Droid Kaigi 2016 RoomB

Yuki Mima (@amyu_san)

Master of Canvas

About me

- Name : Yuki Mima
- Twitter : @amyu_san
- Github : amyu
- Work : University Student

Do you think what a good application?

It is great service content?

I think it has a great UI/UX

I want to give the user the aha experience!

Agenda

- **WaveSwipeRefreshLayout**
  - Path#cubicTo
  - TypeEvaluator
  - Interpolator
- **BeerSwipeRefreshLayout**
  - Path#op
- **ColoringLoading, TextMorphingView**
  - To extract the path from Illustrator

- Path#cubicTo
- TypeEvaluator
- Interpolator

WaveSwipeRefreshLayout

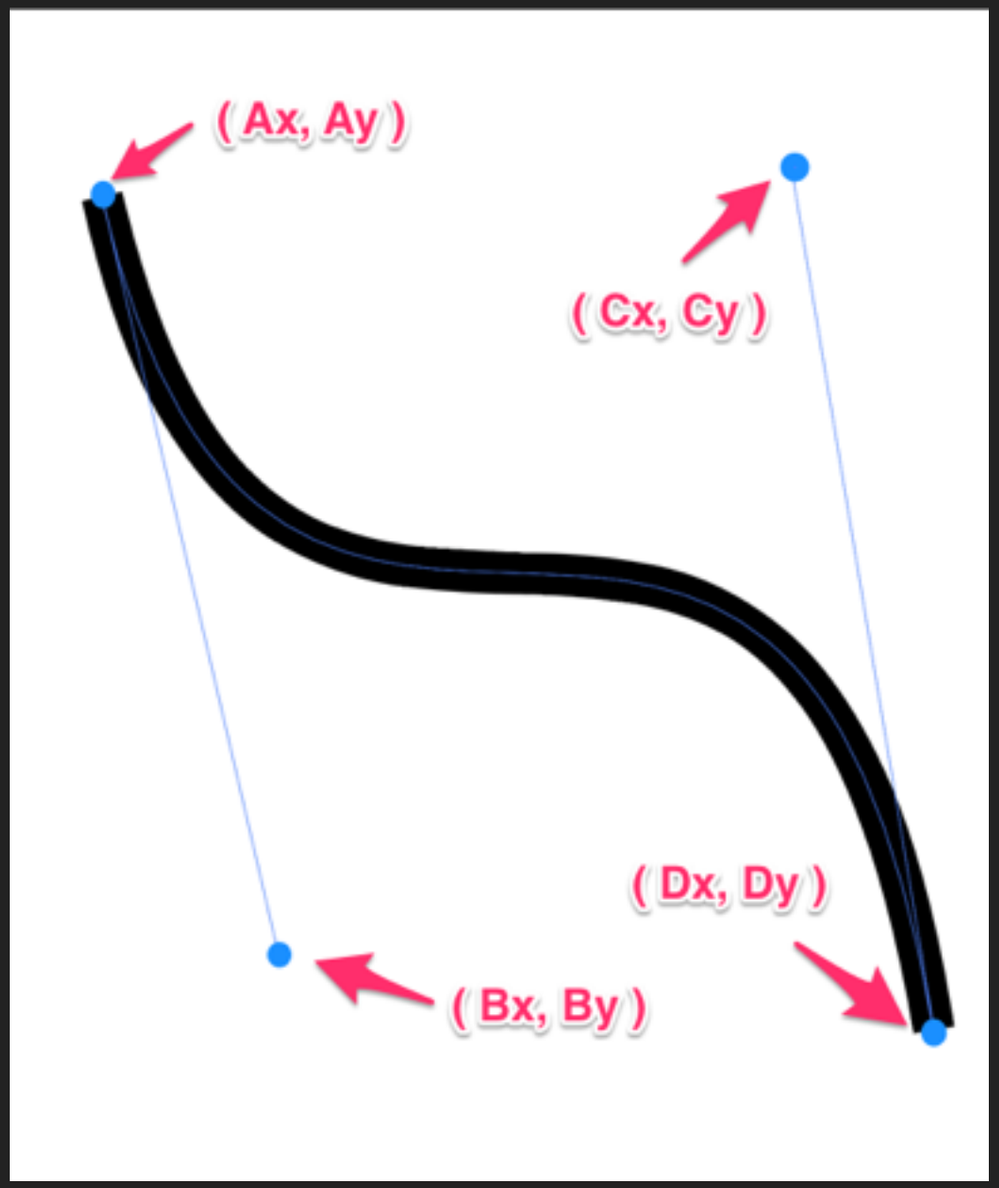
Path#cubicTo

- public void cubicTo (float x1, float y1, float x2, float y2, float x3, float y3)

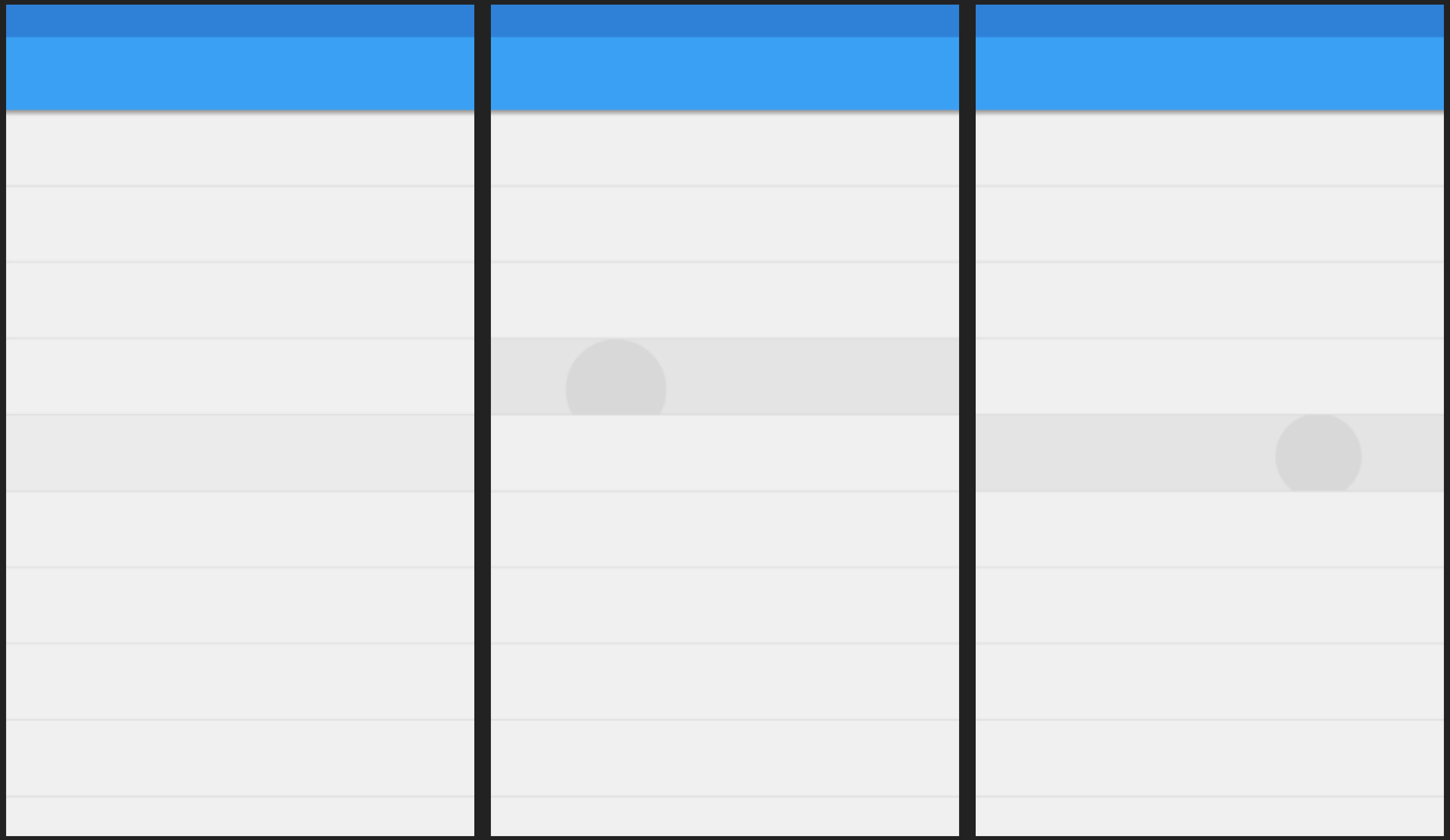
  Add a cubic bezier from the last point, approaching control points (x1,y1) and (x2,y2), and ending at (x3,y3). If no moveTo() call has been made for this contour, the first point is automatically set to (0,0).

Path#cubicTo

```
mPath.moveTo(Ax, Ay);
mPath.cubicTo(
        Bx, By,
        Cx, Cy,
        Dx, Dy
);
```



Path#cubicTo



Next

TypeEvaluator

TypeEvaluator

- This function returns the result of linearly interpolating the start and end values, with fraction representing the proportion between the start and end values.
- Property values can get by ValueAnimator#getAnimatedValue ()
- ValueAnimator.ofObject(...)

TypeEvaluator

- ArgbEvaluator
  - This evaluator can be used to perform type interpolation between integer values that represent ARGB colors.
- RectEvaluator
  - This evaluator can be used to perform type interpolation between Rect values.
- PointFEvaluator
  - …

TypeEvaluator

```
public static class CustomTypeEvaluator implements TypeEvaluator<MyPoint> {

    @Override
    public MyPoint evaluate(float v, MyPoint start, MyPoint end) {
        MyPoint newPoint = new MyPoint();
        newPoint.setX(start.getX() + (end.getX() - start.getX()) * v);
        newPoint.setY(start.getY() + (end.getY() - start.getY()) * v);

        return newPoint;
    }
}
```

TypeEvaluator

```
ValueAnimator animator = ValueAnimator.ofObject(
        new CustomTypeEvaluator(),  //TypeEvaluator
        new MyPoint(0, 0),          //Start Value
        new MyPoint(100, 100));     //End Value
animator.setDuration(500);
animator.addUpdateListener(mAnimatorUpdateListener);
animator.start();
```

