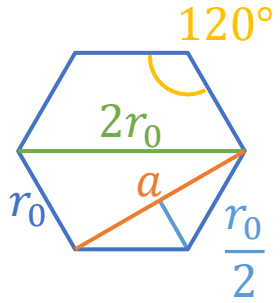


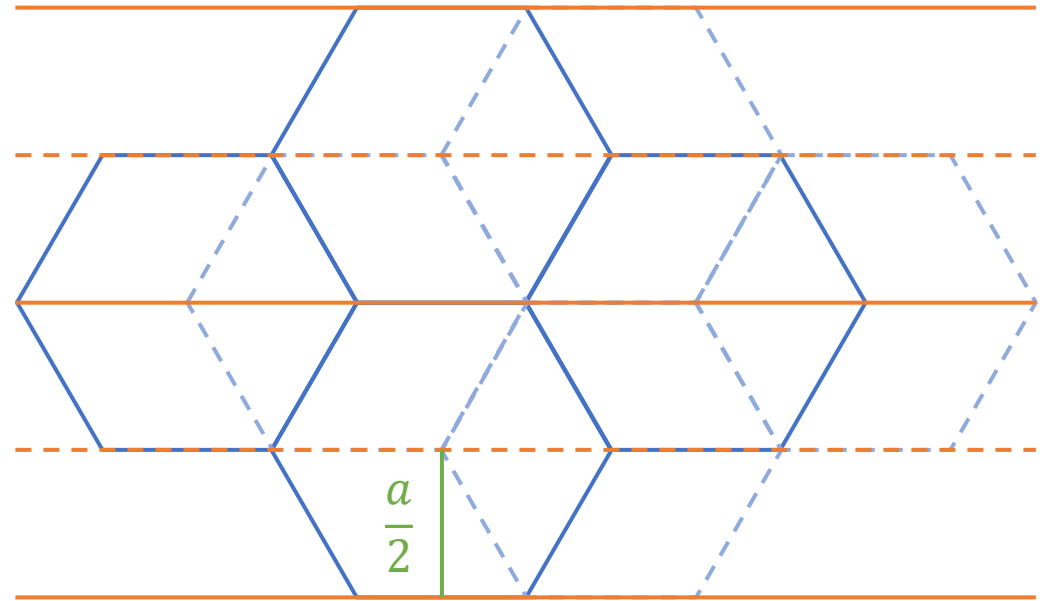
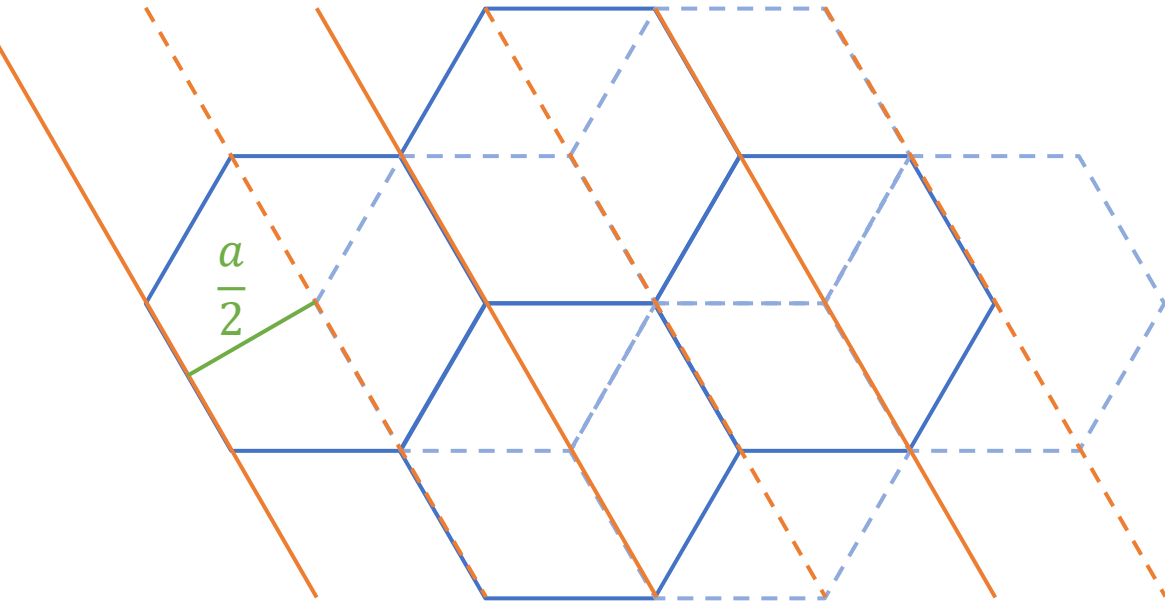
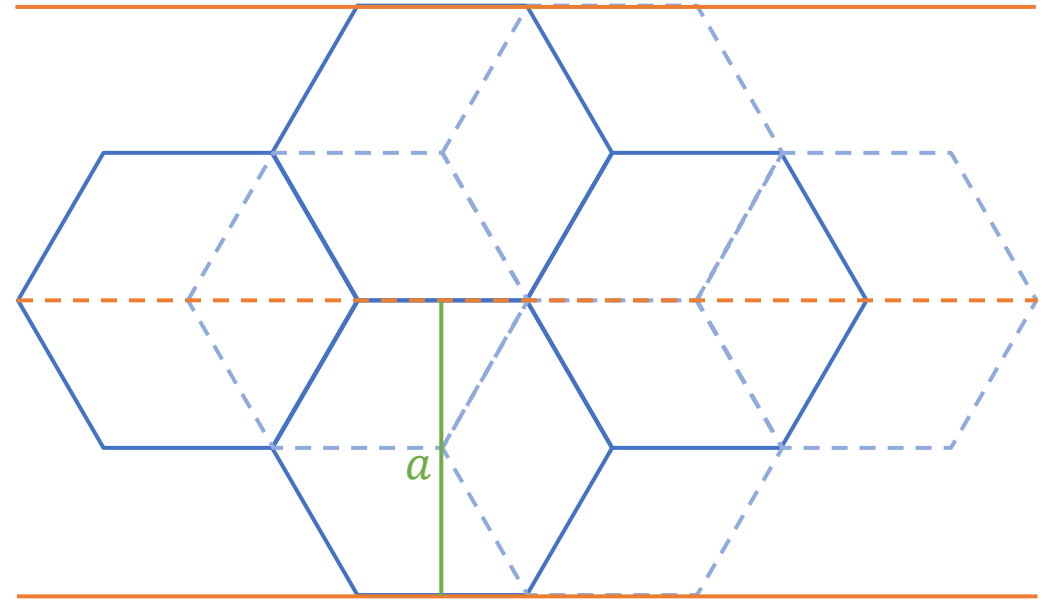
# 1<sup>st</sup>-nearest neighbour axes



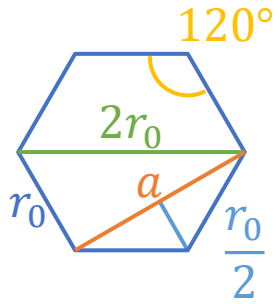
$$a = 2r_0 \sin(60^\circ) = \sqrt{3} r_0$$

