Visualizing Non-Euclidean Geometry in Thirty Seconds

Wrong Perspective

HYPERBOLIC

EUCLIDEAN

ELLIPTIC

At left is the wrong way to visualize Non-Euclidean geometry (Wikipeida, etc.) At right are Proper Perspective visualizations.

The wrong way portrays distance accurately but sacrifices the straightness of straight lines. A proper Perspective view sees the opposite: straight lines always appear straight, while the density of distance appears to be compressing (Hyperbolic), or expanding (Elliptic), as you look farther and farther outward.

Both systems are correct to imply that space appears Euclidean at the base line. In all three geometries, local space seems Euclidean everywhere you go.

Proper Perspective

HYPERBOLIC

EUCLIDEAN

ELLIPTIC

3 Possible Postulates:
Distance between two straight lines mutally perpendicular to a base line will: DIVERGE (Hyberloic Geometry); STAY EQUAL (Euclidean Geometry); or CONVERGE (Elliptic Geometry).

Wikipedia; "Non-Euclidean Geometry"; 26th April 2014; http://en.wikipedia.org/wiki/Non-Euclidean_geometry

5th July 2014 . . . . . Jim Barnes, architect

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