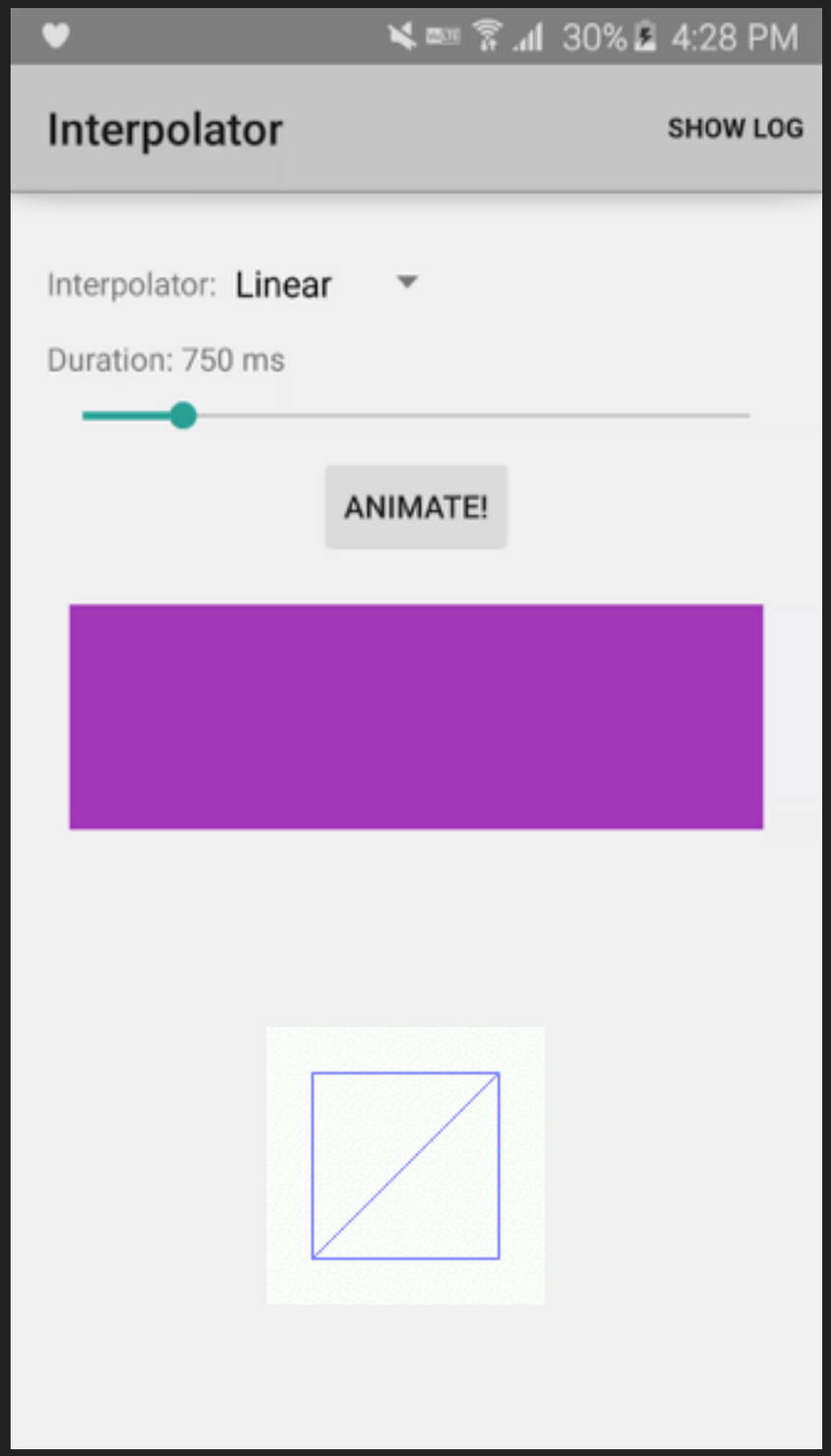
Next

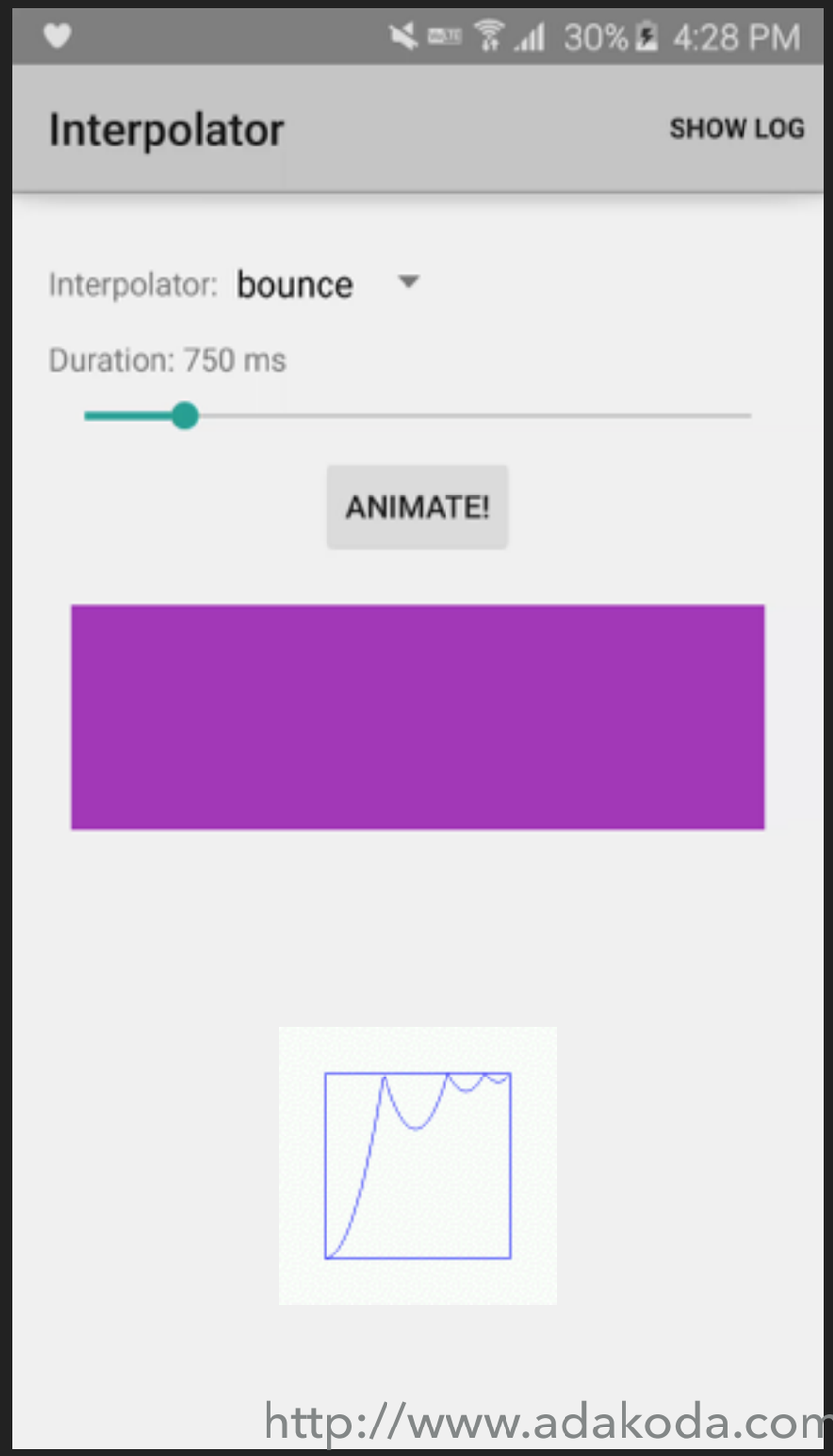
Interpolator

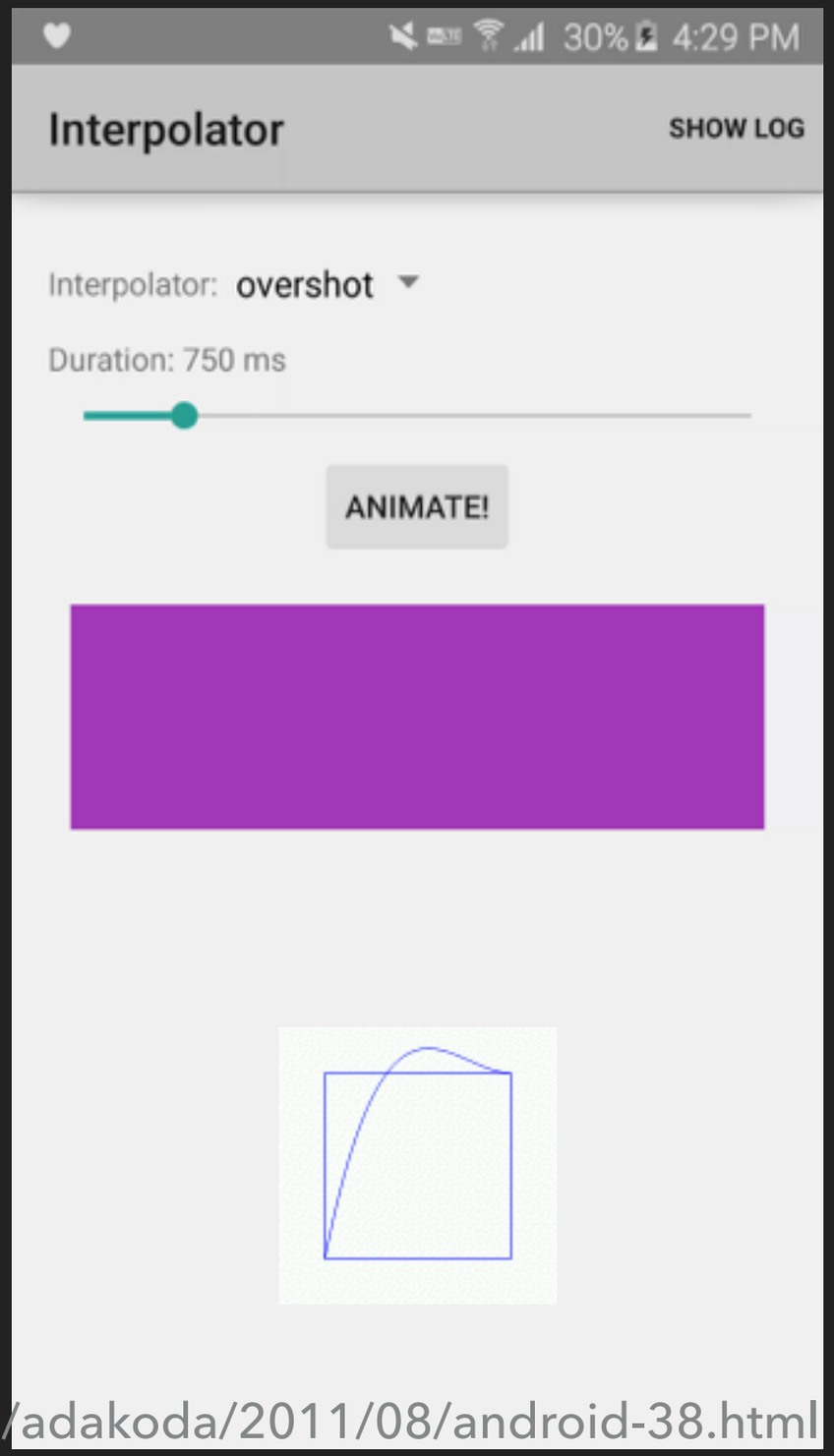
Interpolator

- An interpolator defines the rate of change of an animation. This allows the basic animation effects (alpha, scale, translate, rotate) to be accelerated, decelerated, repeated, etc.