Bin edges  
Perpendicular to axes

**Bin width must be  
a multiple of  $\frac{a}{2}$**



# 2<sup>nd</sup>-nearest neighbour axes

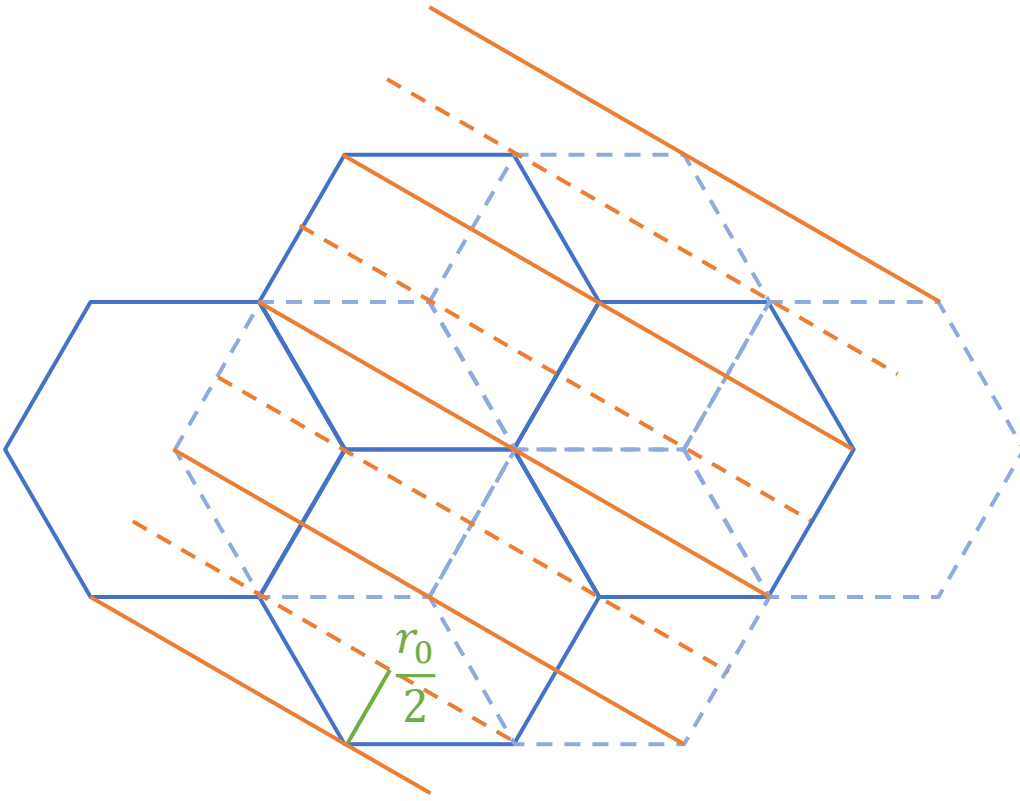
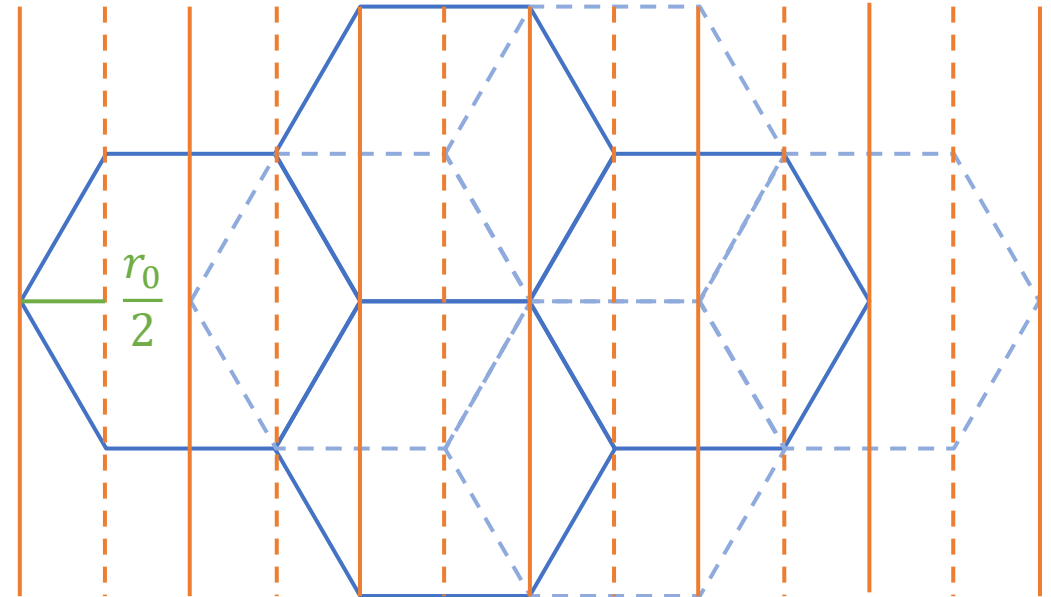
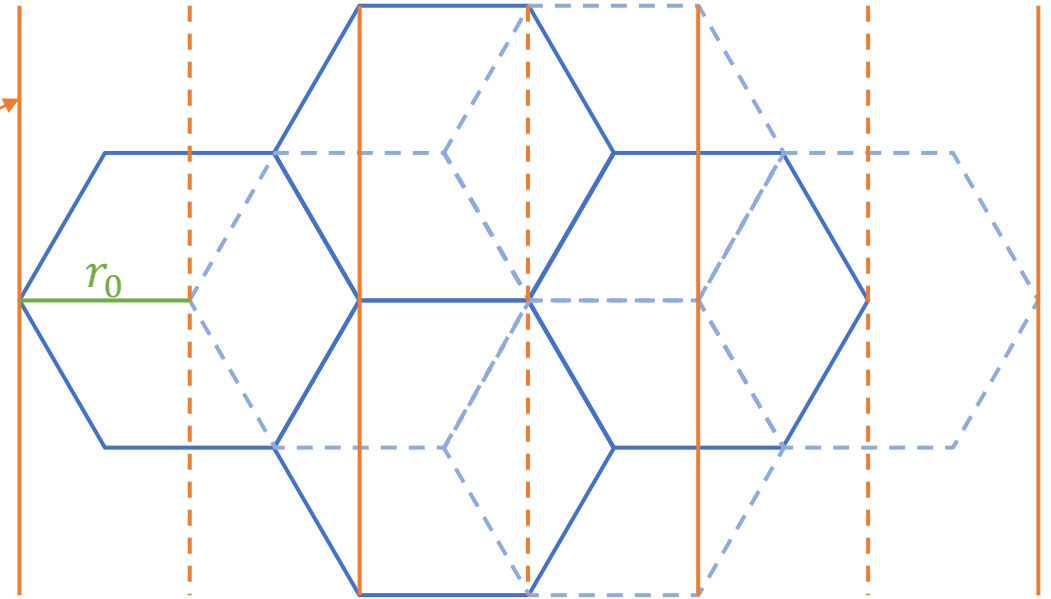


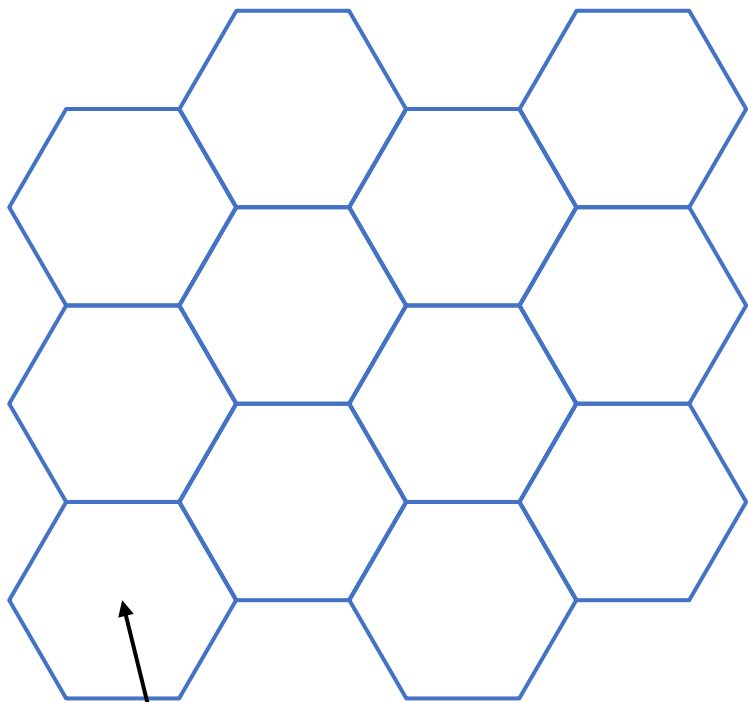
$$a = 2r_0 \sin(60^\circ) = \sqrt{3} r_0$$

