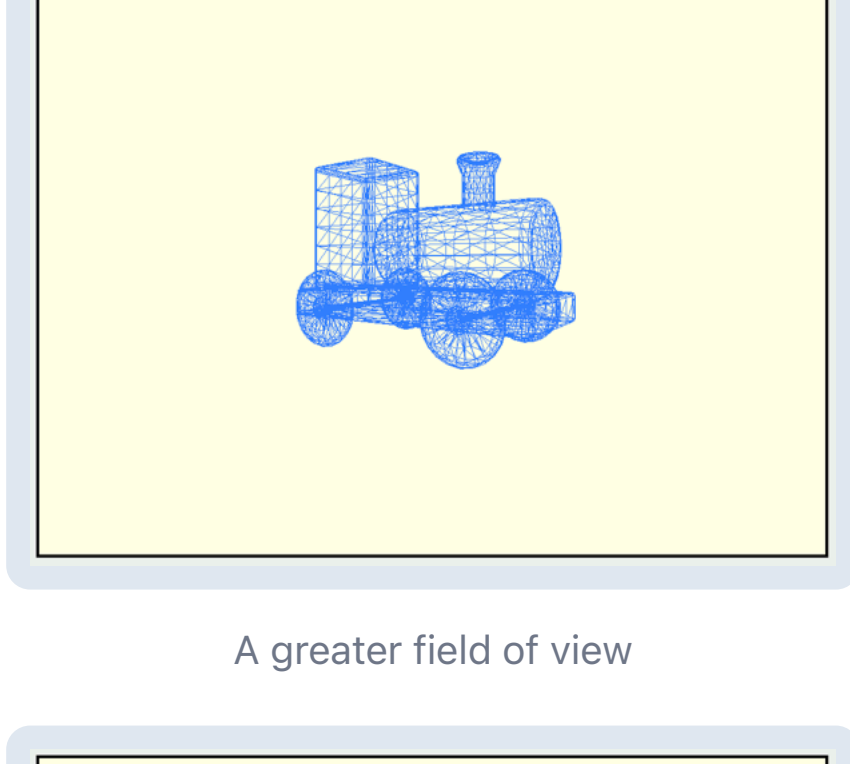
NDC clipping

Projection

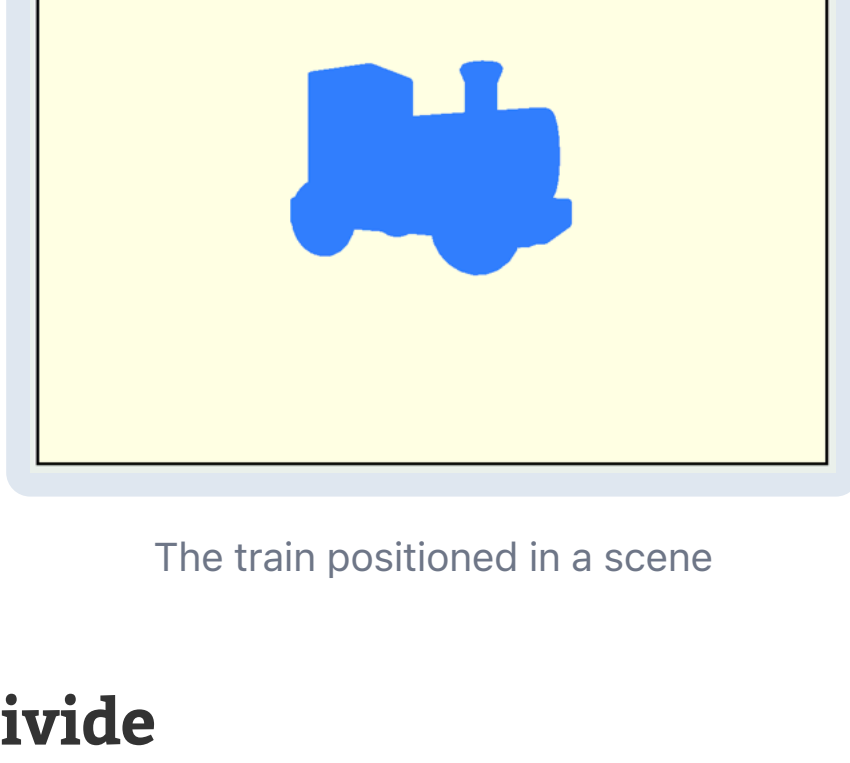


Projection of a scene

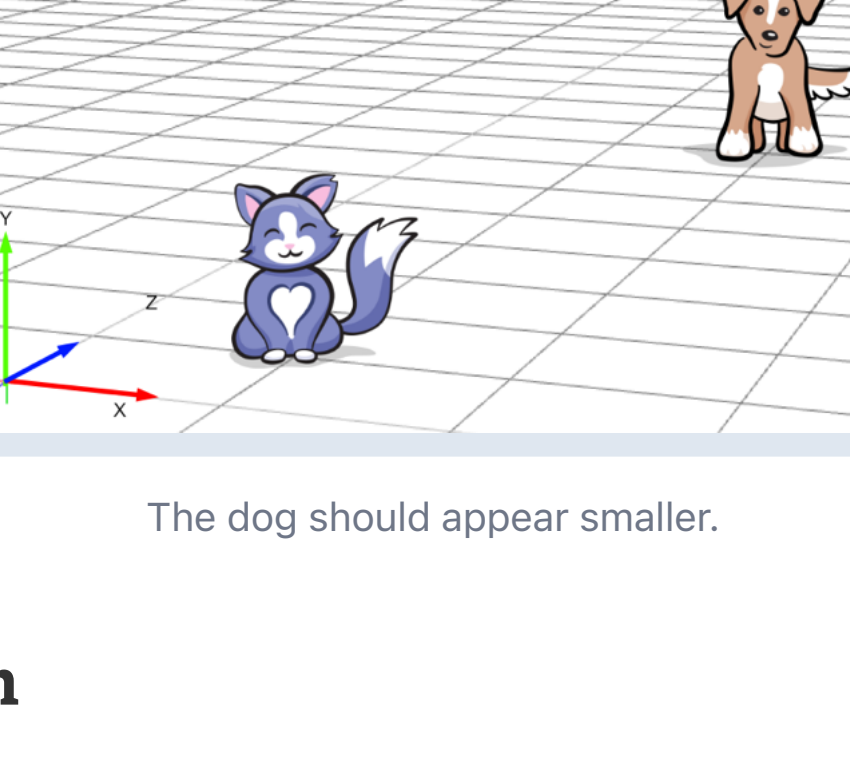
Projection Matrix



Zoomed in



Camera moved back



A greater field of view



The train positioned in a scene

Perspective Divide

The dog should appear smaller.

NDC to Screen

Refactoring the Model Matrix

Using a transform in Model