Interpolator

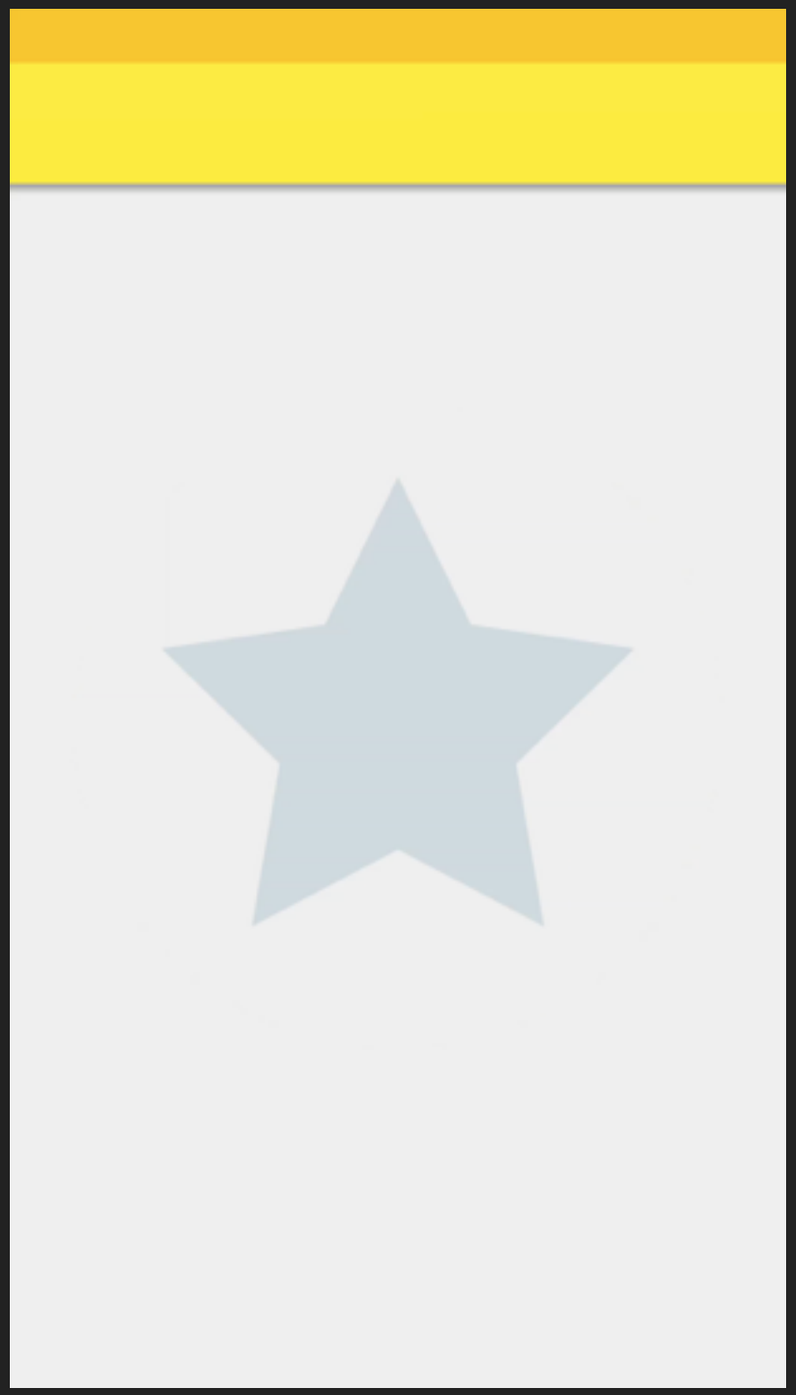




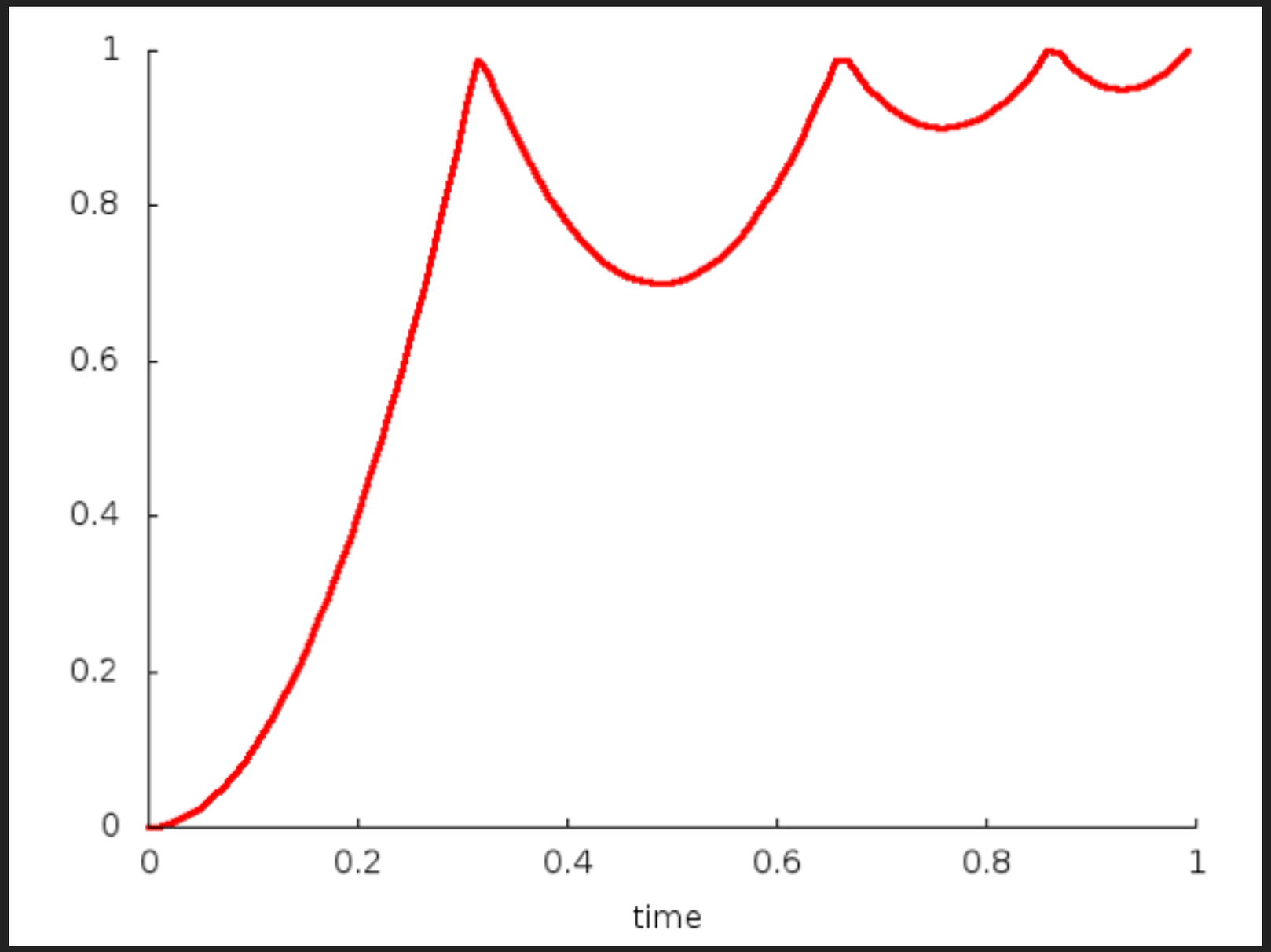


http://www.adakoda.com/adakoda/2011/08/android-38.html

Interpolator



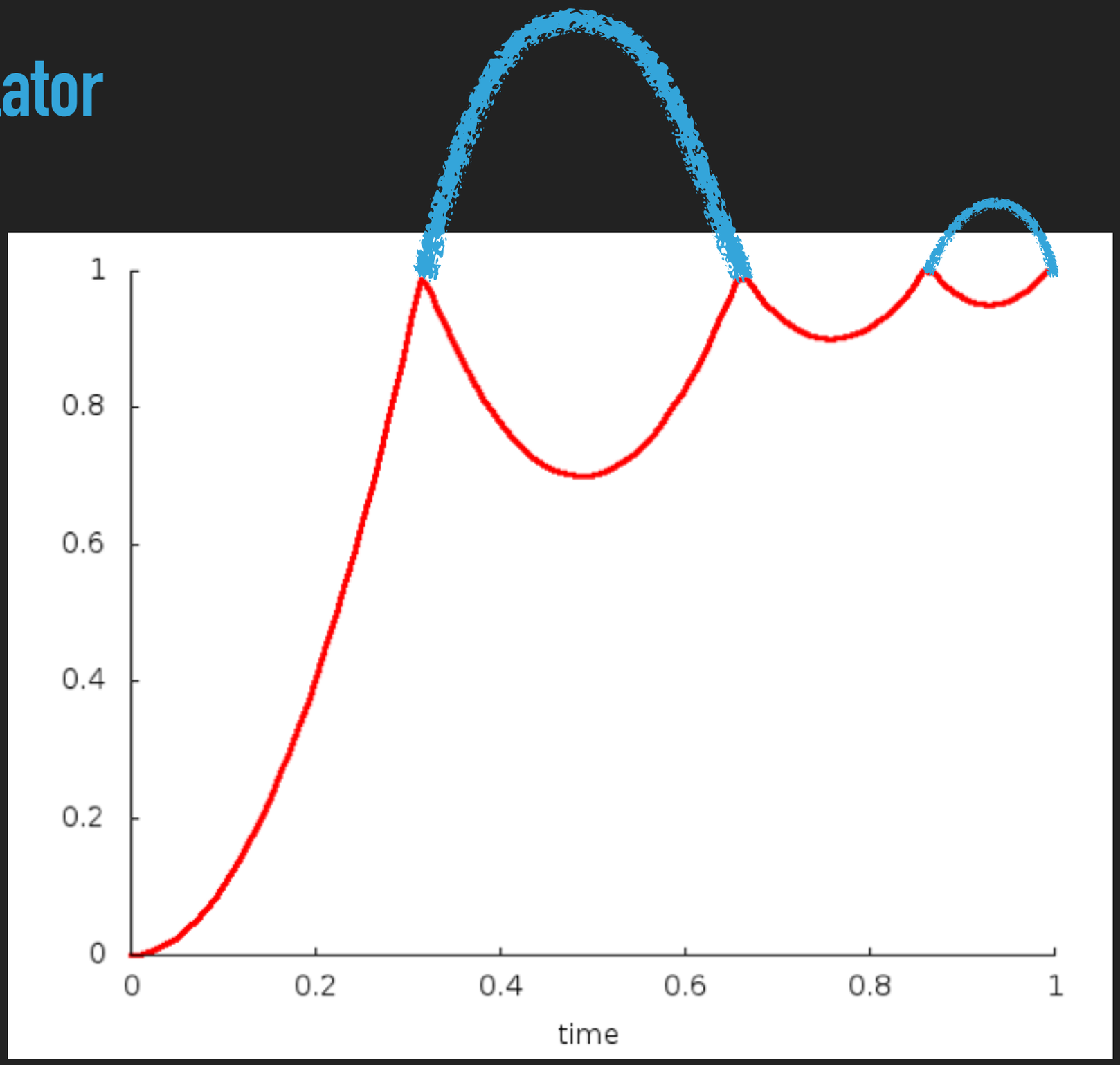
Interpolator



http://cogitolearning.co.uk/?p=1078

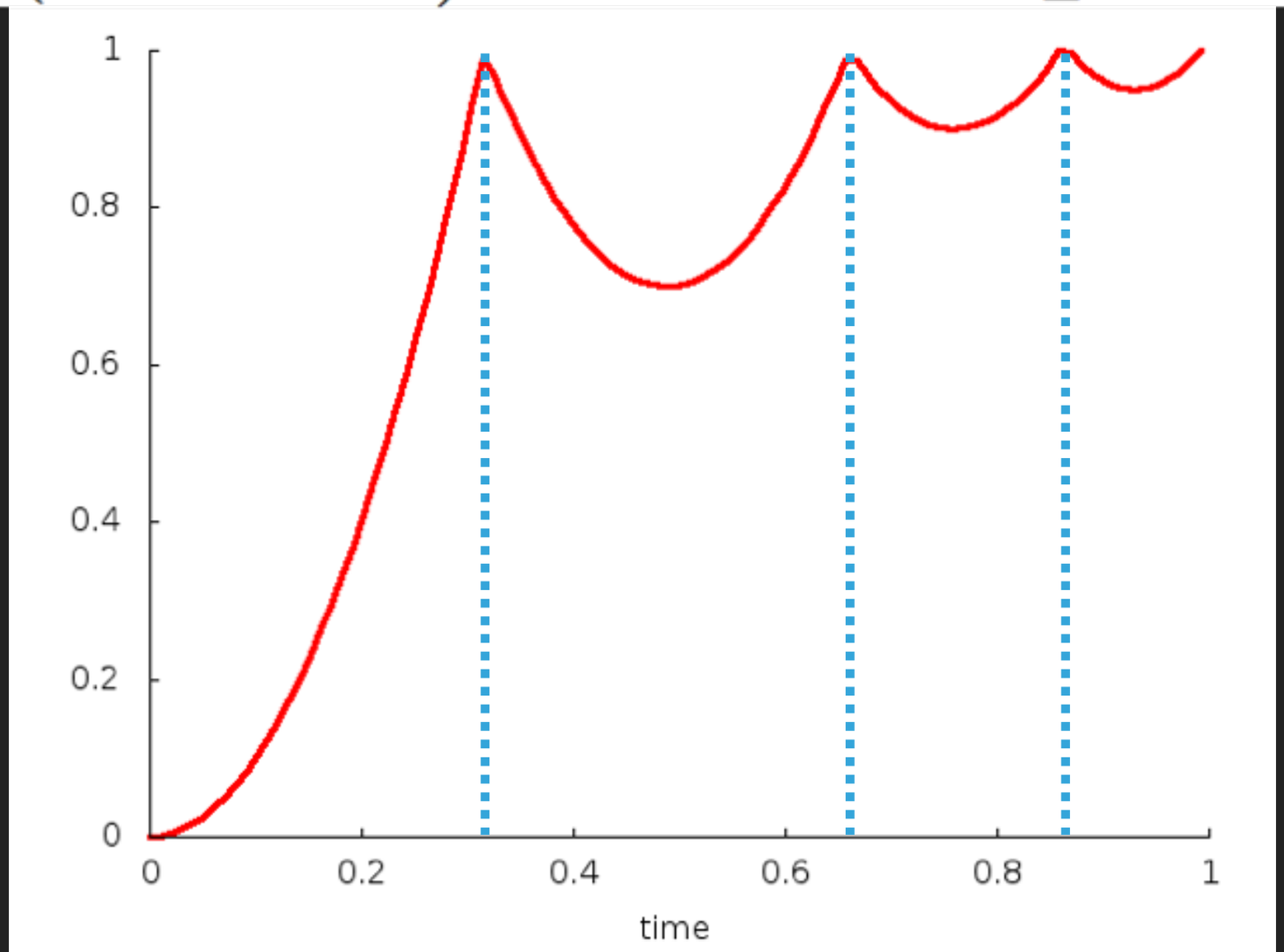
Interpolator

Interpolator



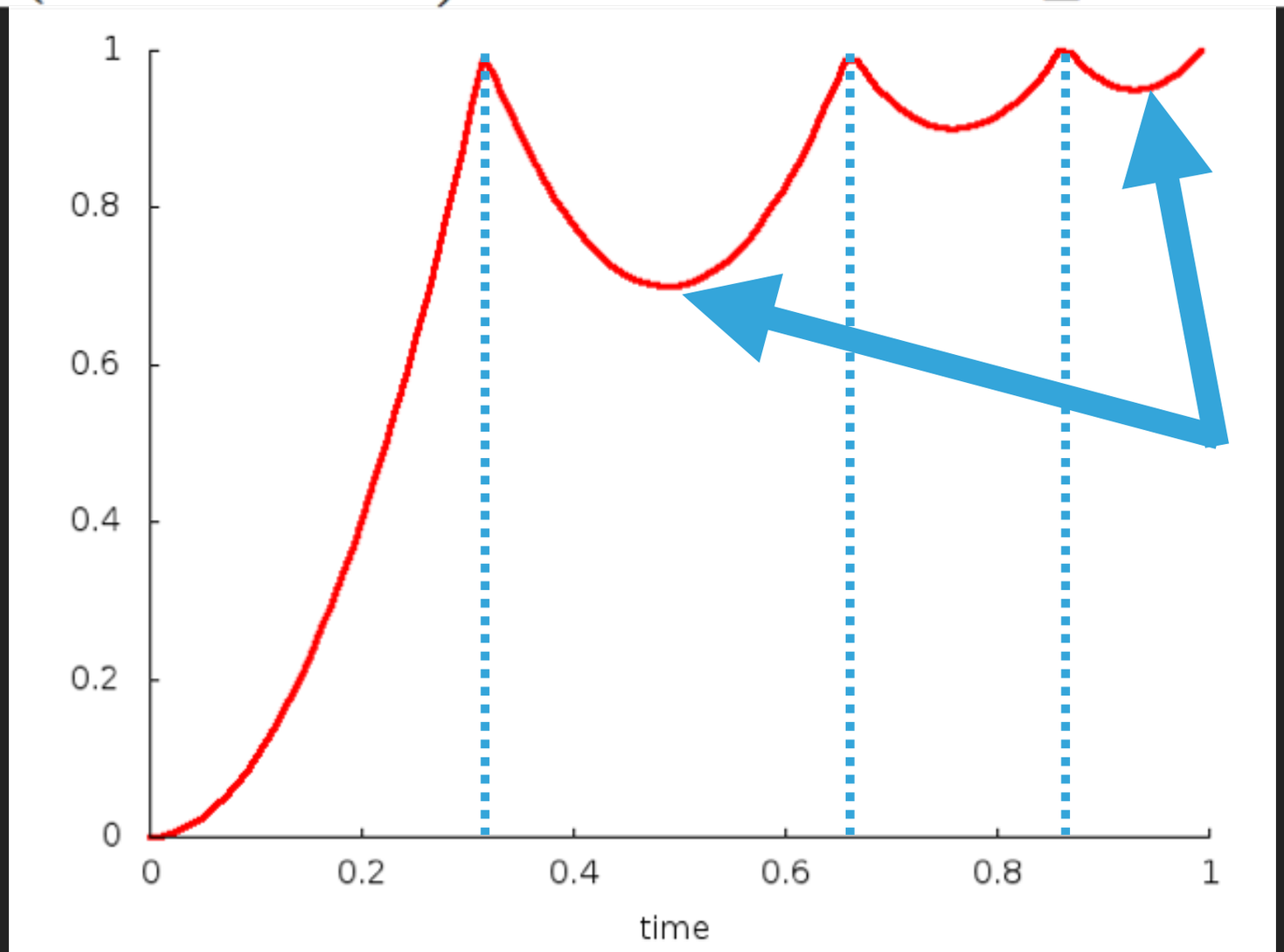
Interpolator

$$y = \begin{cases} 8 \times (1.1226t)^2 & \text{for } t < 0.31489 \\ 8 \times (1.1226t - 0.54719)^2 + 0.7 & \text{for } 0.31489 \le t < 0.65990 \\ 8 \times (1.1226t - 0.8526)^2 + 0.9 & \text{for } 0.65990 \le t < 0.85908 \\ 8 \times (1.1226t - 1.0435)^2 + 0.95 & \text{for } 0.85908 \le t \end{cases}$$



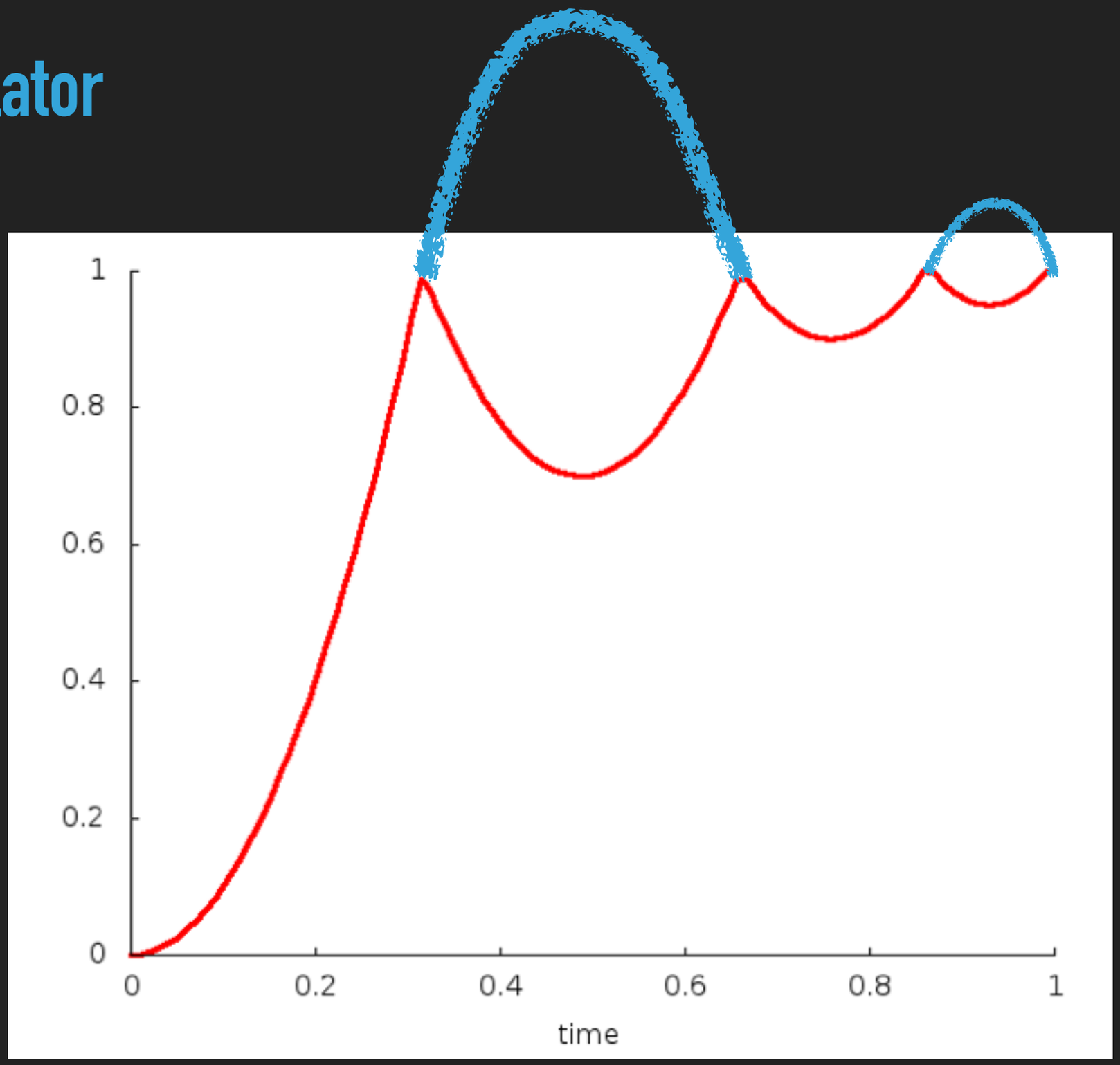
Interpolator

$$y = \begin{cases} 8 \times (1.1226t)^2 & \text{for } t < 0.31489 \\ 8 \times (1.1226t - 0.54719)^2 + 0.7 & \text{for } 0.31489 \le t < 0.65990 \\ 8 \times (1.1226t - 0.8526)^2 + 0.9 & \text{for } 0.65990 \le t < 0.85908 \\ 8 \times (1.1226t - 1.0435)^2 + 0.95 & \text{for } 0.85908 \le t \end{cases}$$