**Bin width must be  
a multiple of  $\frac{r_0}{2}$**

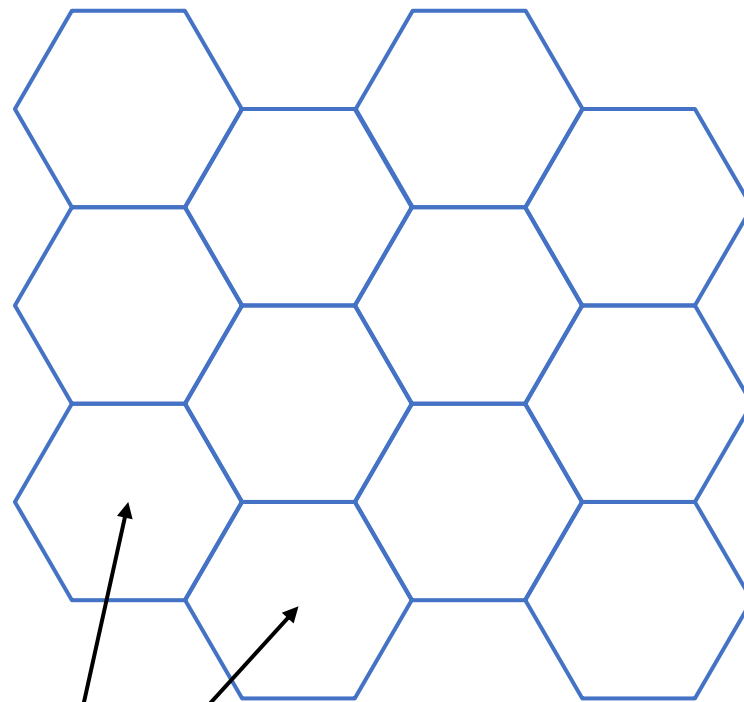
Bin edges

Perpendicular to axes





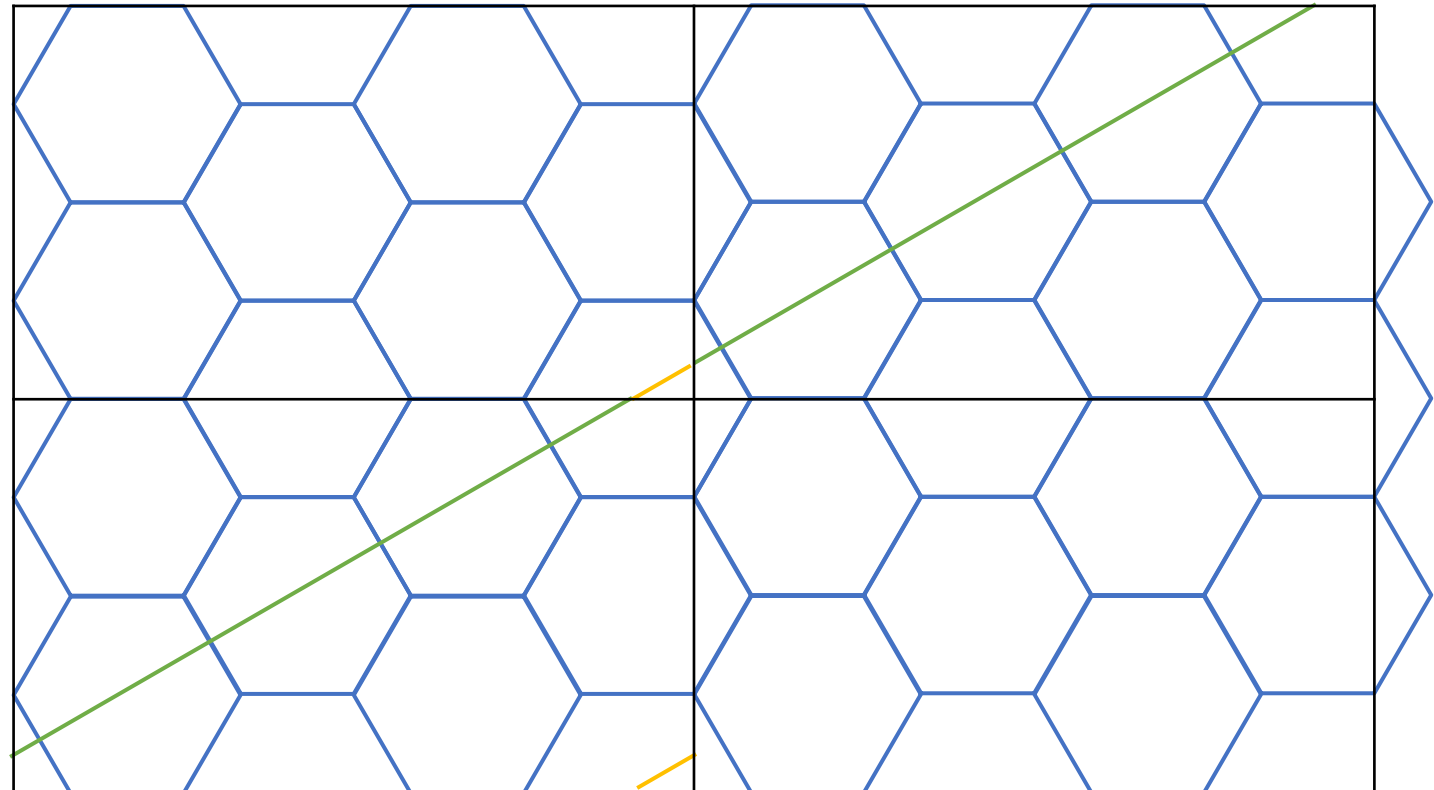
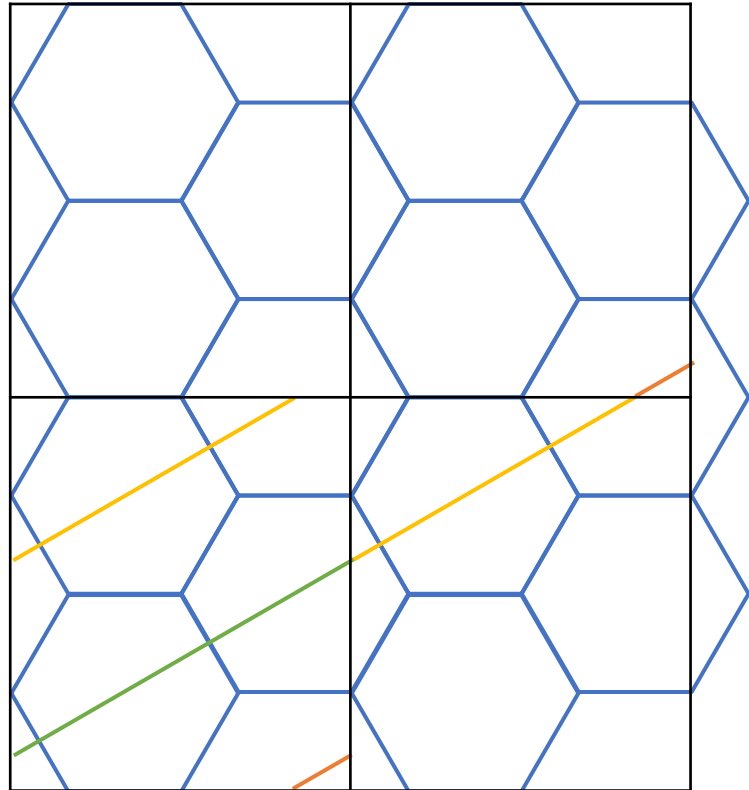
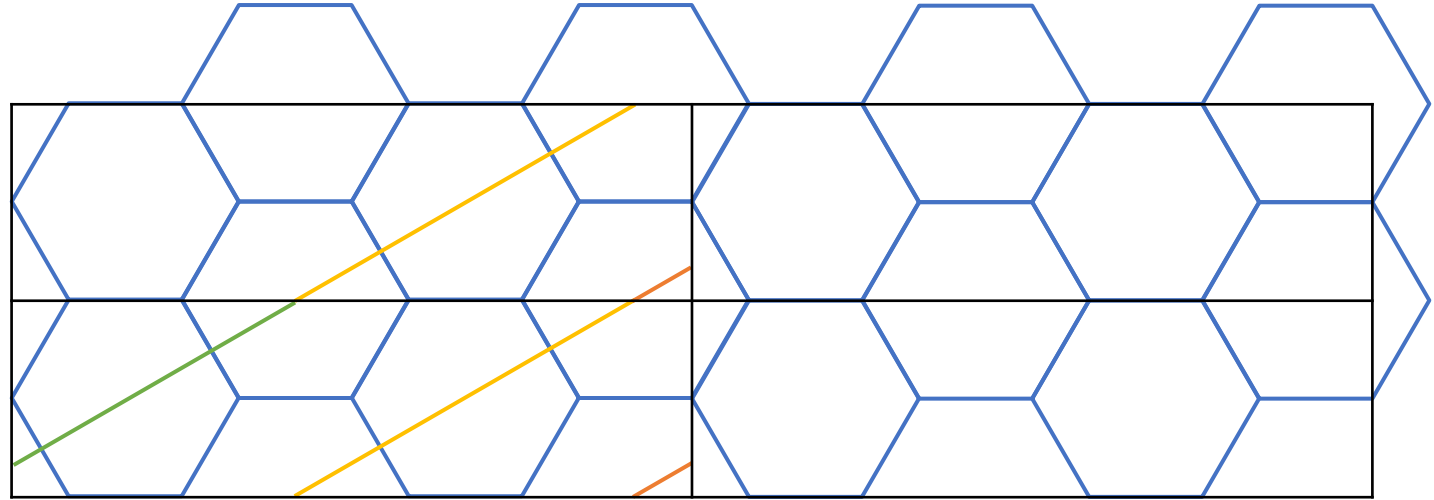
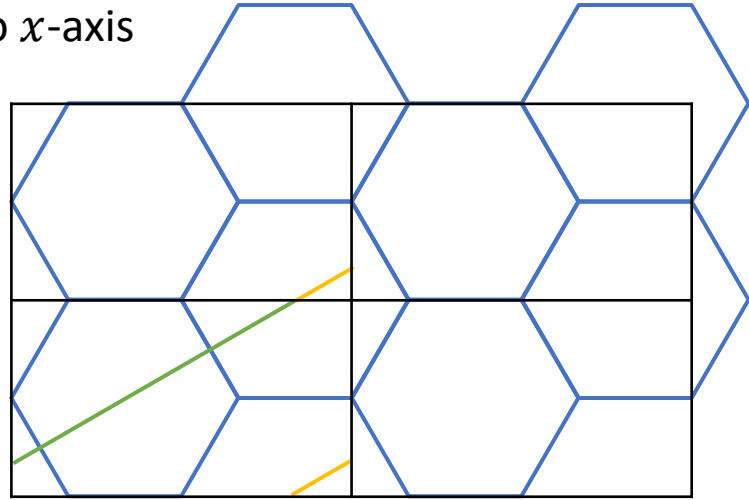
Well-defined lower left hexagon



