Anchor Positions

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M O D E L   I N T E G R A T I O N ,   L L C

Anchor Positions and how they help specify Connector layout?

We want to make it easy to specify each point where a Connector attaches to a Node face.

We can split a given Node face into a number of discrete positions. Each such position represents a virtual socket where only one Stem of a Connector may or may not attach. This rule prevents multiple Stems from overlapping where they meet a Node face.

A default number of anchor positions are automatically available on each Node face, but the user can specify a face specific range if they want a larger number of connections to be available on a given Node face. That said, the extent of a Node face limits the number of possible positions. There must be enough room between a position and either its neighboring positions to accommodate the rendering of a Stem decoration without overlapping that of an adjacent Stem. So, the actual number of positions available will be clipped if the face extent is small and an error declared if the user specifies a position outside that range.

N1

Class 1

2
1

Attr1   0

Attr2   -1
         -2

User specified Face Placement positions

0 is the center position, Upper and Right most positions are always positive integers

The user has five placement choices for each Node face in this example (2, 1, 0, -1 and -2)

Class 2

Attr1

N2   Attr2

Five anchor positions

The user has five placement choices for each Node face in this example (2, 1, 0, -1 and -2)
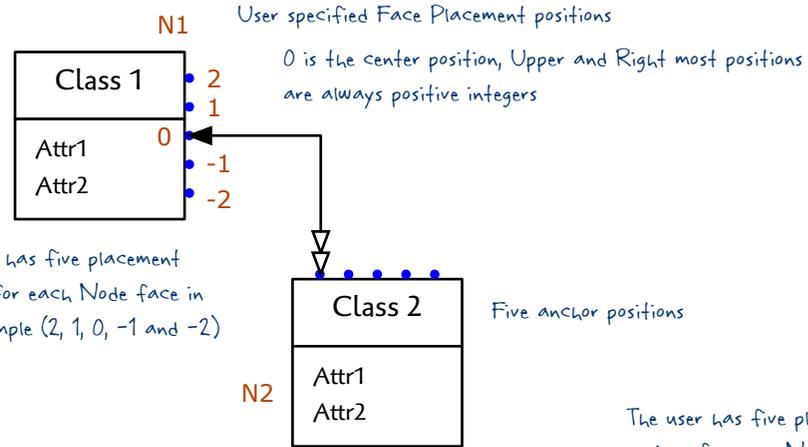
So, given a certain number of anchor positions available on a Node face and knowing the extent of that face, we must compute the actual node face relative position and express it in canvas coordinates.

```
stem_step_size = face_extent / (default_stem_positions + 1)
edge_relative_step = round(default_stem_positions / 2) + anchor_position
edge_relative_distance = edge_relative_step * stem_step_size
```

distance to middle anchor position = 318 / 2 = 159 pt

-2   -1   0   1   2   stem positions = 5

face position = anchpos * step + center pos

Class 2

step size = 53 pt

step size = face extent / (stem positions + 1)
318 / (5+1) = 53
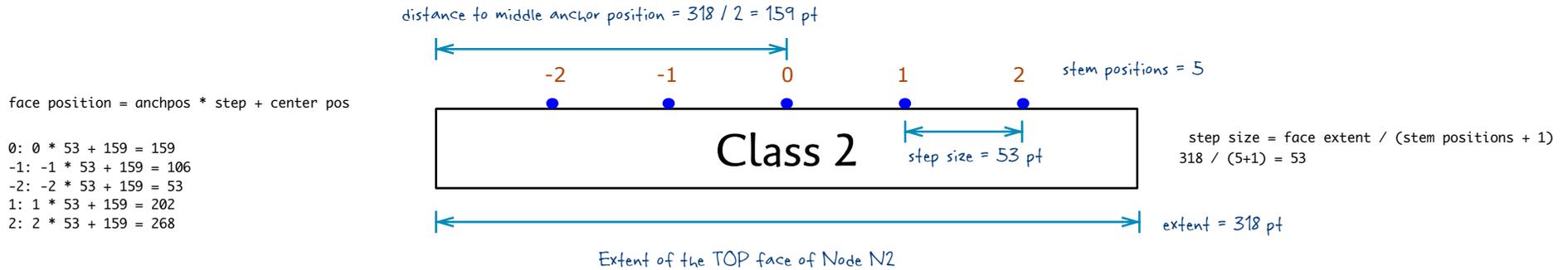
0: 0 * 53 + 159 = 159
-1: -1 * 53 + 159 = 106
-2: -2 * 53 + 159 = 53
1: 1 * 53 + 159 = 202
2: 2 * 53 + 159 = 268

extent = 318 pt

Extent of the TOP face of Node N2