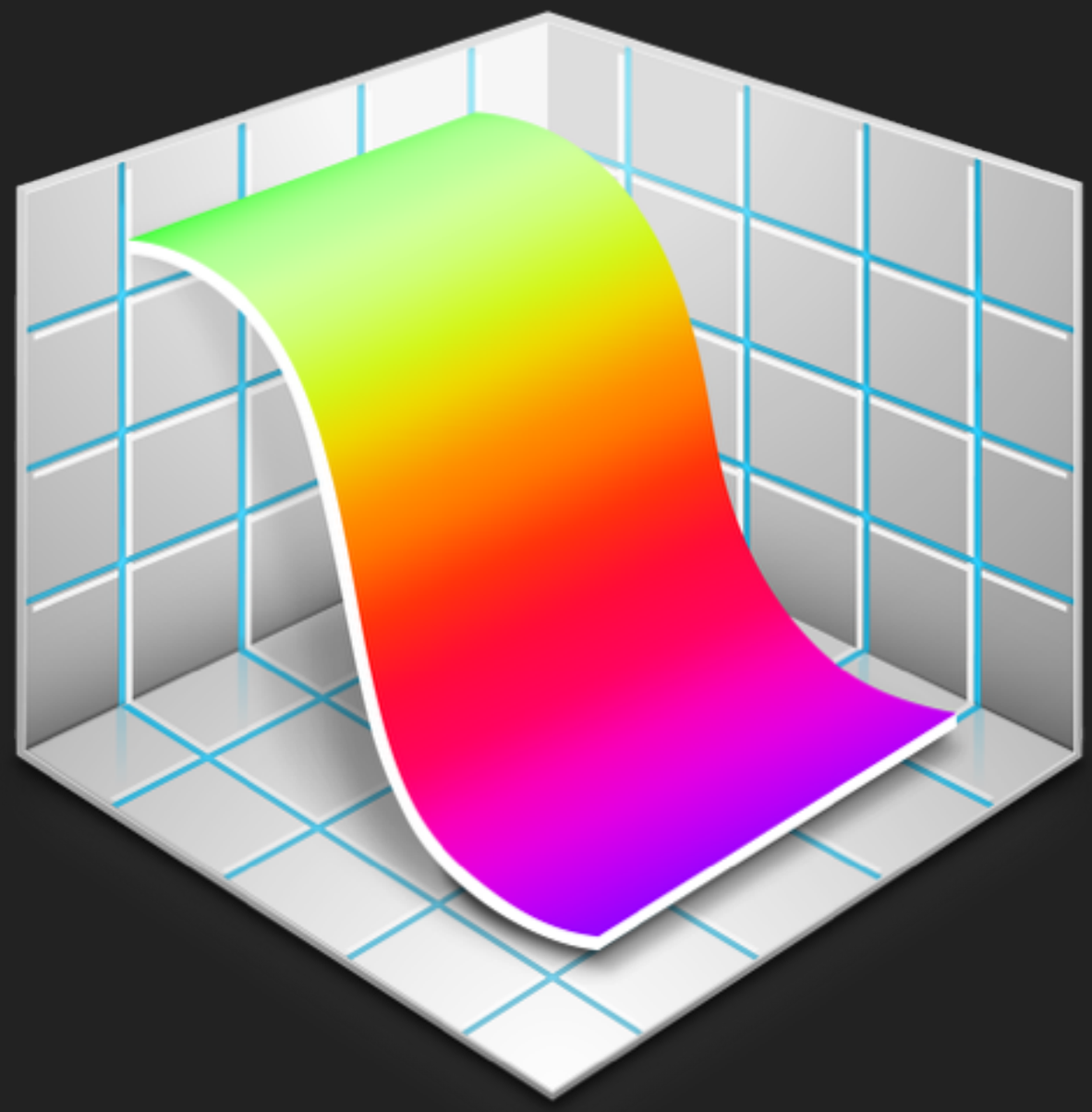


Reversal

Interpolator

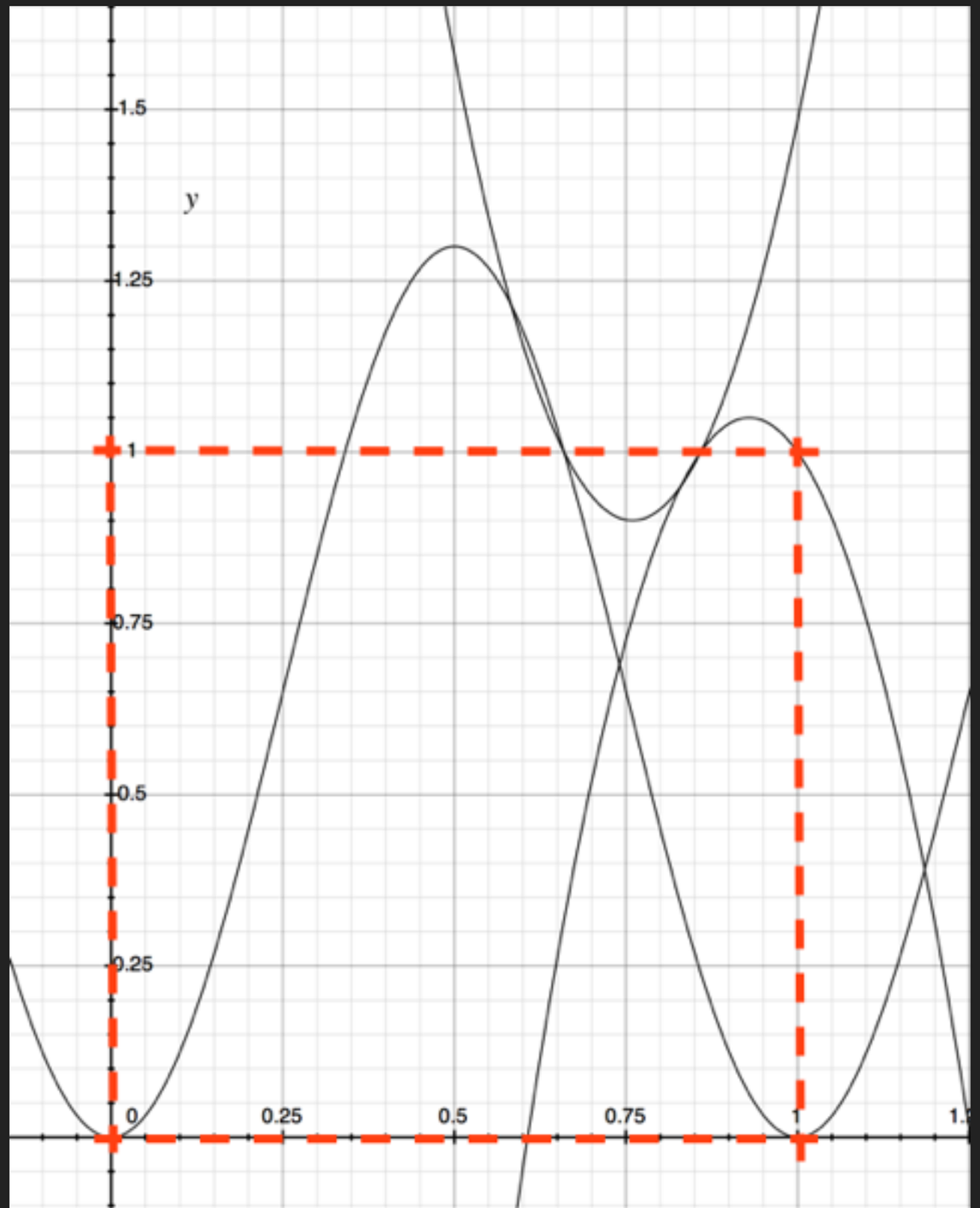


Interpolator



Grapher

Interpolator



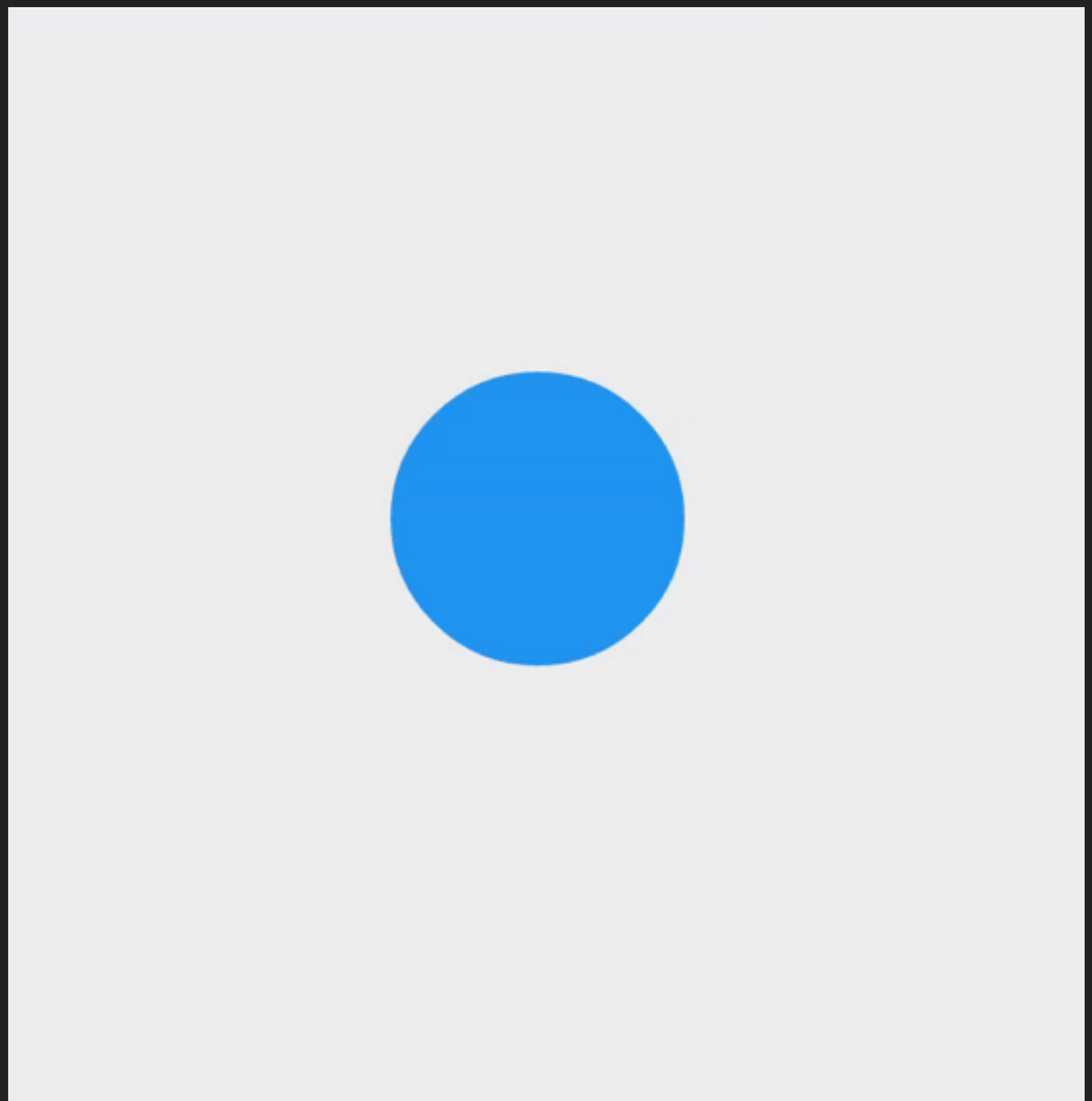
Interpolator

```
static class StarInterpolator implements Interpolator {

  public StarInterpolator() {
  }

  /UnusedDeclaration/
  public StarInterpolator(Context context, AttributeSet attrs) {
  }

  private static float bounce(float t) { return t * t * 8.0f; }

  @Override public float getInterpolation(final float v) {
    //y = 0.65sin(6.28x - PI/2) + 0.65      (0 <= x < 0.748)
    //y = 8 * (1.1226x - 0.8526)^2 + 0.9    (0.748 <= x < 0.9644)
    //y = -8 * (1.1226x - 1.0435)^2 + 1.05  (0.9644 <= x <= 1)

    float x = v * 1.1226f;
    if (x < 0.7408f) {
      return (float) (0.65 * Math.sin(6.28 * v - Math.PI / 2) + 0.65);
    } else if (x < 0.9644f) {
      return bounce(x - 0.8526f) + 0.9f;
    } else {
      return -1 * bounce(x - 1.0435f) + 1.05f;
    }
  }
}
```

Next Step

Interpolator

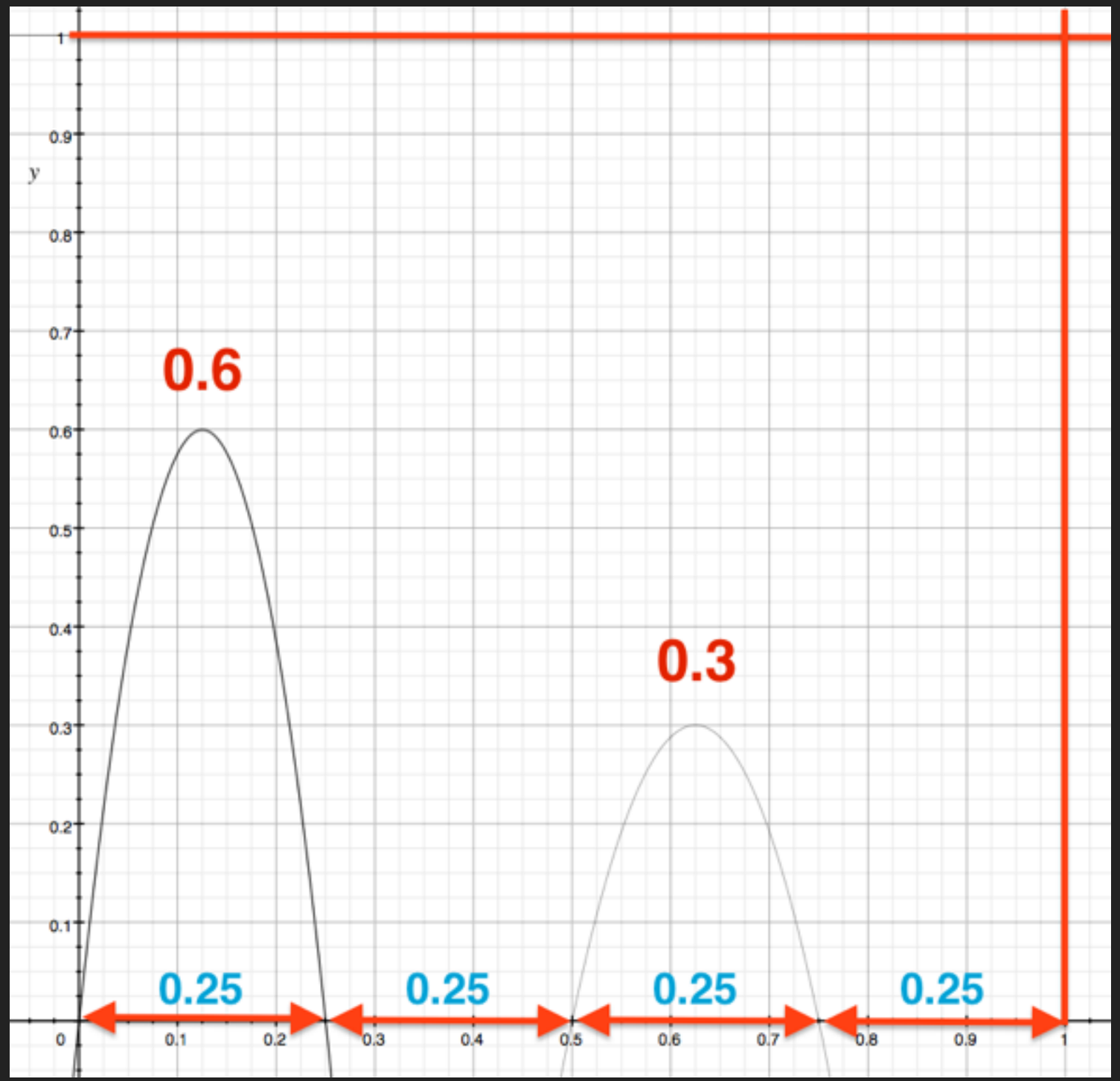
Interpolator



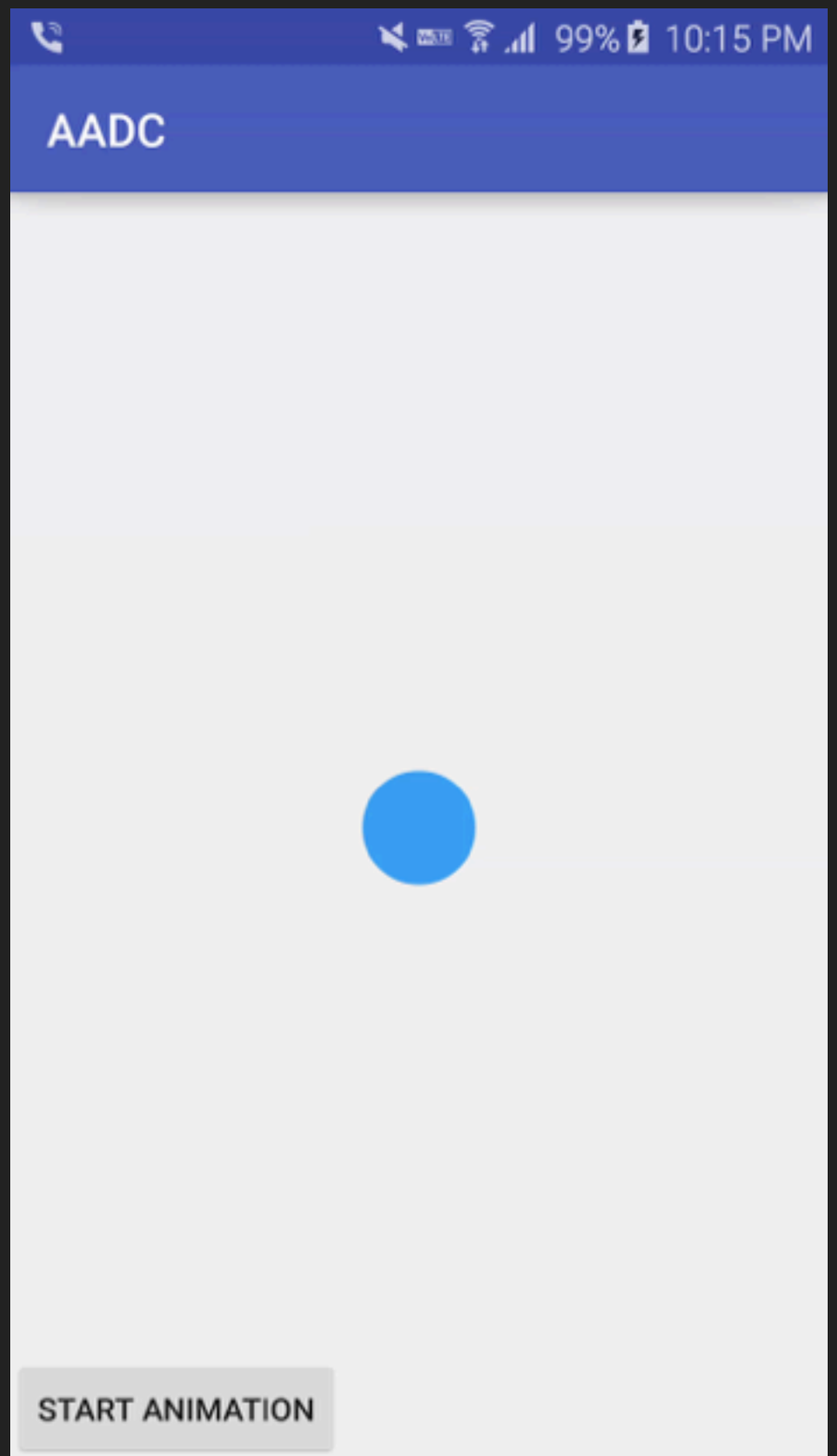
Interpolator

- To implement the Interpolator of vertical and horizontal.