Two possible lower left hexagons

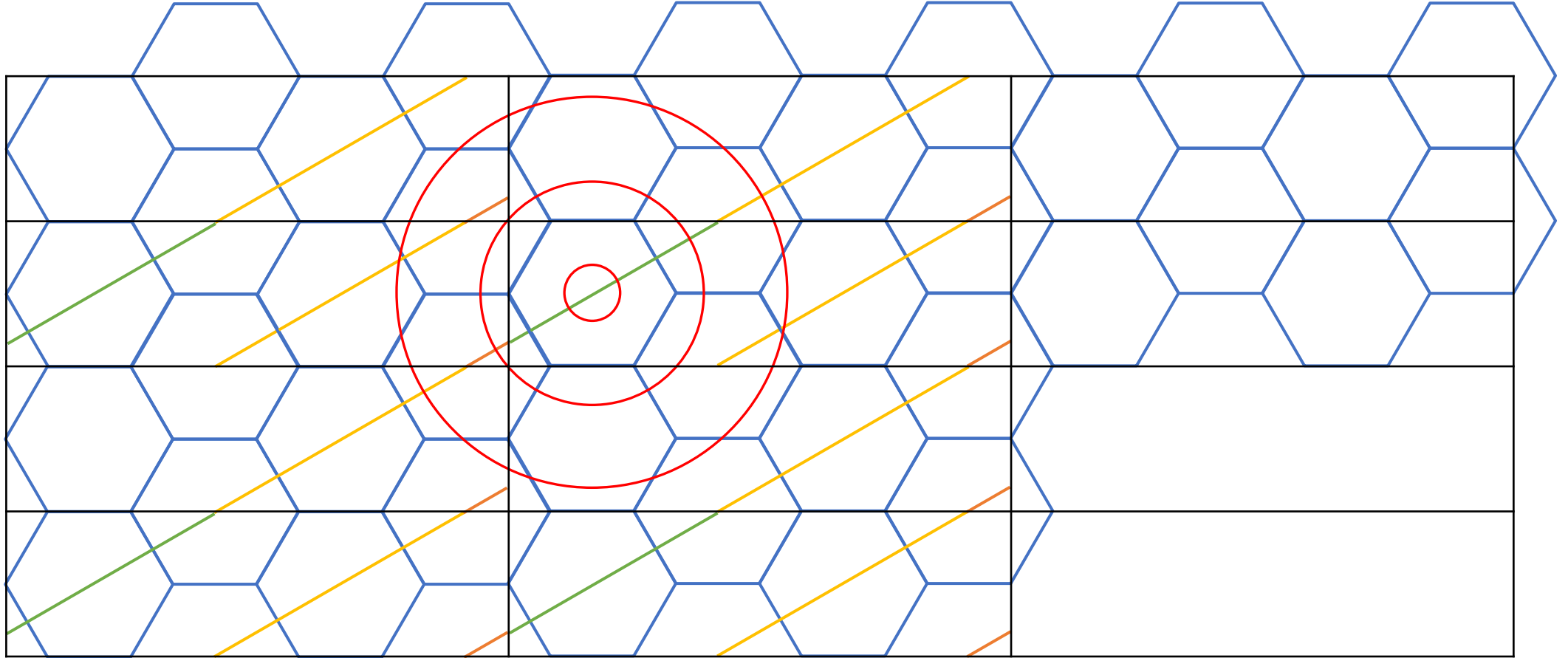
# 1<sup>st</sup>-nearest neighbour axes

Axis 1: 30° to  $x$ -axis



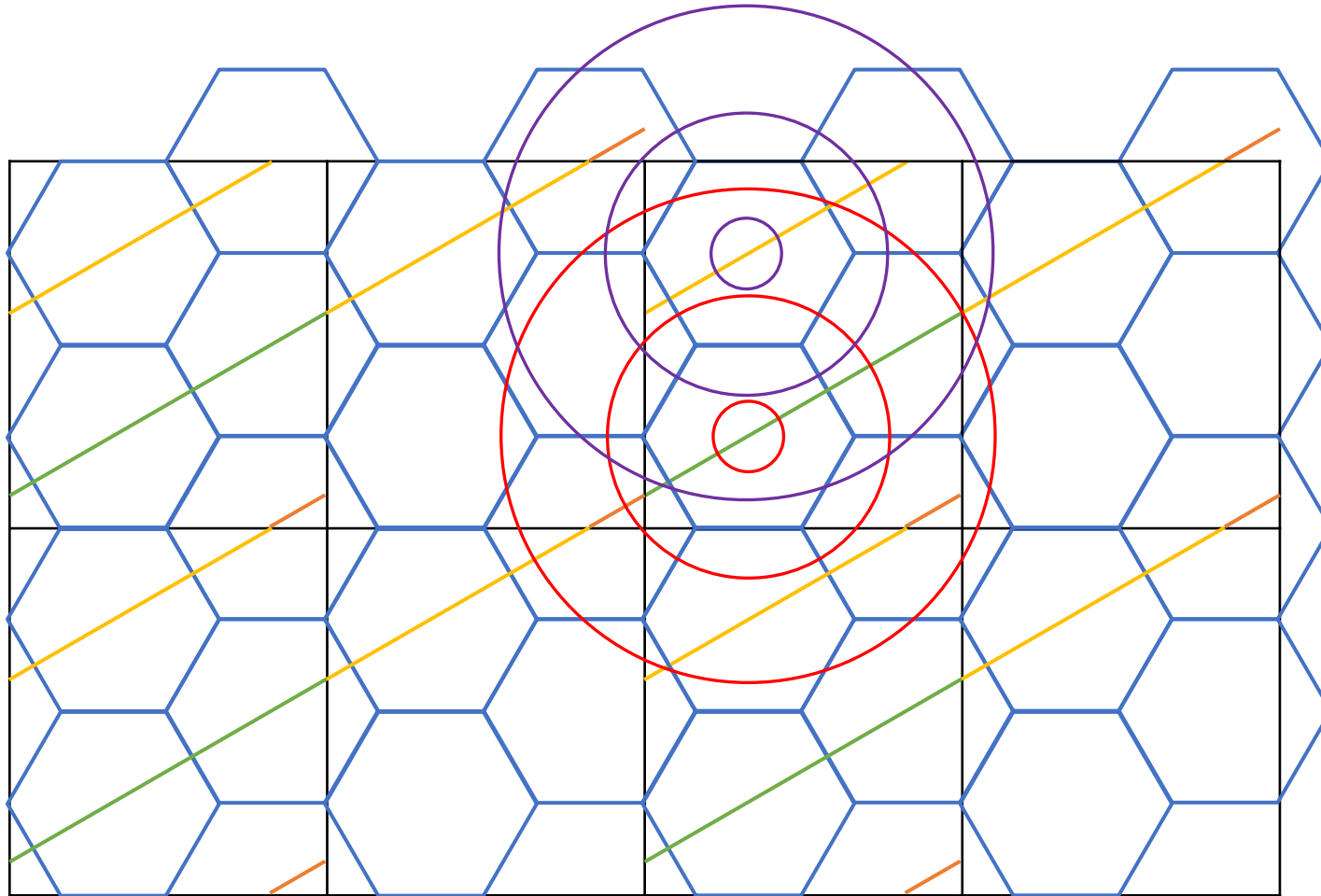
# 1<sup>st</sup>-nearest neighbour axes

Axis 1: 30° to  $x$ -axis



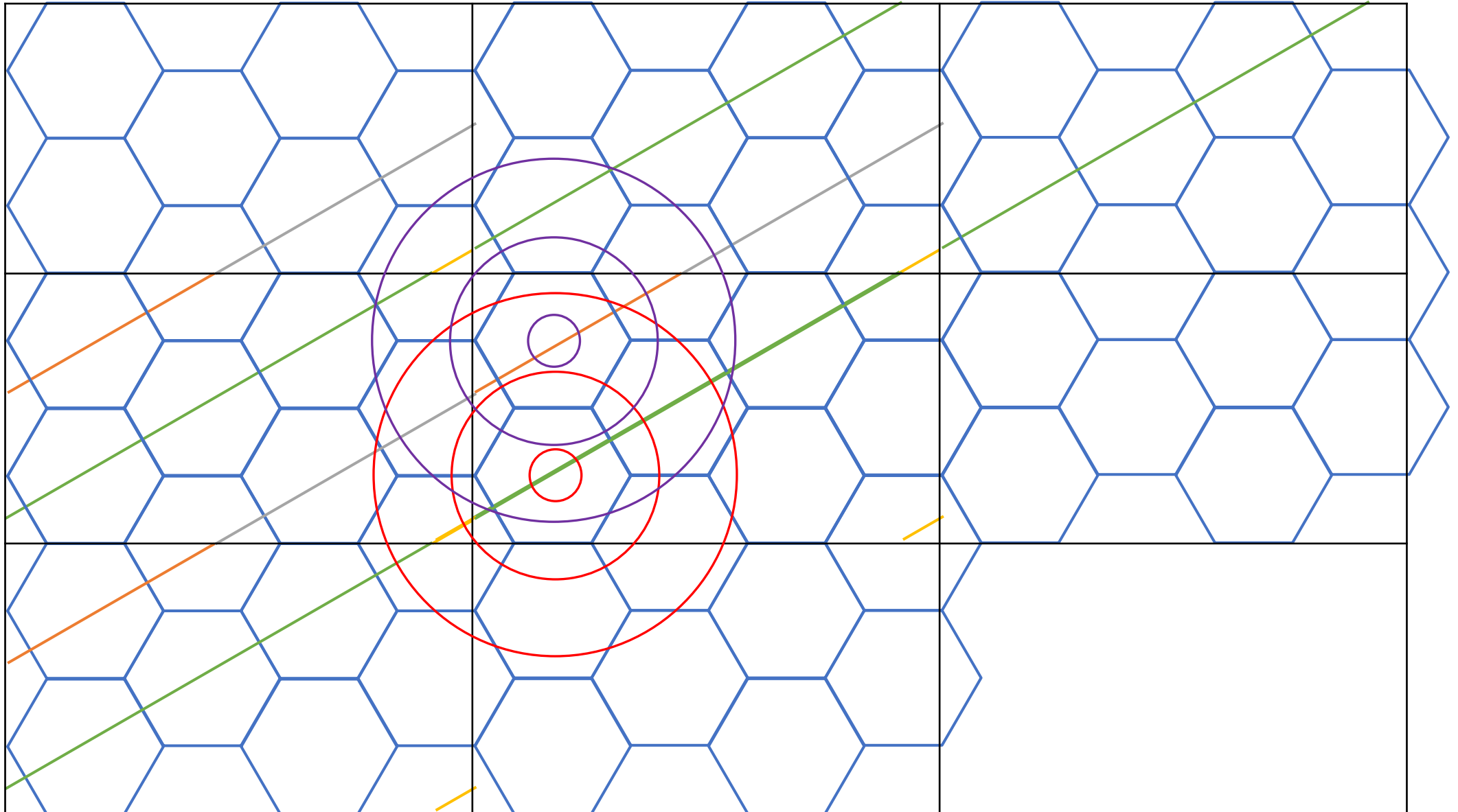
# 1<sup>st</sup>-nearest neighbour axes

Axis 1: 30° to  $x$ -axis



# 1<sup>st</sup>-nearest neighbour axes

Axis 1: 30° to  $x$ -axis



arest neighbour axes with well-defined lower left hexagon

to  $x$ -axis  
to  $x$ -axis

The diagram shows a hexagonal lattice of blue hexagons. A central region is highlighted with a grid of vertical and horizontal black lines. Within this grid, several lines are drawn: solid orange lines forming a triangular pattern, solid green lines forming a triangular pattern, dashed orange lines forming a triangular pattern, dashed green lines forming a triangular pattern, and dashed yellow lines forming a triangular pattern. The lines are labeled 'to  $x$ -axis' and 'to  $x$ -axis'.

arest neighbour axes with well-defined lower left hexagon

to  $x$ -axis  
to  $x$ -axis

The diagram shows a hexagonal lattice of blue hexagons. A black grid is overlaid, with vertical lines at  $x=0$  and  $x=1$ , and horizontal lines at  $y=0$  and  $y=1$ . In the lower-left region, several hexagons are highlighted with colored lines: orange solid lines, green dashed lines, and yellow dashed lines. These lines form a pattern that suggests a specific arrangement of atoms or molecules within the lattice. The text 'arest neighbour axes with well-defined lower left hexagon' is at the top, and 'to  $x$ -axis' is repeated twice on the left side.

arest neighbour axes with well-defined lower left hexagon

to  $x$ -axis  
to  $x$ -axis

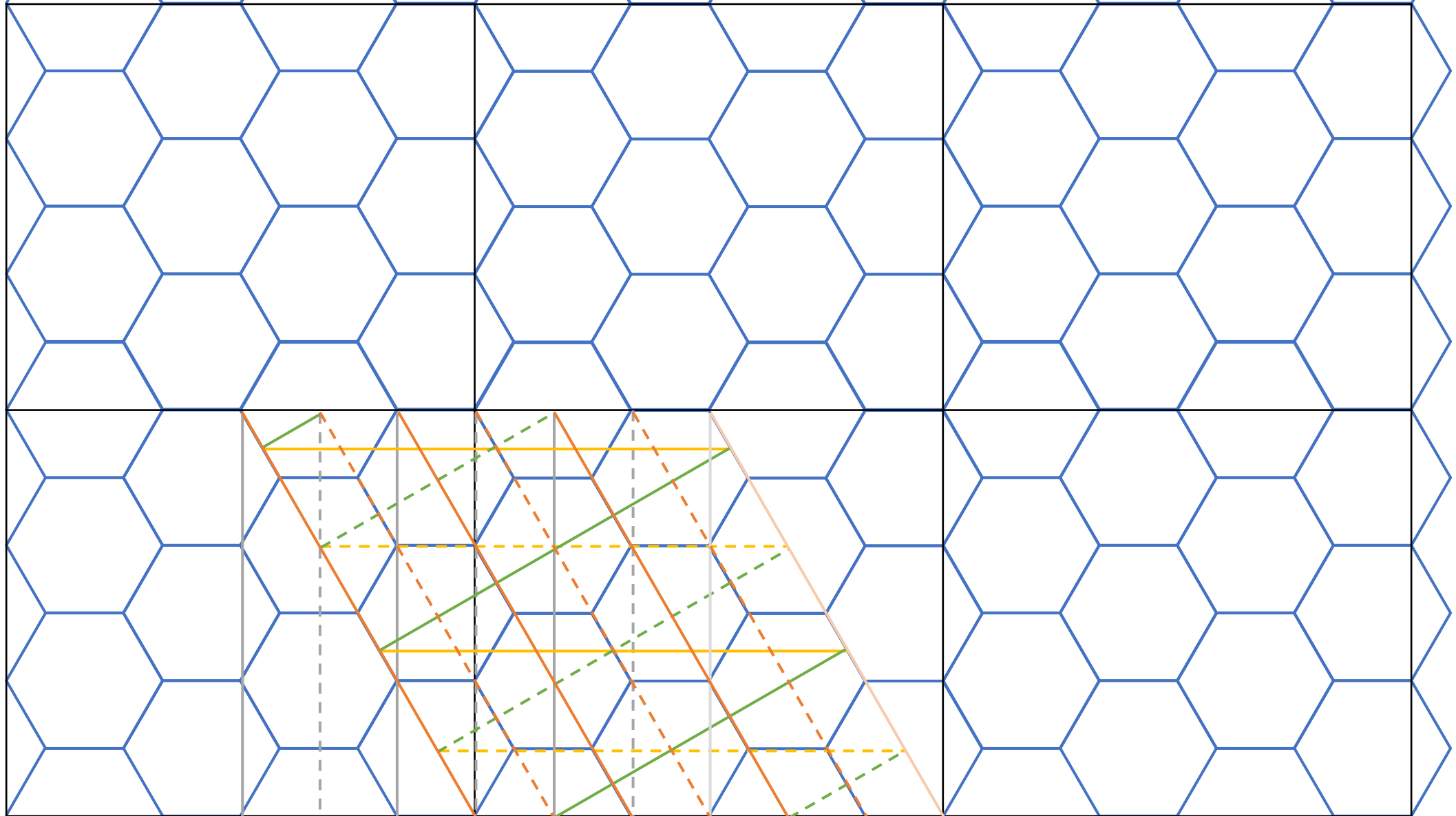
The diagram shows a hexagonal lattice of blue hexagons. A black grid is overlaid, with vertical lines at  $x=0$  and  $x=1$ , and horizontal lines at  $y=0$  and  $y=1$ . In the lower-left region, several hexagons are highlighted with colored lines: orange solid lines, green dashed lines, and yellow dashed lines. These lines form a pattern that suggests a specific arrangement of atoms or molecules within the lattice. The text 'arest neighbour axes with well-defined lower left hexagon' is at the top, and 'to  $x$ -axis' is repeated twice on the left side.