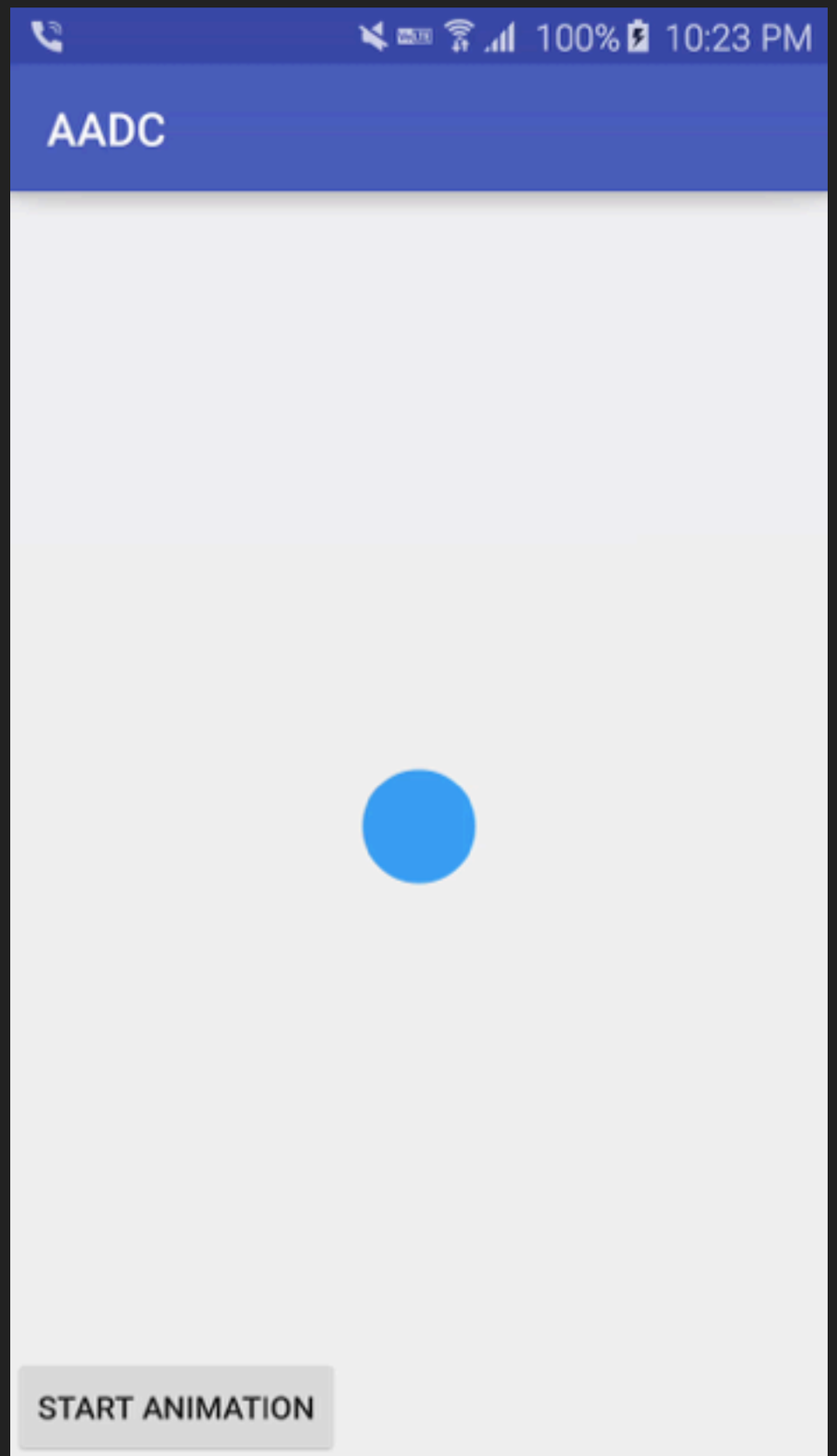
Interpolator



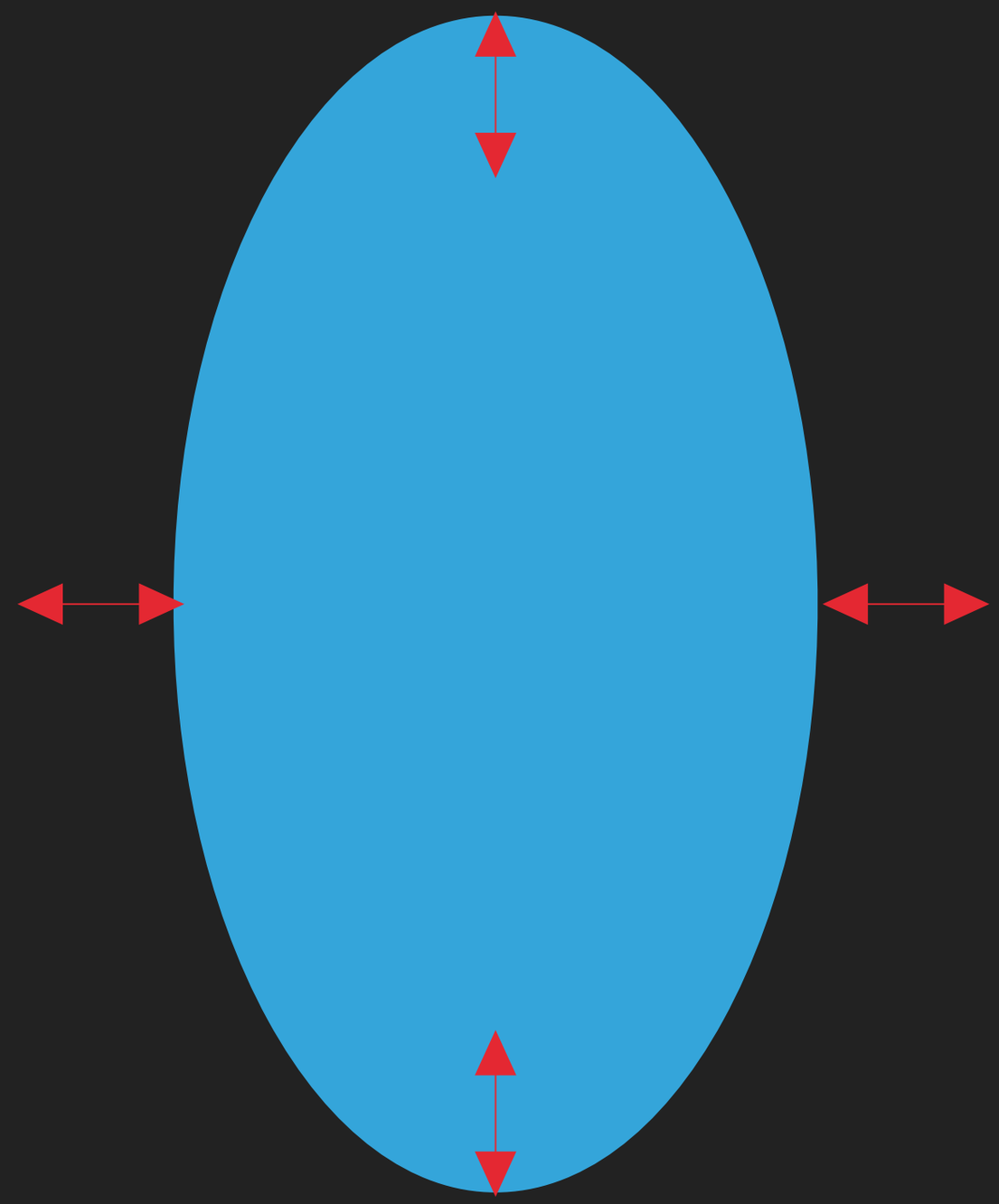
Interpolator



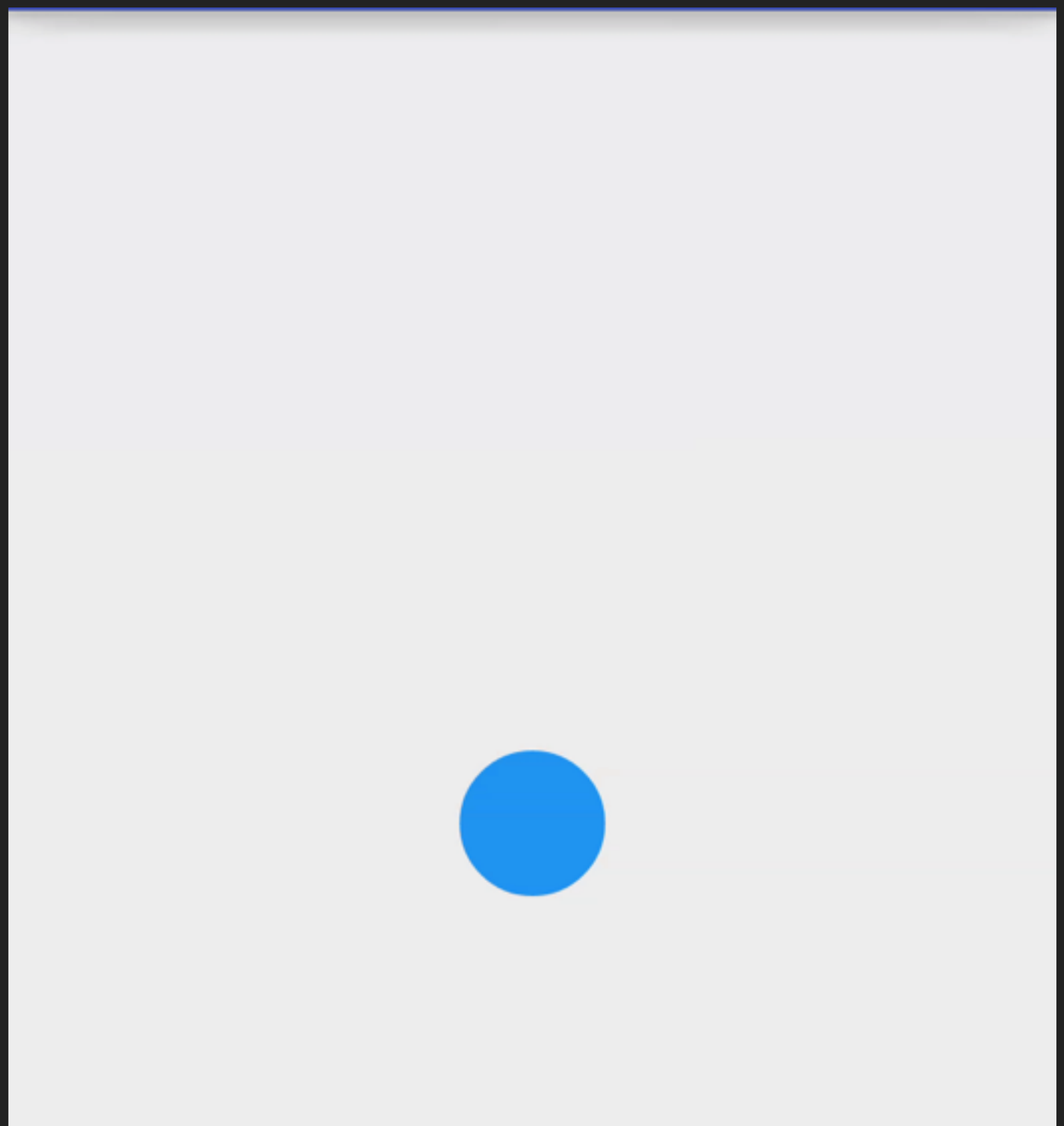
Interpolator



Interpolator



Interpolator



Interpolator

```
mDropBounceVerticalAnimator = ValueAnimator.ofFloat(0.f, 1.f);
mDropBounceVerticalAnimator.setDuration(DROP_BOUNCE_ANIMATOR_DURATION);
mDropBounceVerticalAnimator.addUpdateListener(mAnimatorUpdateListener);
mDropBounceVerticalAnimator.setInterpolator(new DropBounceInterpolator());
mDropBounceVerticalAnimator.setStartDelay(DROP_VERTEX_ANIMATION_DURATION);
mDropBounceVerticalAnimator.start();

mDropBounceHorizontalAnimator = ValueAnimator.ofFloat(0.f, 1.f);
mDropBounceHorizontalAnimator.setDuration(DROP_BOUNCE_ANIMATOR_DURATION);
mDropBounceHorizontalAnimator.addUpdateListener(mAnimatorUpdateListener);
mDropBounceHorizontalAnimator.setInterpolator(new DropBounceInterpolator());
mDropBounceHorizontalAnimator.setStartDelay(
    (long) (DROP_VERTEX_ANIMATION_DURATION + DROP_BOUNCE_ANIMATOR_DURATION * 0.25f));
mDropBounceHorizontalAnimator.start();
```

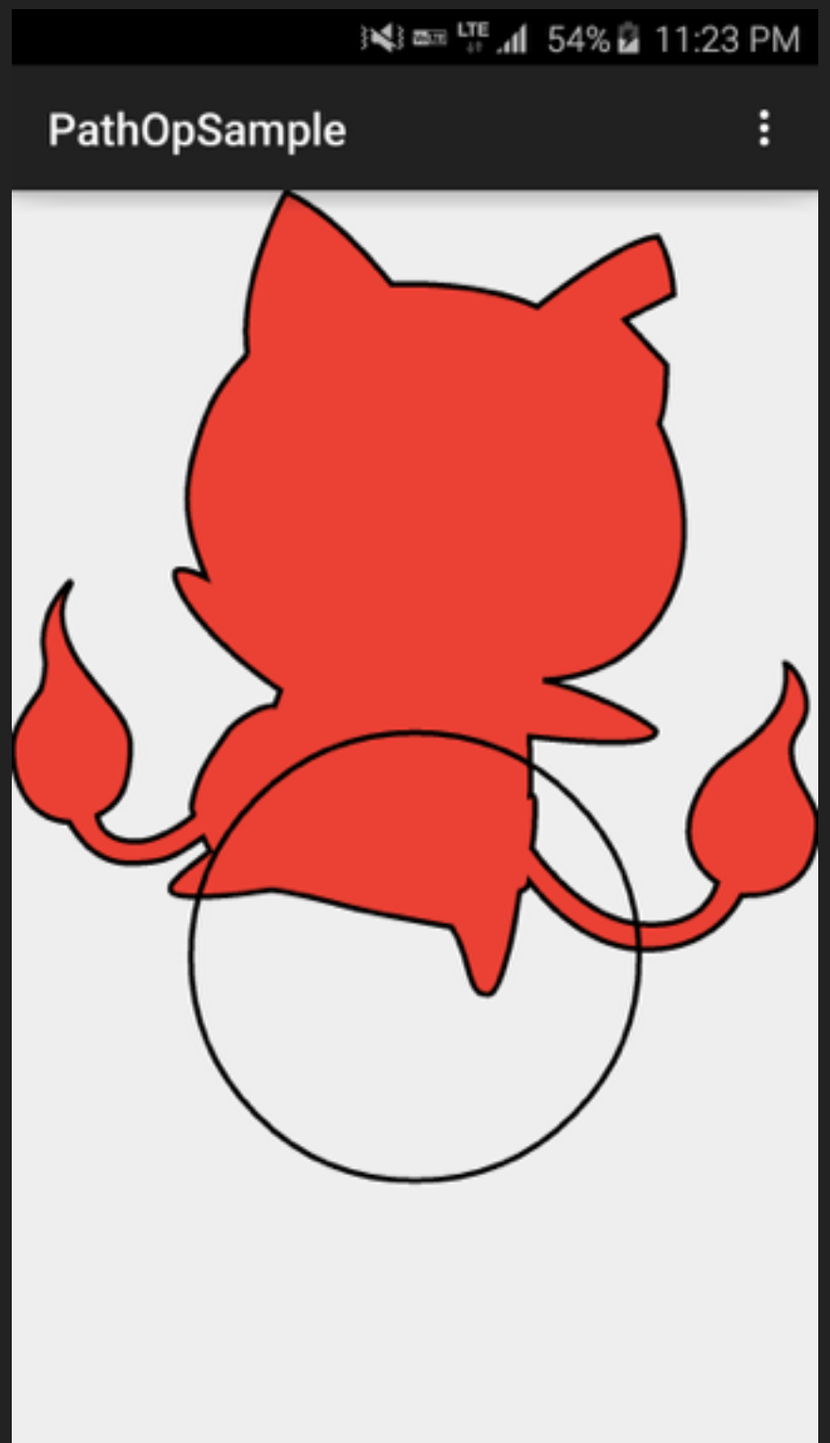
- Path#op

BeerSwipeRefreshLayout

Path#op

- Added in API level 19
- Set this path to the result of applying the Op to this path and the specified path. The resulting path will be constructed from non-overlapping contours.