# 1<sup>st</sup>-nearest neighbour axes with undefined lower left hexagon

Axis 1: 30° to  $x$ -axis

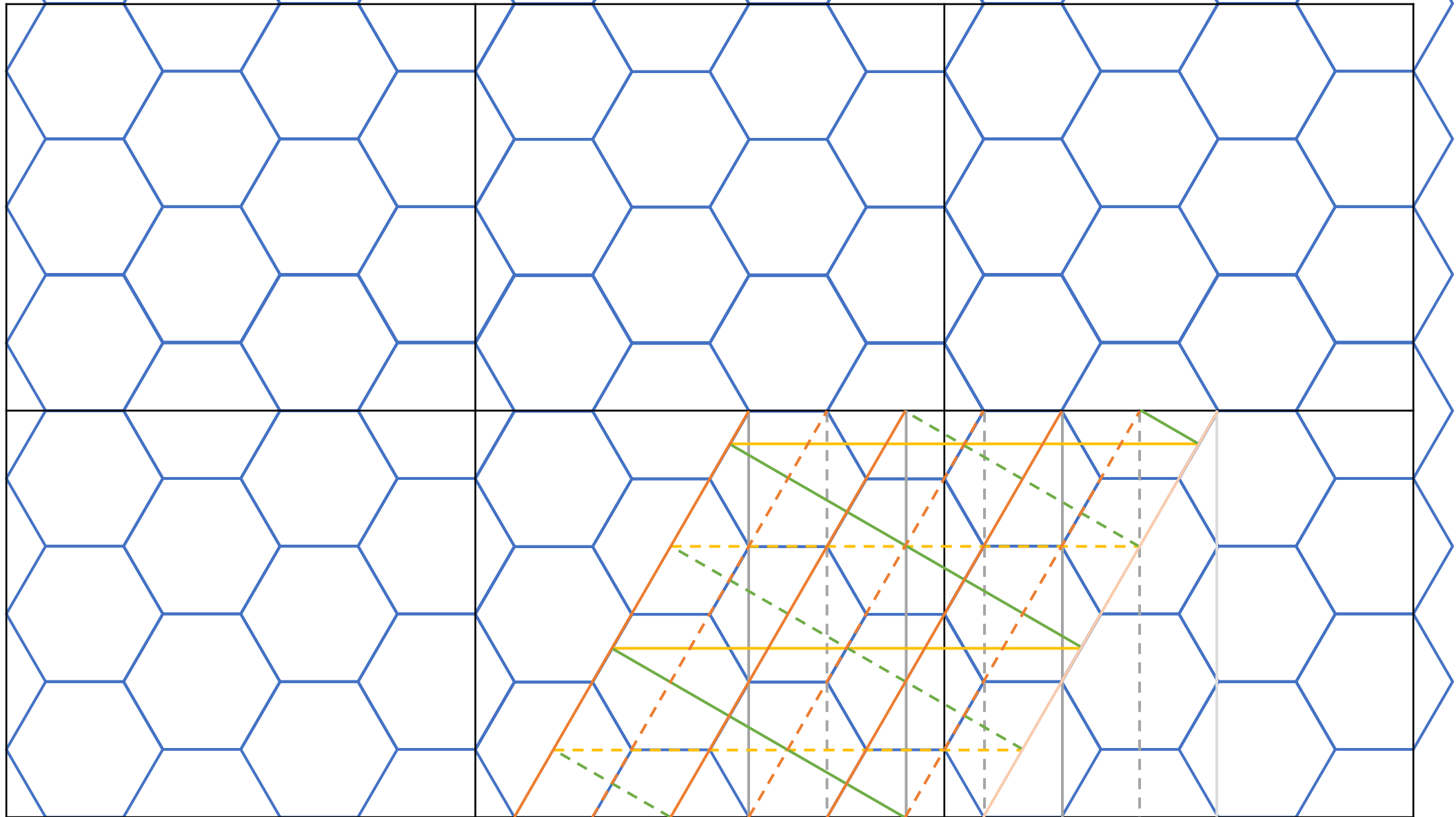
Bins: 120° to  $x$ -axis



# 1<sup>st</sup>-nearest neighbour axes with well-defined lower left hexagon

Axis 2: 150° to x-axis

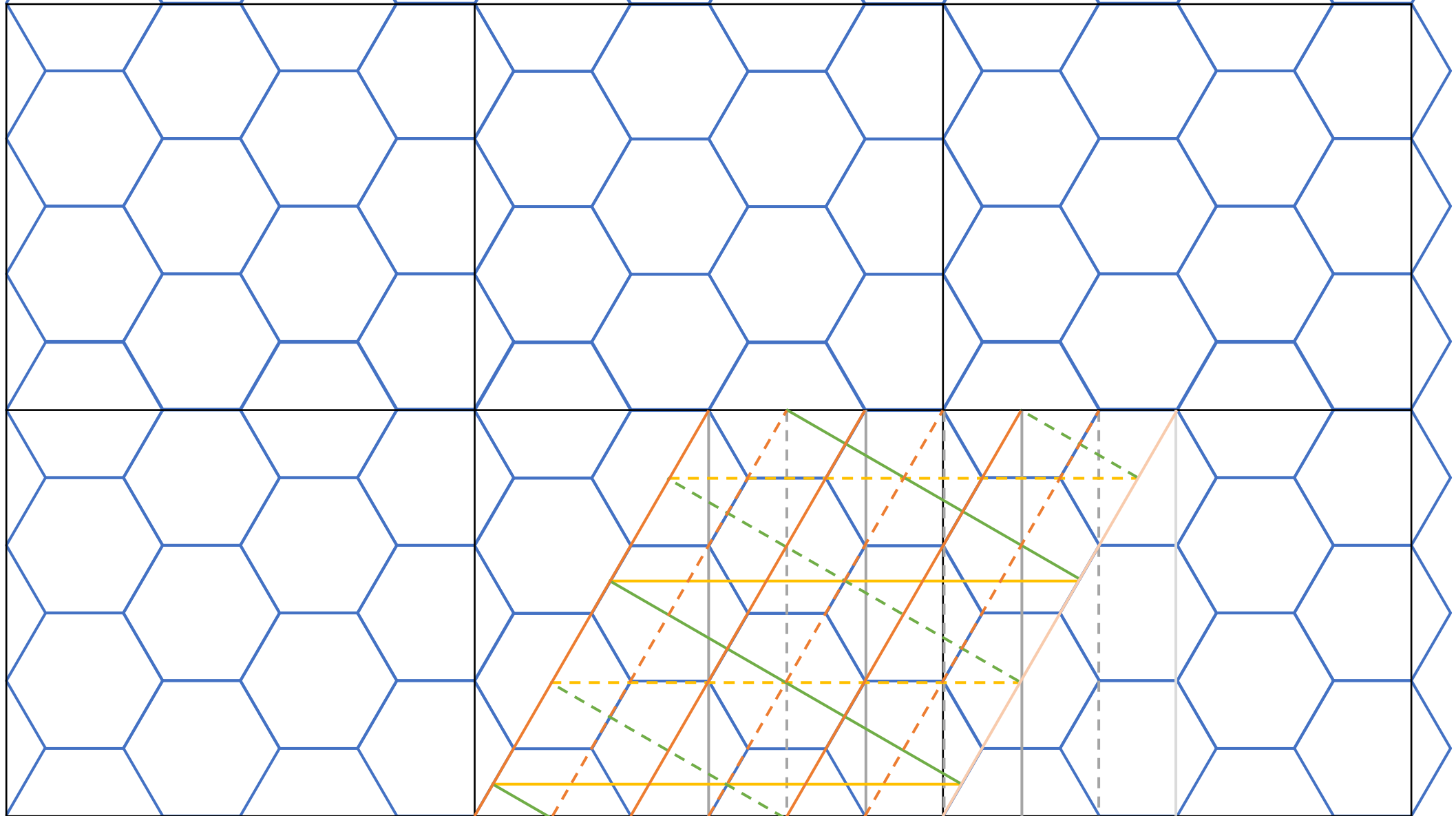
Bins: 60° to x-axis



# 1<sup>st</sup>-nearest neighbour axes with undefined lower left hexagon

Axis 2: 150° to  $x$ -axis

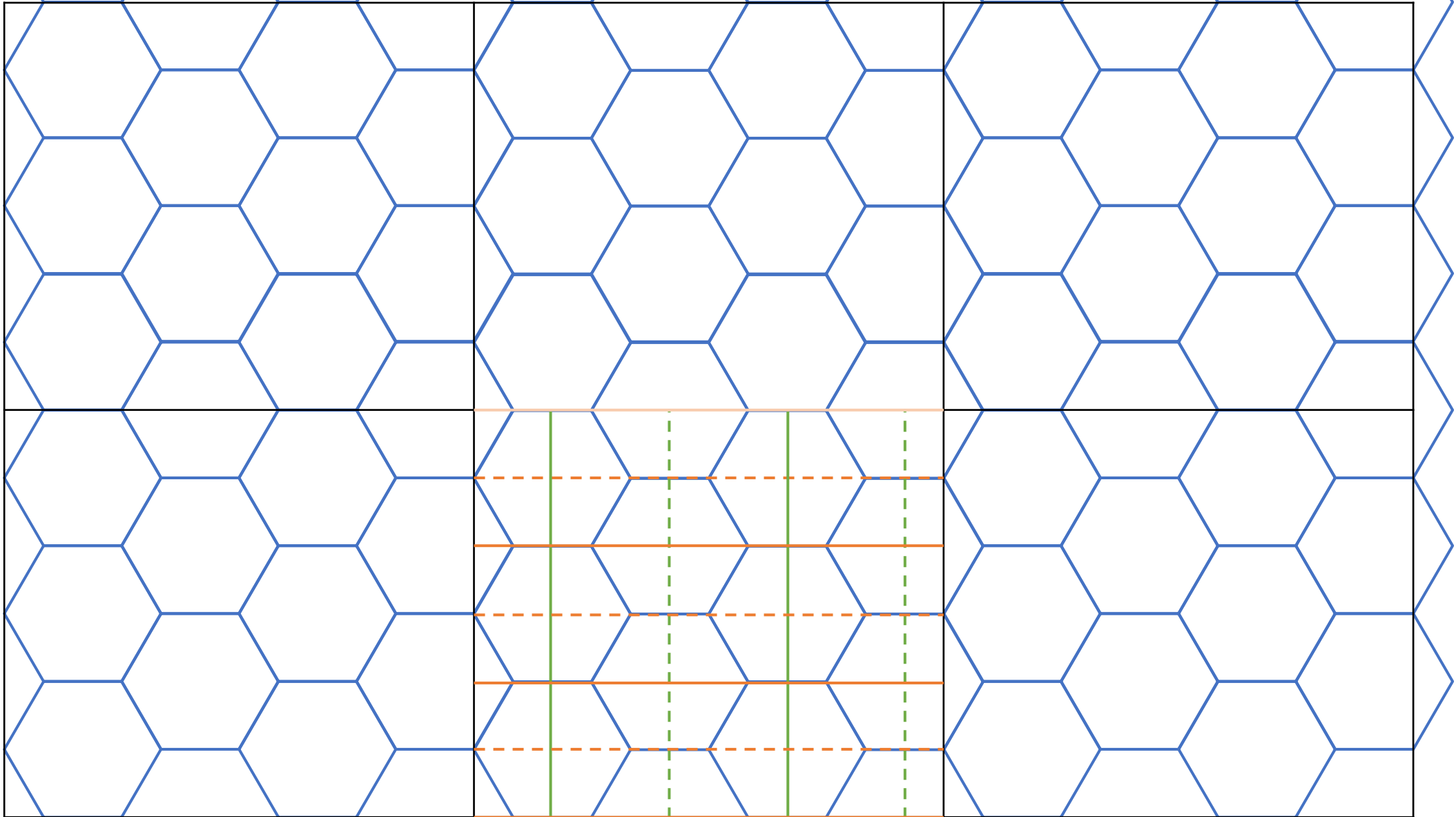
Bins: 60° to  $x$ -axis



# 1<sup>st</sup>-nearest neighbour axes with well-defined lower left hexagon

Axis 3: 90° to  $x$ -axis

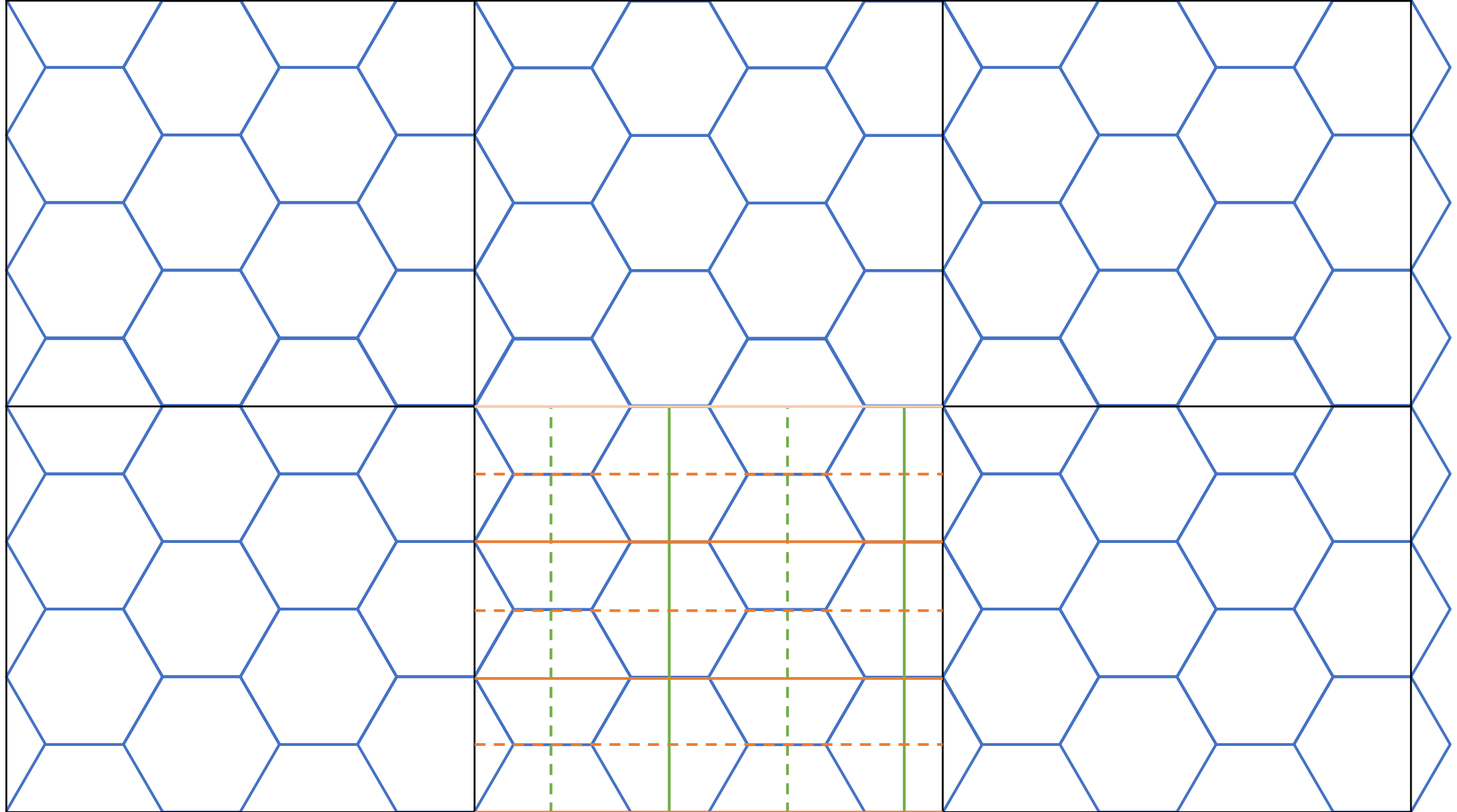
Bins: 0° to  $x$ -axis



# 1<sup>st</sup>-nearest neighbour axes with undefined lower left hexagon

Axis 3: 90° to  $x$ -axis

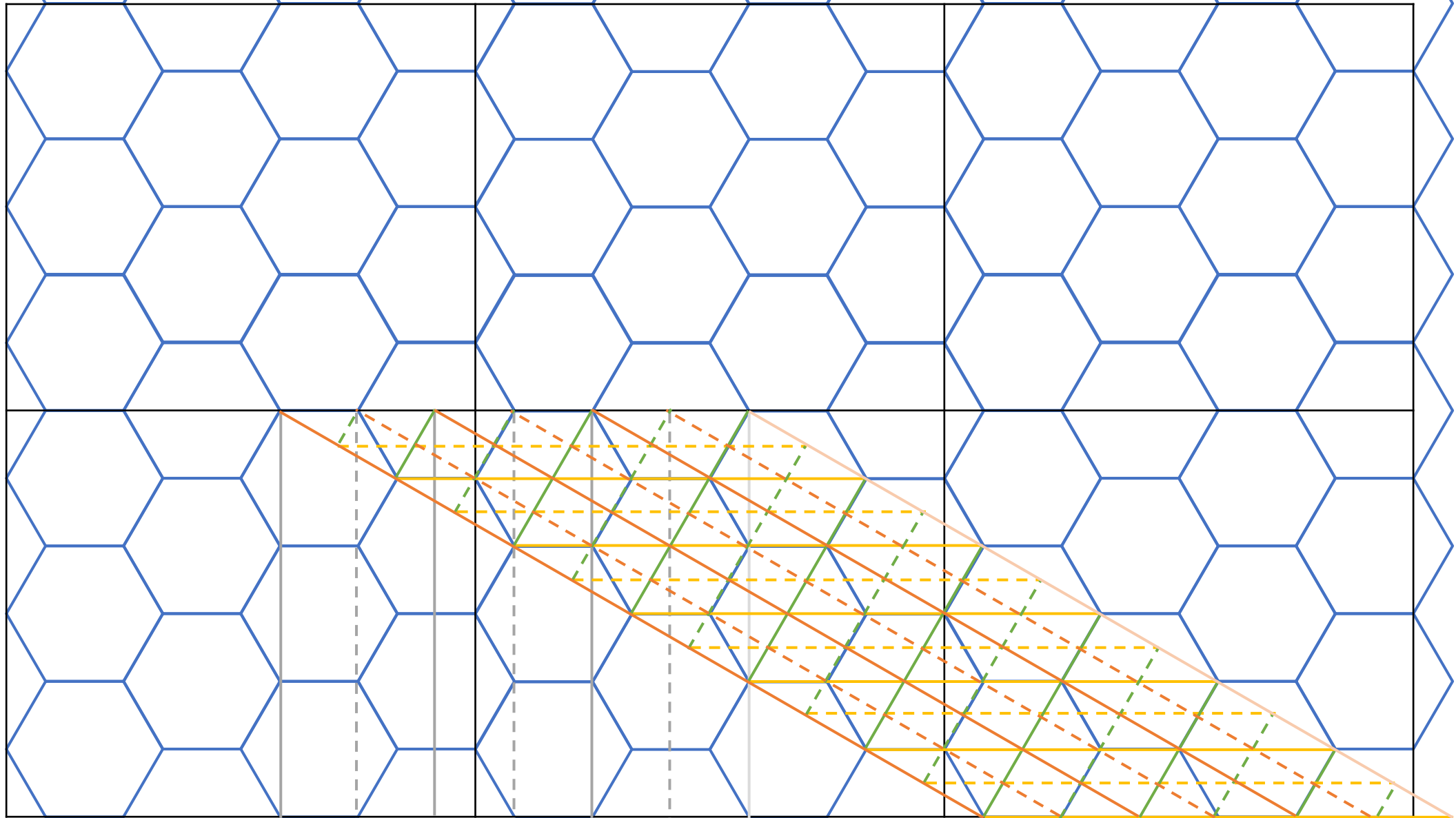
Bins: 0° to  $x$ -axis



# 2<sup>st</sup>-nearest neighbour axes with well-defined lower left hexagon

Axis 1: 60° to  $x$ -axis

Bins: 150° to  $x$ -axis



arest neighbour axes with undefined lower left hexagon

to  $x$ -axis  
to  $x$ -axis

The diagram shows a hexagonal lattice of blue hexagons. A black grid is overlaid on the lattice. In the bottom-left corner, a region is highlighted with several colored lines: solid green lines, dashed green lines, solid orange lines, dashed orange lines, and solid yellow lines. A light orange shaded region is also present in the bottom-right corner. The text 'arest neighbour axes with undefined lower left hexagon' is at the top, and 'to  $x$ -axis' is repeated twice on the left side.