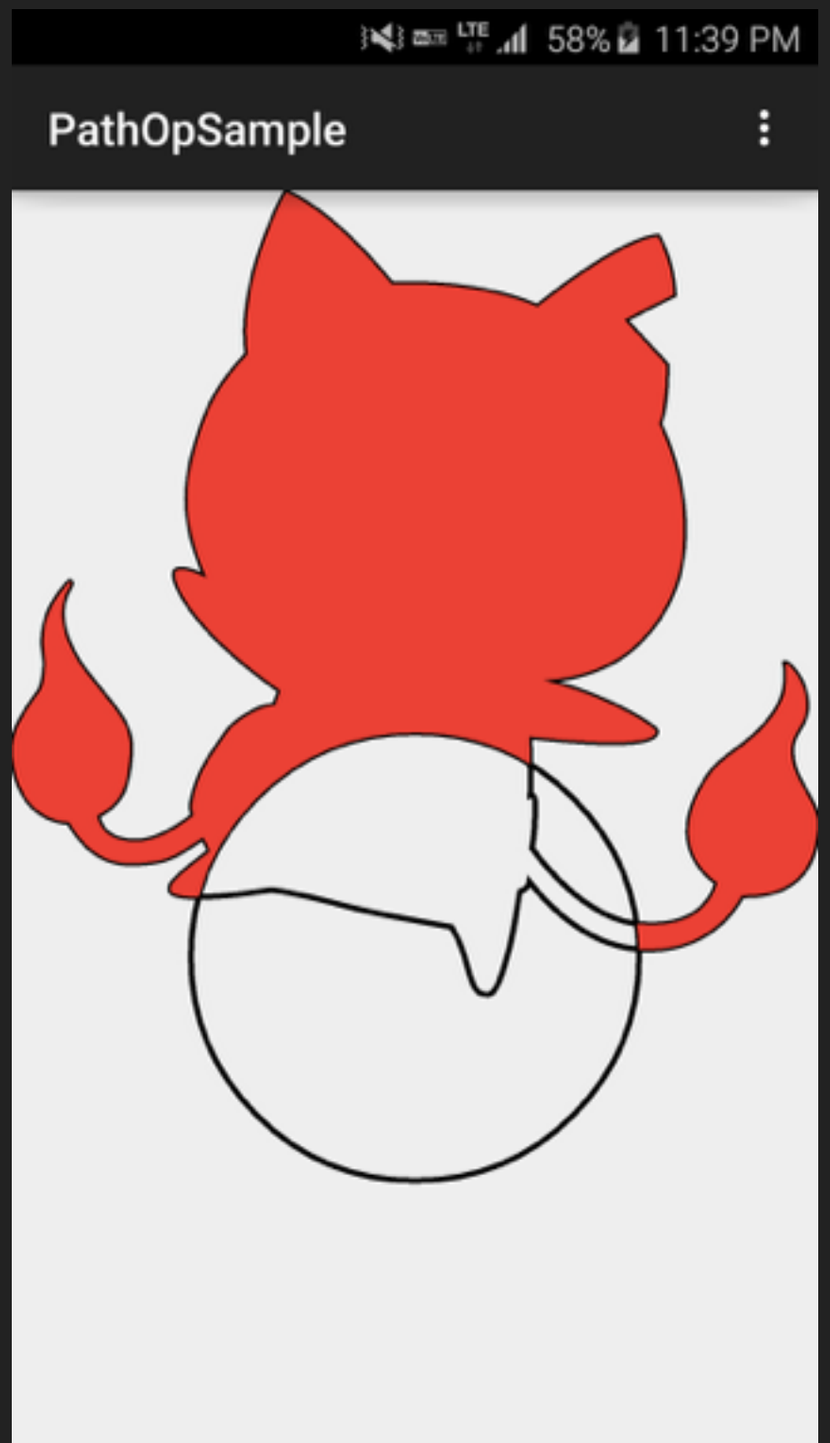
Path#op



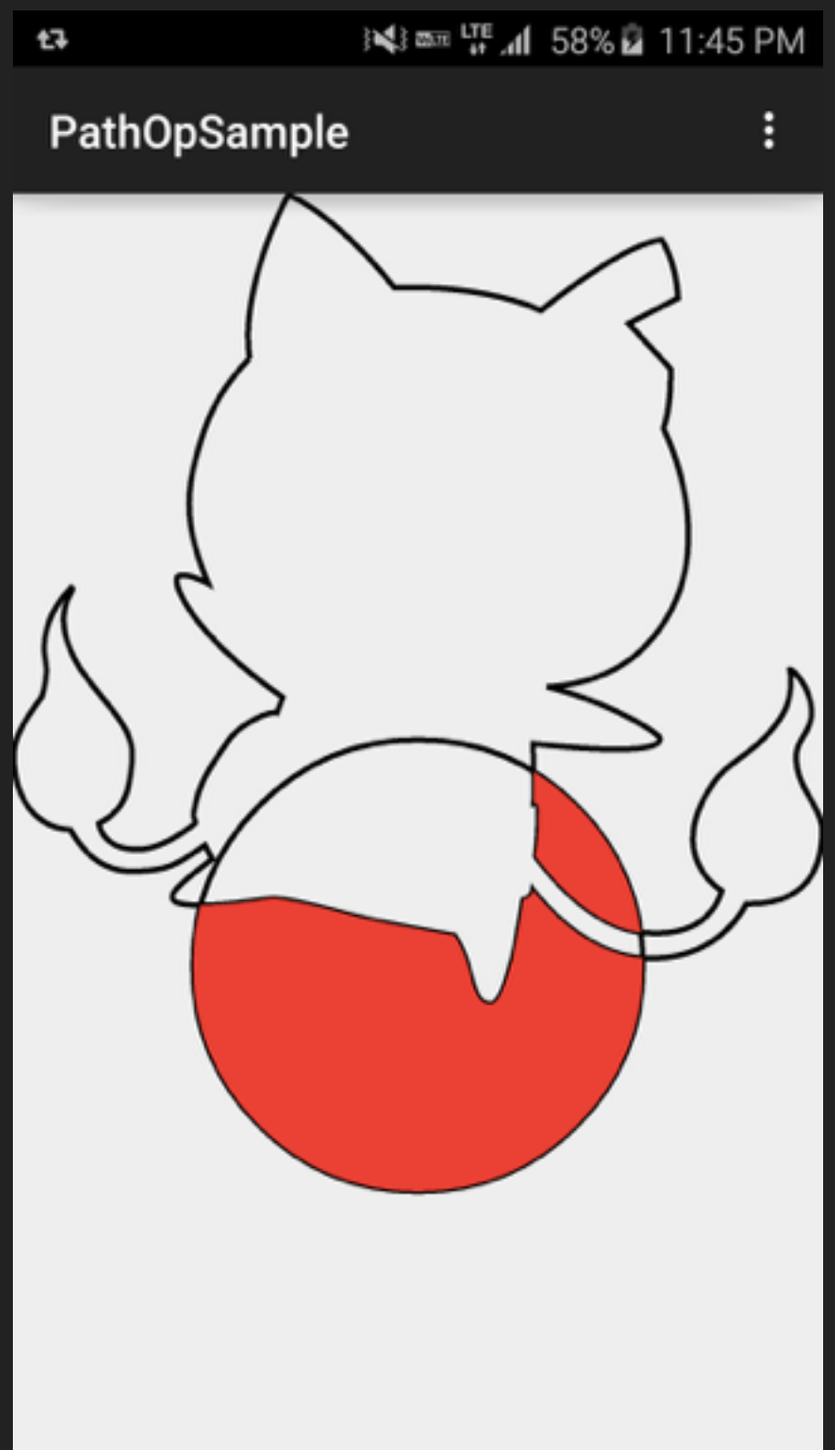
Path to Op

Path to be Op

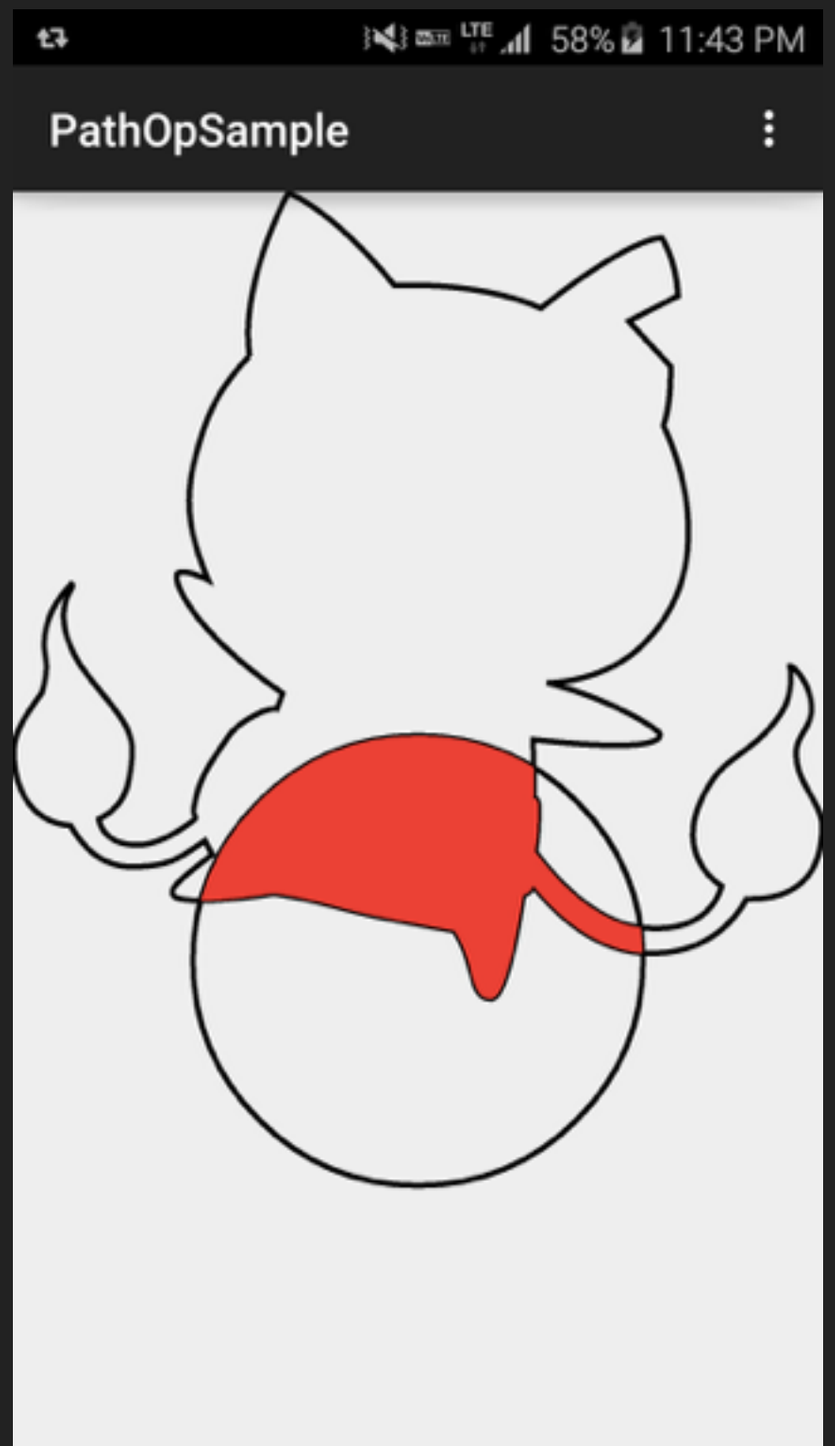
Path#op DIFFERENCE



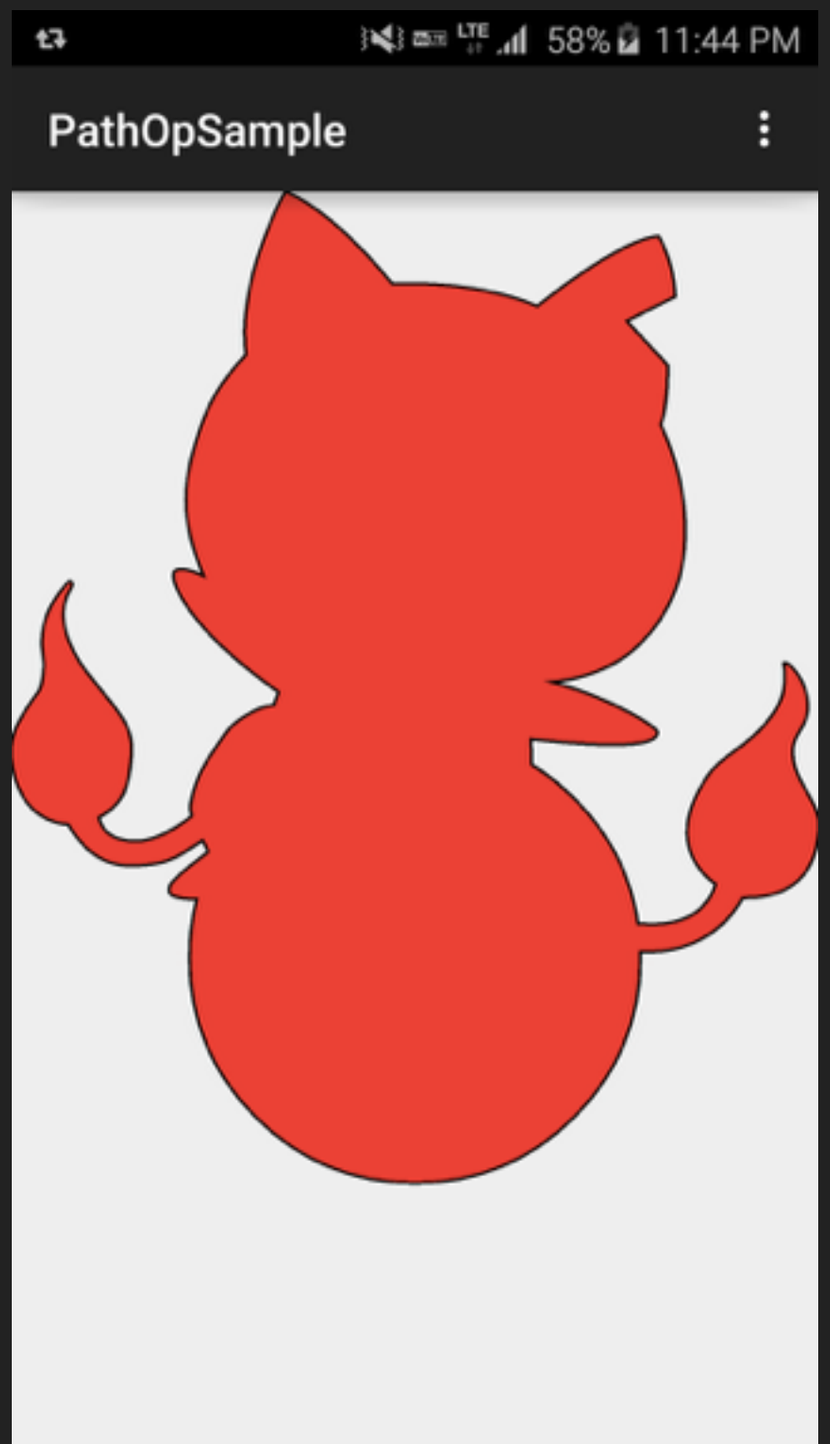
Path#op REVERCE_DIFFERENCE



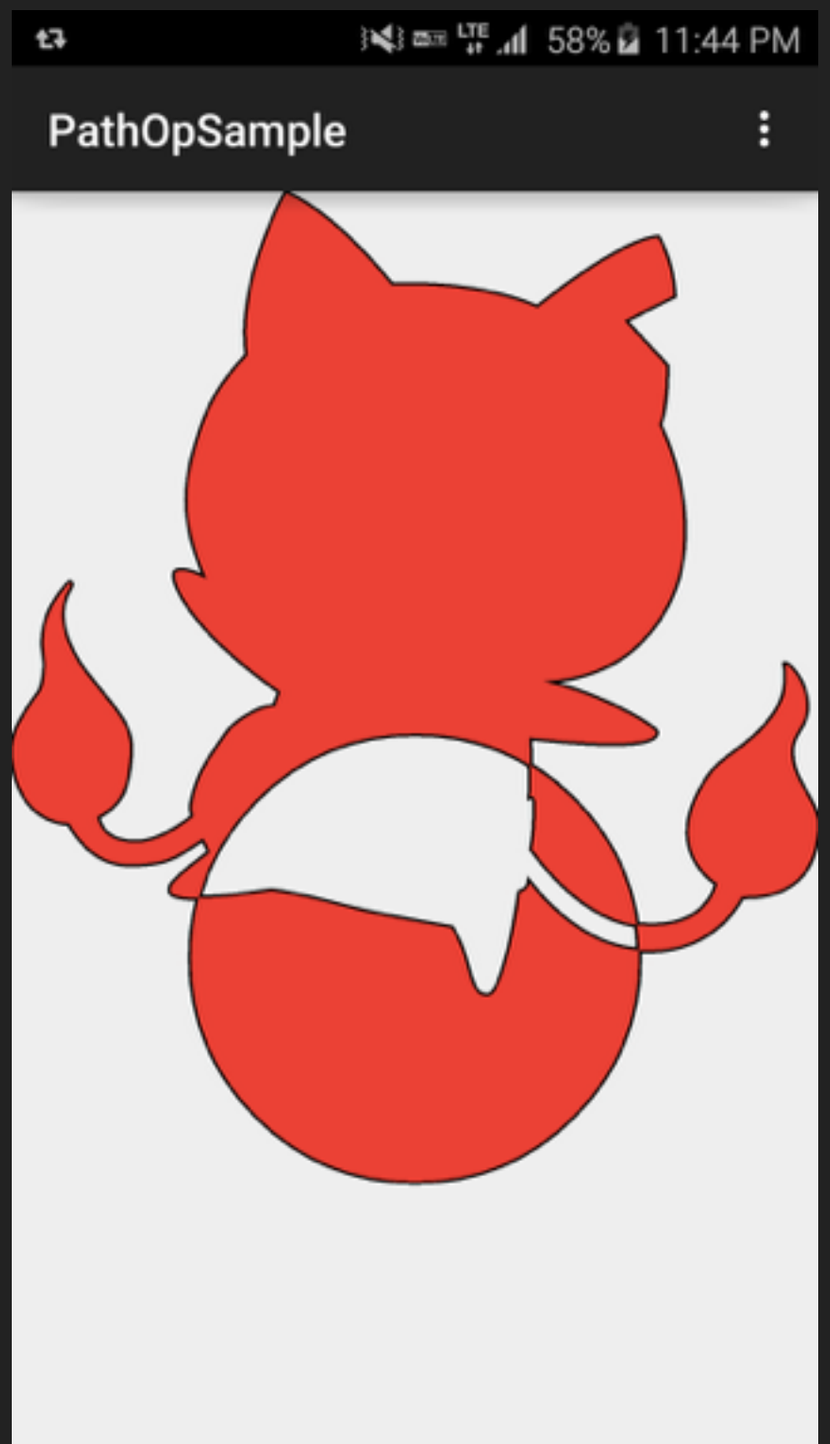
Path#op INTERESECT



Path#op UNION



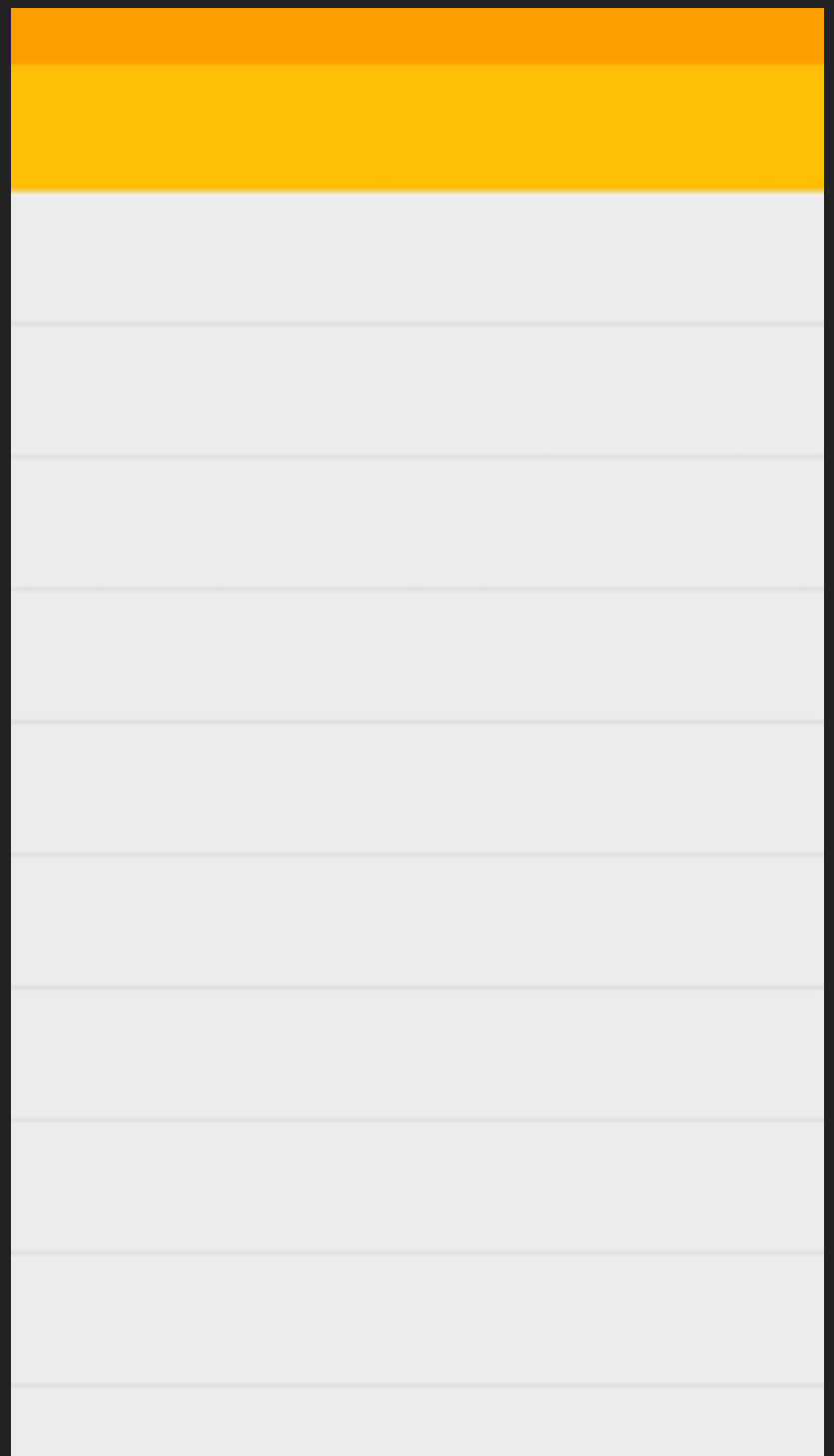
Path#op XOR



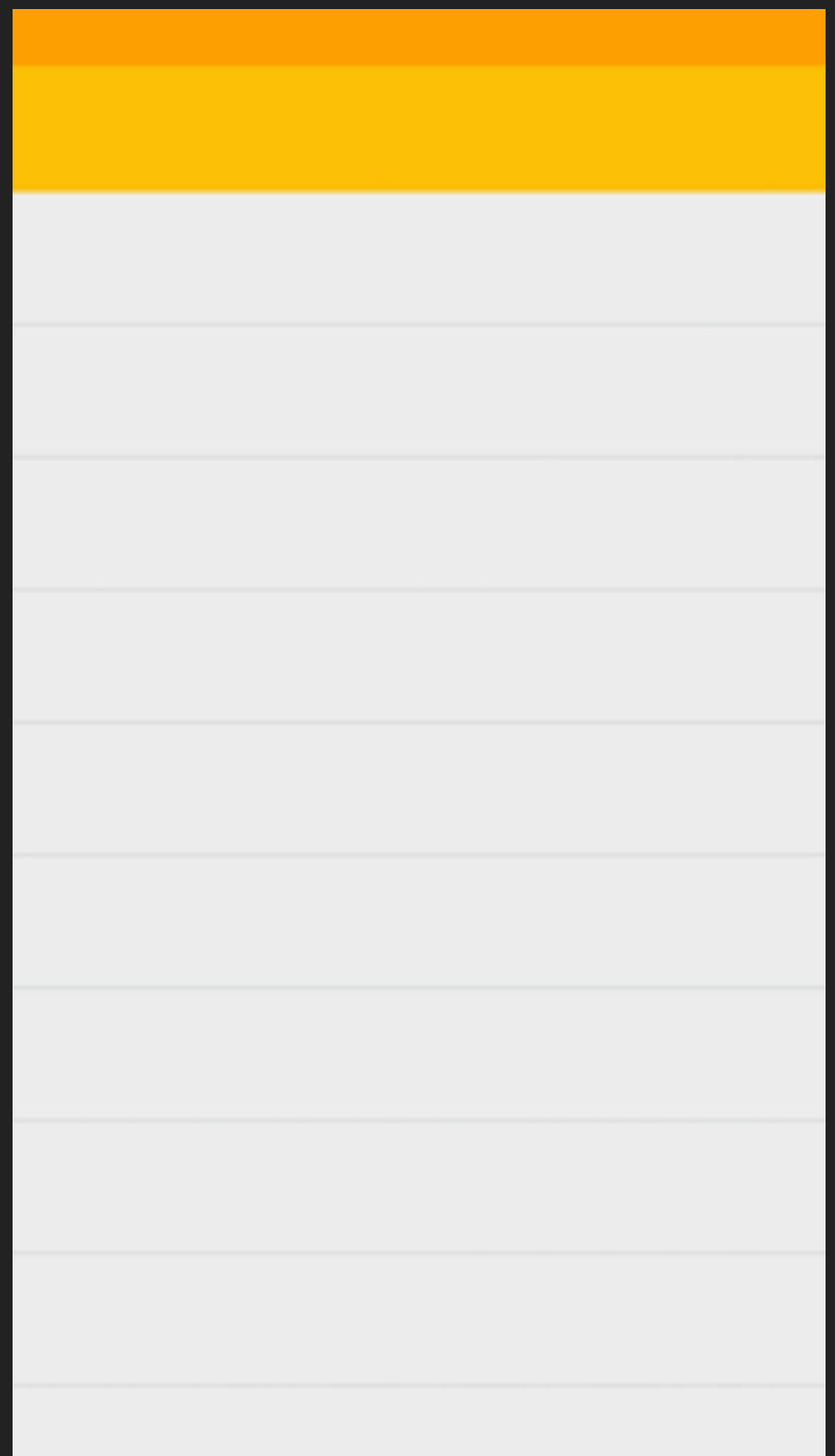
Path#op

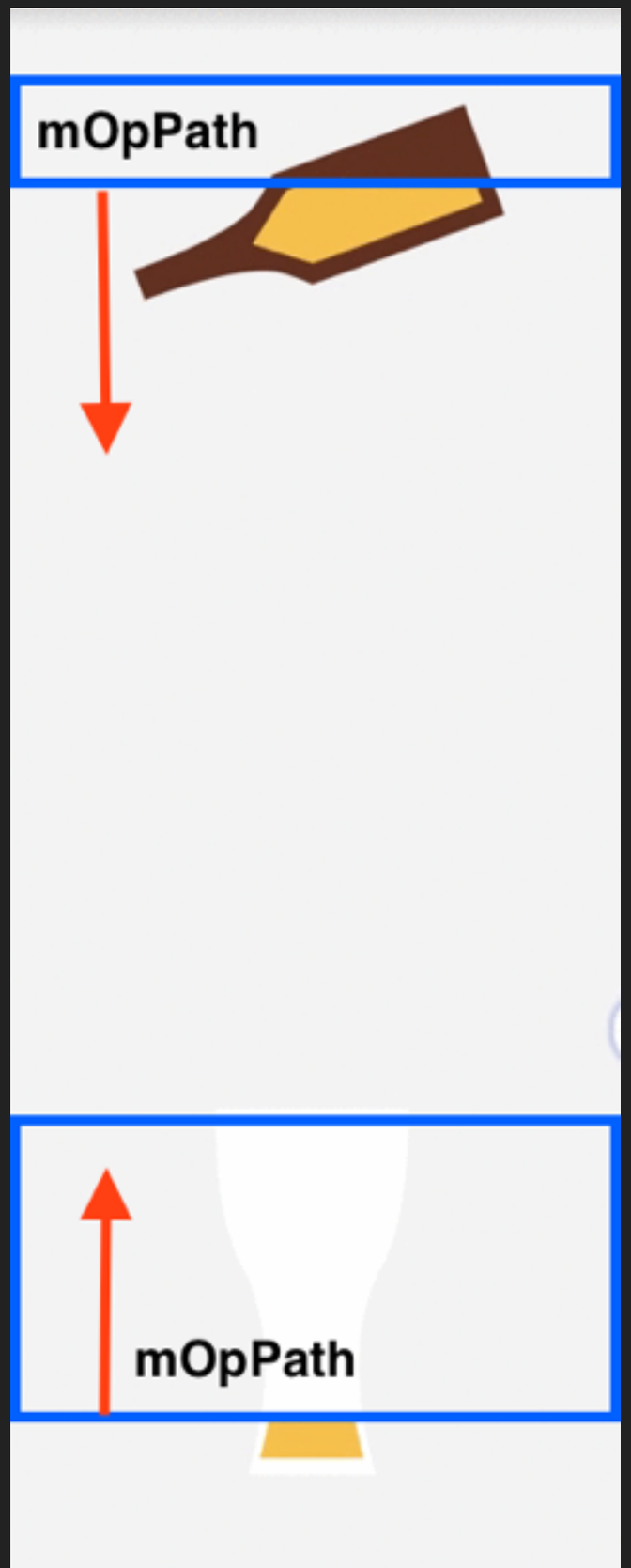
```
@Override
protected void onDraw(Canvas canvas) {
    canvas.drawPath(mBasePath, mLinePaint);
    canvas.drawPath(mOpPath, mLinePaint);

    mBasePath.op(mOpPath, Path.Op.DIFFERENCE);
    canvas.drawPath(mBasePath, mPaint);
}
```