arest neighbour axes with undefined lower left hexagon

to  $x$ -axis  
to  $x$ -axis

The diagram shows a hexagonal lattice with blue outlines. A black grid is overlaid, with vertical lines aligned with the hexagonal columns. A horizontal line is drawn across the middle. In the lower right, a series of colored lines are shown: solid orange lines, dashed orange lines, solid green lines, dashed green lines, and solid yellow lines. These lines appear to be projections or transformations of the hexagonal grid. A light orange shaded region is visible in the bottom right corner. The text 'arest neighbour axes with undefined lower left hexagon' is at the top, and 'to  $x$ -axis' is repeated twice on the left side.

arest neighbour axes with undefined lower left hexagon

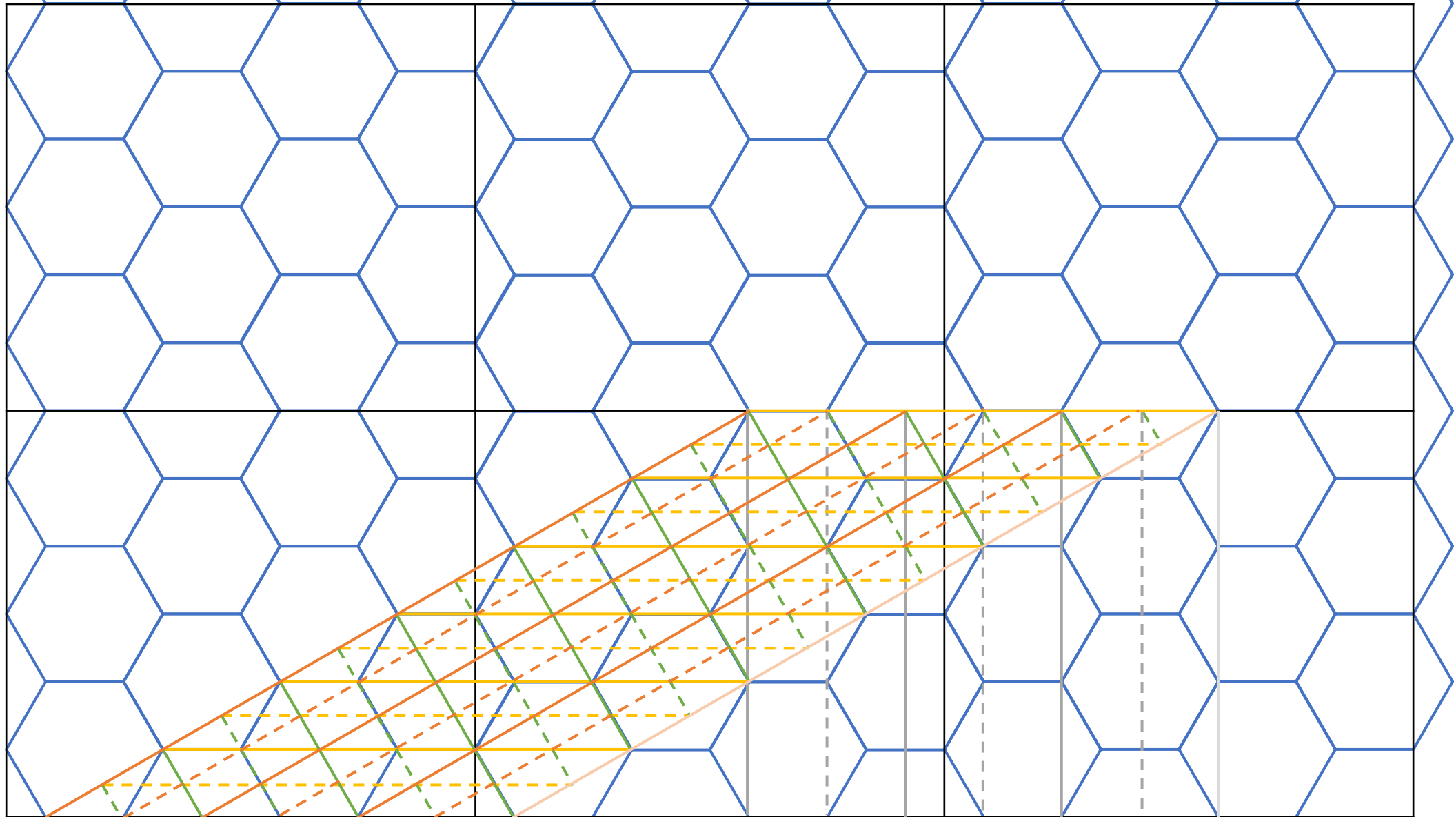
to  $x$ -axis  
to  $x$ -axis

The diagram shows a hexagonal lattice of blue hexagons. A black grid is overlaid on the lattice. In the bottom-left corner, a region is highlighted with several colored lines: solid green lines, dashed green lines, solid orange lines, dashed orange lines, and solid yellow lines. A light orange shaded region is also present in the bottom-right corner. The text 'arest neighbour axes with undefined lower left hexagon' is at the top, and 'to  $x$ -axis' is repeated twice on the left side.

# 2<sup>st</sup>-nearest neighbour axes with well-defined lower left hexagon

Axis 2: 120° to x-axis

Bins: 30° to x-axis

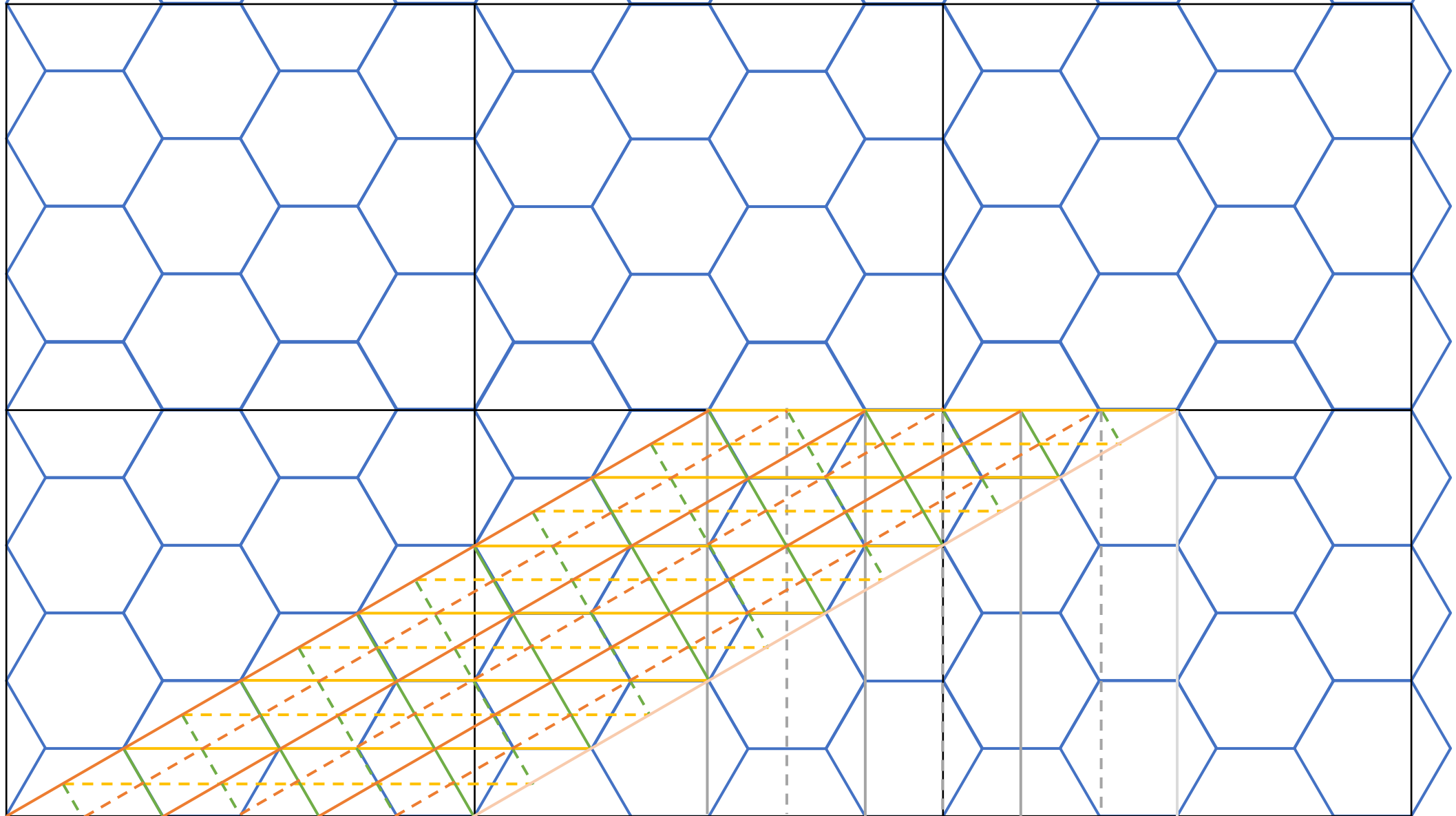




# 2<sup>st</sup>-nearest neighbour axes with undefined lower left hexagon

Axis 2: 120° to x-axis

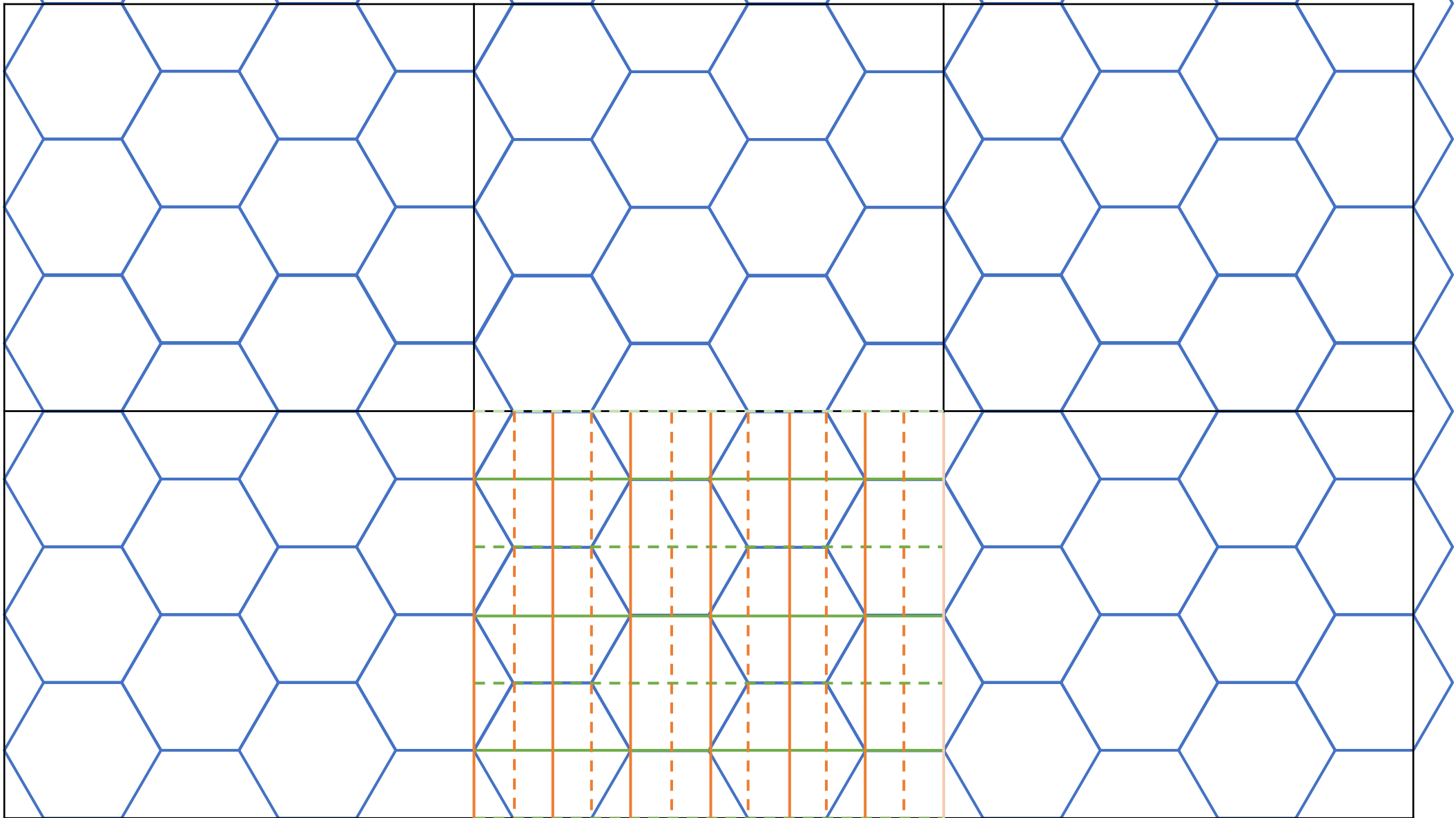
Bins: 30° to x-axis



# 2<sup>st</sup>-nearest neighbour axes with well-defined lower left hexagon

Axis 3: 0° to x-axis

Bins: 90° to x-axis



# 2<sup>st</sup>-nearest neighbour axes with undefined lower left hexagon

Axis 3: 0° to  $x$ -axis

Bins: 90° to  $x$ -axis