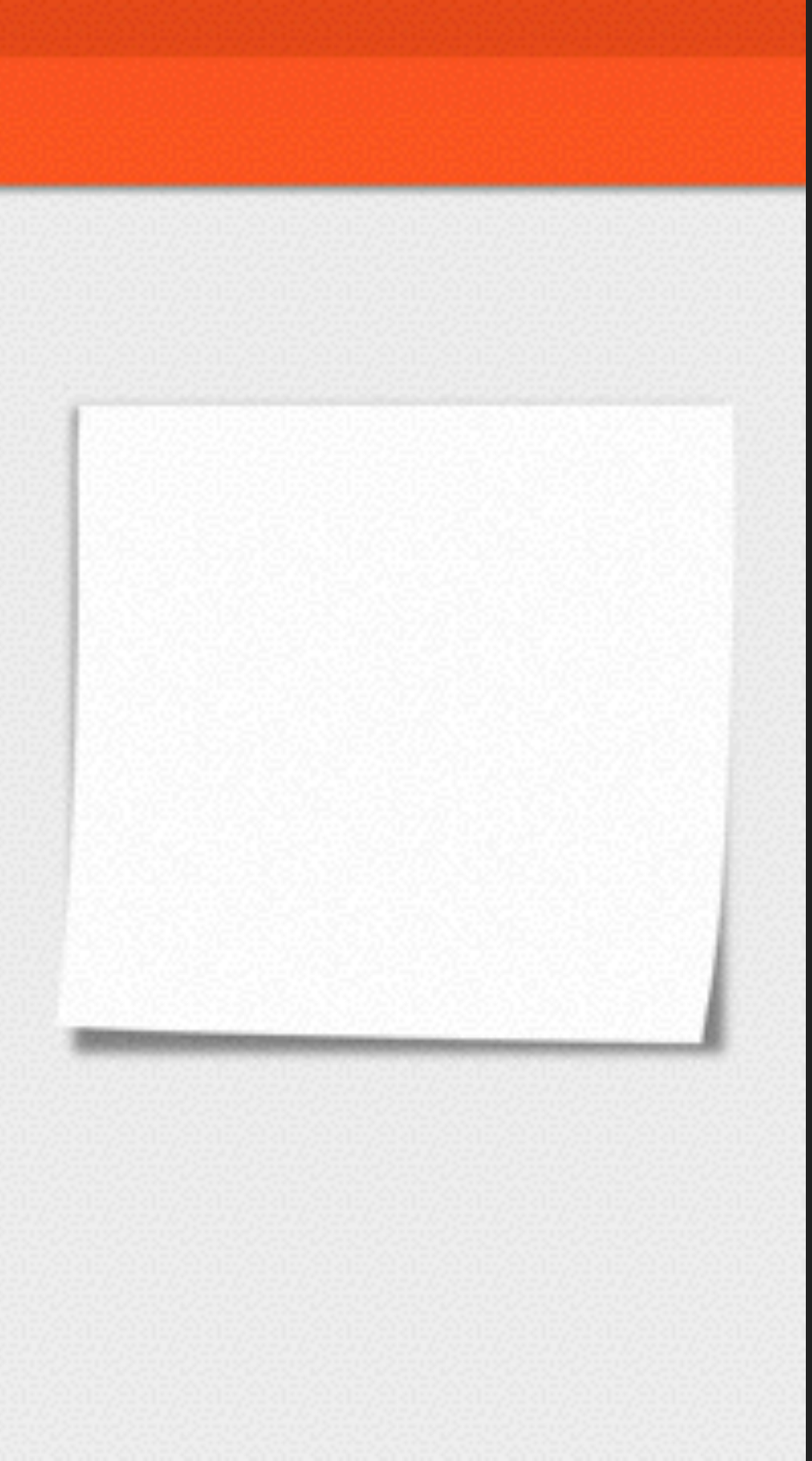
Path#op



Path#op



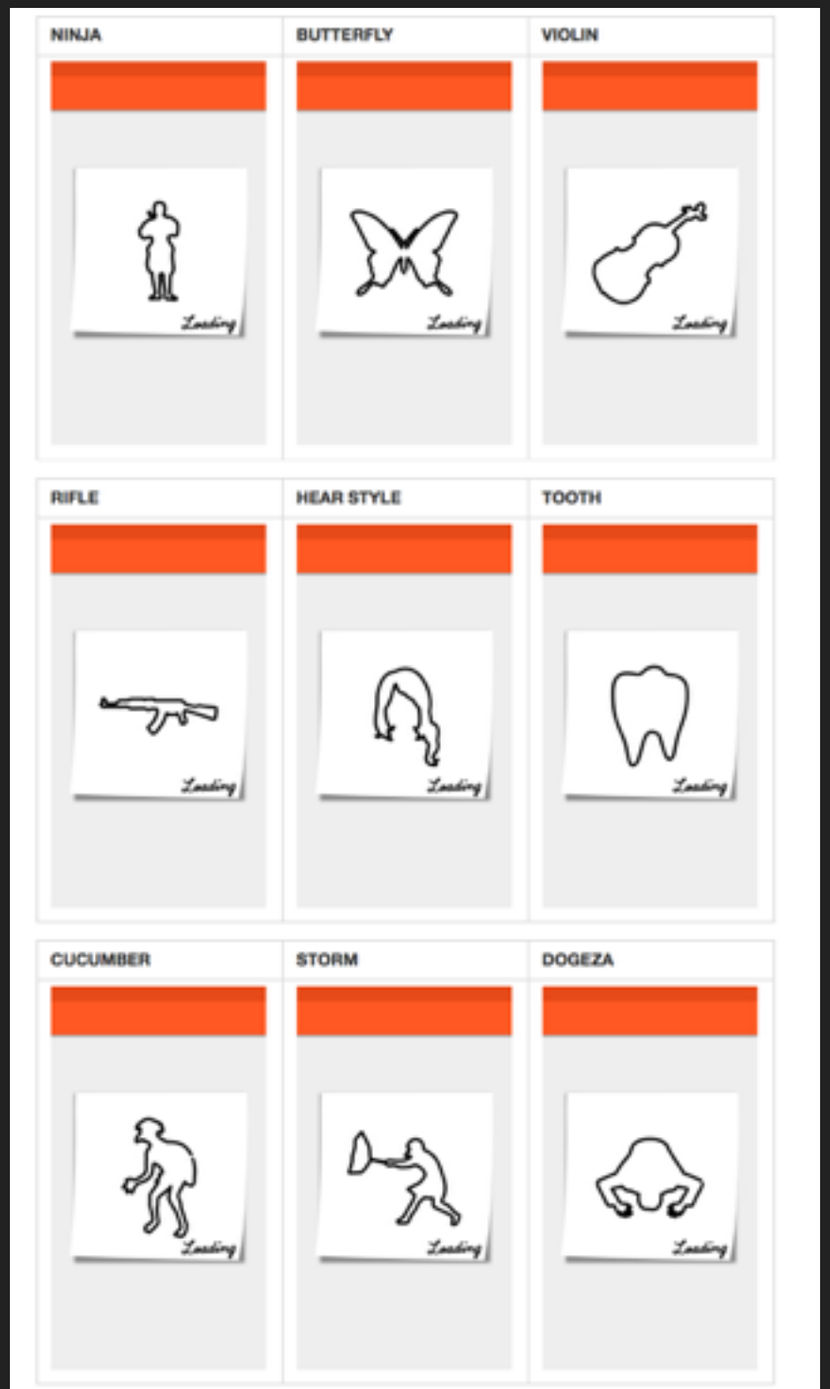




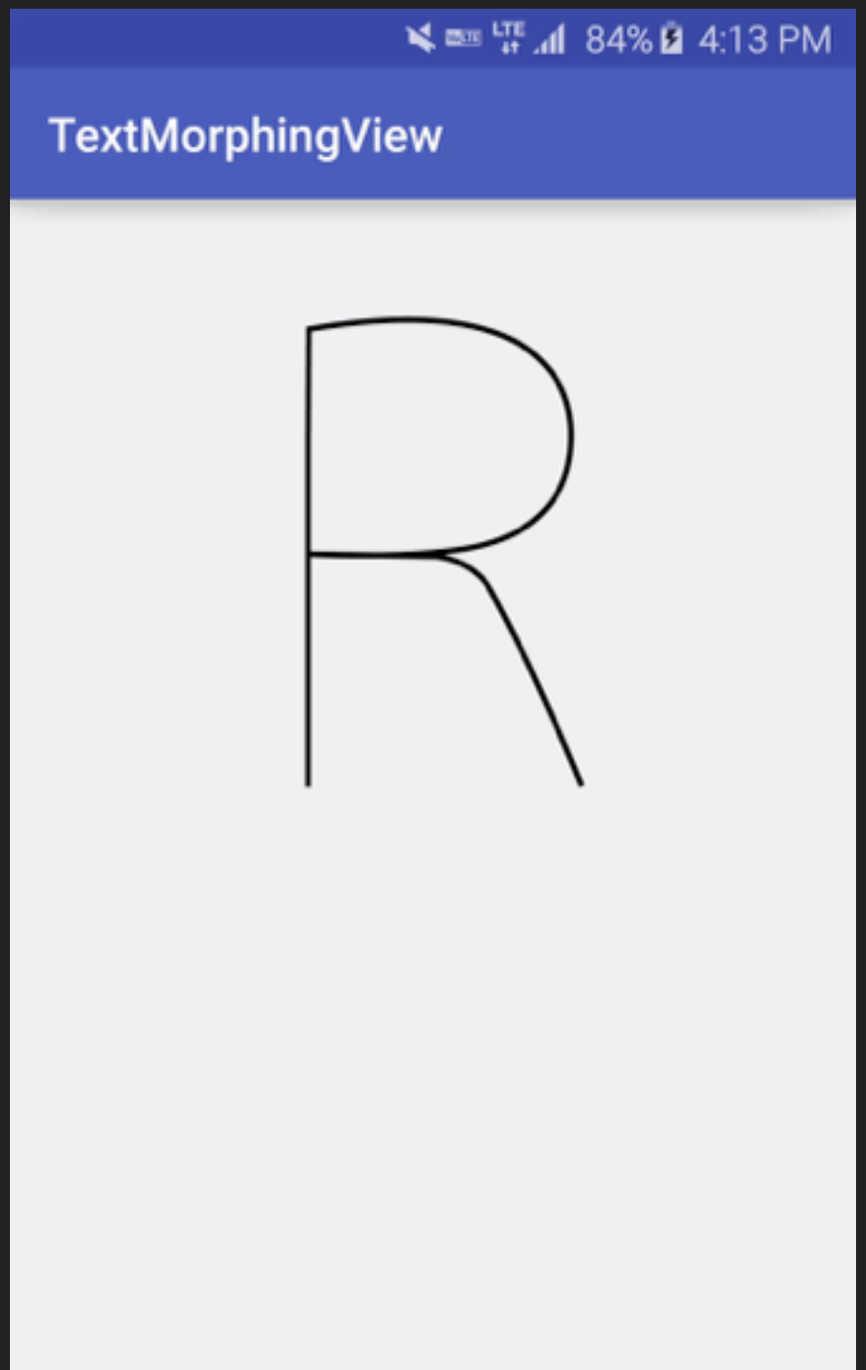
- To extract the path from Illustrator

ColoringLoading TextMorphingView

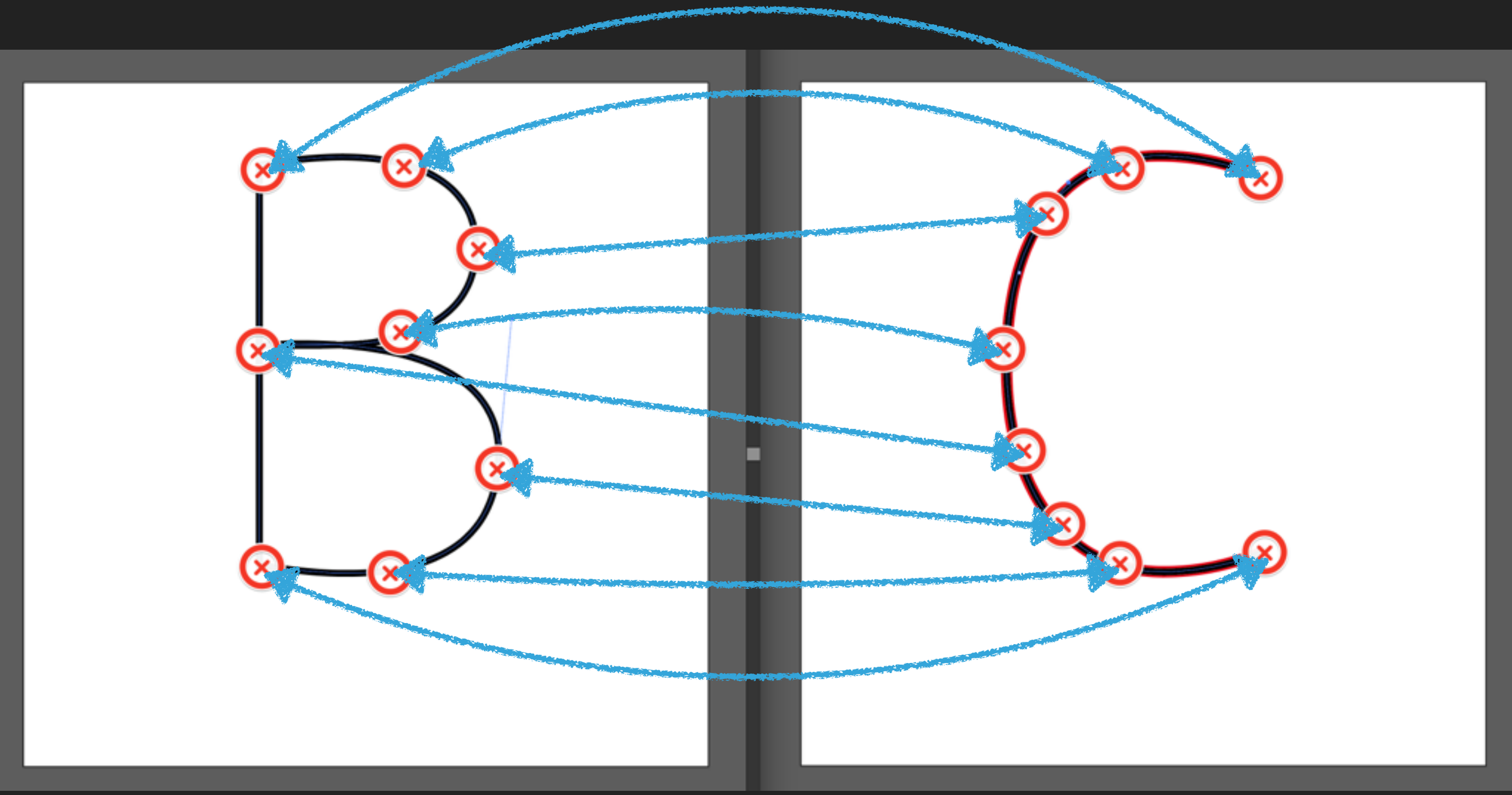
To extract the path from Illustrator



To extract the path from Illustrator



To extract the path from Illustrator



To extract the path from Illustrator

- ExtendScript Toolkit
  - development and debugging tool for JavaScript scripts included with Adobe Creative Suide 4 and applications such as Bridge, Photoshop, Illustrator, InDesign, and After Effects.

To extract the path from Illustrator

Adobe Illustrator CC 2015 | main

```
        if (j == 0) {
            $.writeln(moveTo(ap));
            if (isClosed) {
                endPoint = cubicTo(ap, ld, rd);
            }
        } else {
            $.writeln(cubicTo(ap, ld, rd));
        }
    }
    if (endPoint) {
        $.writeln(endPoint);
    }
}

function moveTo(anchor)
{
    return 'moveTo(' + point(anchor) + ')'
}

function cubicTo(anchor, leftDirection, rightDirection)
{
    return 'cubicTo(\n  '
        + point(rightDirection) + ',\n  '
        + point(leftDirection) + ',\n  '
        + point(anchor) + '\n);'
}

function point(point)
{
    return + point[0] + ', ' + point[1]
}

function roundPoint(point, places)
{
    var p = [];
    var len = point.length;
    for(var i=0; i < len; i++) {
        p.push(Math.round(point[i] * places)/places);
    }
    return p;
}

function convertDToA(point)
{
    var doc = app.activeDocument;
    var pos = doc.convertCoordinate (point, CoordinateSystem.ARTBOARDCOORDINATESYSTEM, C
    pos[1] *= -1;
    return pos;
}
```

javascript コンソール

```
 0.738, 0.56
);
cubicTo(
 0.738, 0.56,
 0.683, 0.614,
 0.683, 0.614
);
cubicTo(
 0.683, 0.614,
 0.726, 0.677,
 0.726, 0.677
);
cubicTo(
 0.726, 0.677,
 0.661, 0.71,
 0.661, 0.71
);
cubicTo(
 0.661, 0.71,
 0.692, 0.744,
```

Adobe Illustrator CC 2015

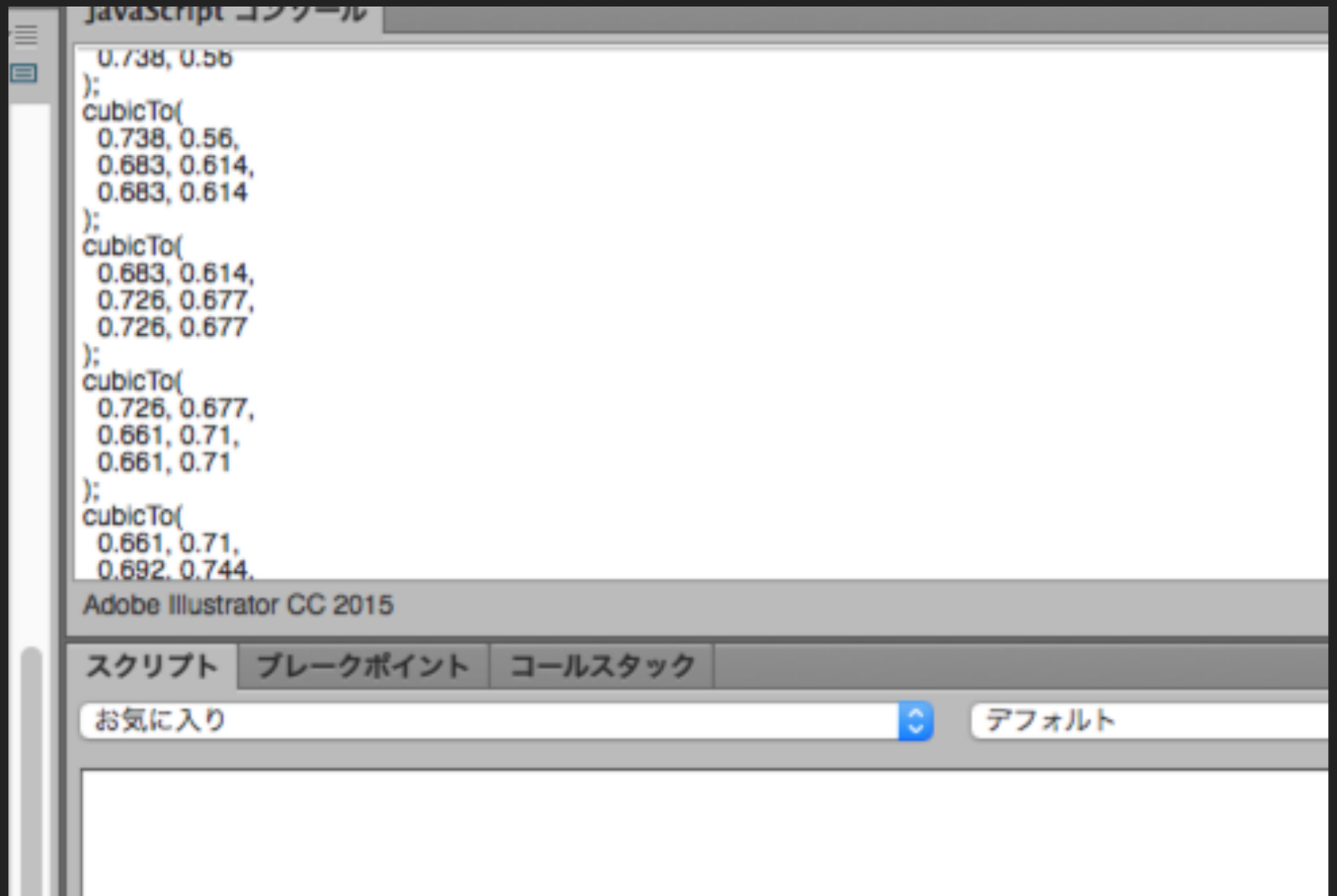
スクリプト | ブレークポイント | コールスタック

お気に入り | デフォルト

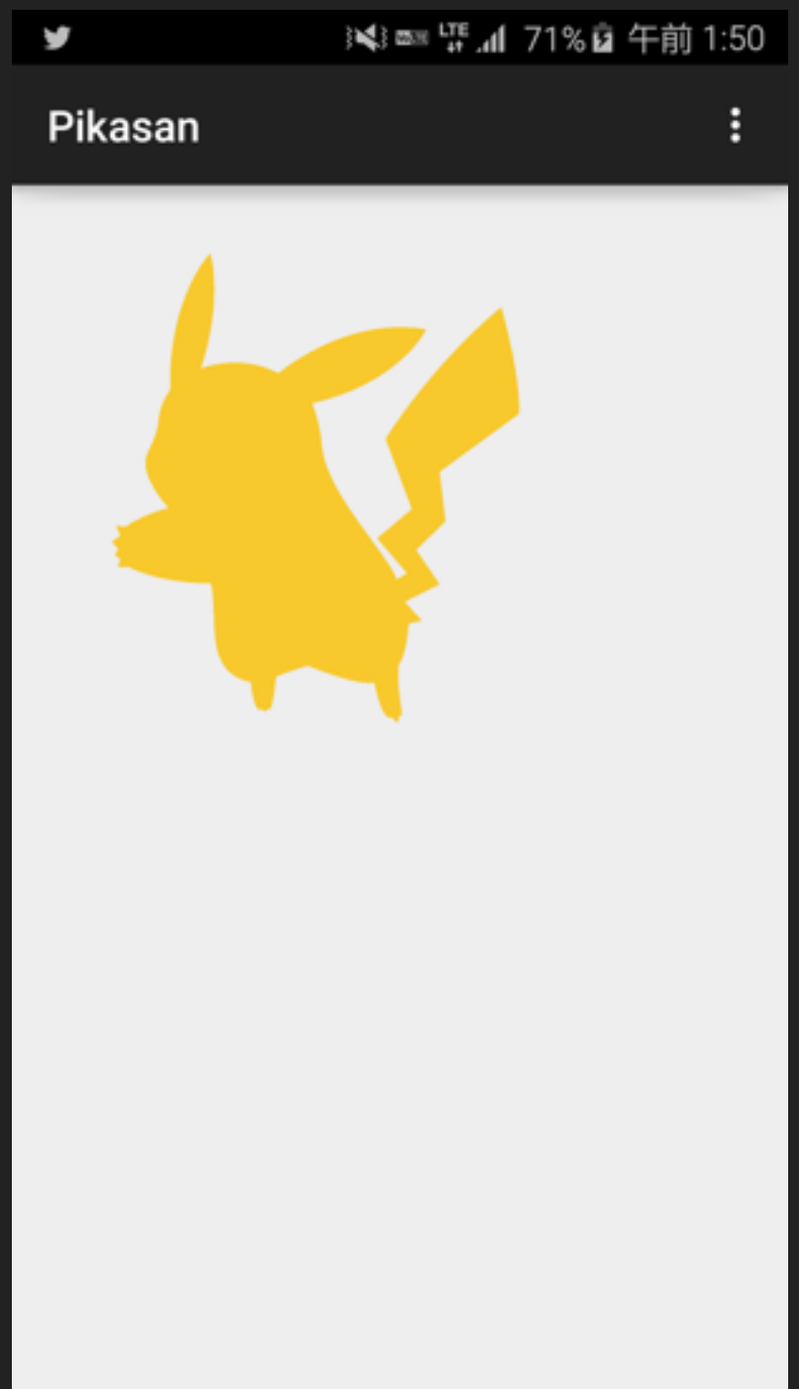
データブラウザ | 関数

```
alert()
AlternateGlyphsForm = [Object] AlternateGlyphsForm
AntiAliasingMethod = [Object] AntiAliasingMethod
ap = [Array] 0.215,0.349
app = [Application Adobe Illustrator]
Application()
ArtClippingOption = [Object] ArtClippingOption
AutoCADColors = [Object] AutoCADColors
AutoCADCompatibility = [Object] AutoCADCompatibility
AutoCADExportFileFormat = [Object] AutoCADExportFileFormat
```

To extract the path from Illustrator



To extract the path from Illustrator



Finally...

Thank you for Listening!

Text

- WaveSwipeRefreshLayout
  - https://github.com/recruit-lifestyle/WaveSwipeRefreshLayout
- BeerSwipeRefreshLayout
  - https://github.com/recruit-lifestyle/BeerSwipeRefresh
- ColoringLoading
  - https://github.com/recruit-lifestyle/ColoringLoading
- Pikasan
  - https://github.com/amyu/Pikasan