Complex path animation with interpolation

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Previously: Contently, American Prospect, Google

D3 Interpolation

d3.interpolate(a, b)

Returns the default interpolator between the two values a and b. The type of interpolator is based on the type of the end value b, using the following algorithm:

If b is a color, interpolateRgb is used.
If b is a string, interpolateString is used.
If b is an array, interpolateArray is used.
If b is an object and not coercible to a number, interpolateObject is used.
Otherwise, interpolateNumber is used.
Based on the chosen interpolator, a is coerced to a suitable corresponding type.

Tweens

D3 comes with .attrTween and .styleTween to perform interpolations on selections.

Style:

```
d3.select("body").transition()
    .styleTween("color", function() { return d3.interpolate("green", "red"); });
```

Numeric value:

```
d3.select(".priceText").text(pastPrice).transition()
            .duration(1200)
            .ease('linear')
            .tween("text", function() {
              pastPrice = newPrice;
              var i = d3.interpolate(this.textContent, newPrice);
              return function(t) {
                  z = i(t).toFixed(2);
                this.textContent =  z;
              };
            });
    }
```

Use getTotalLength() to animate

Taking the length of a path, you can create any number of interactions relative to its length.

0 < t < 1

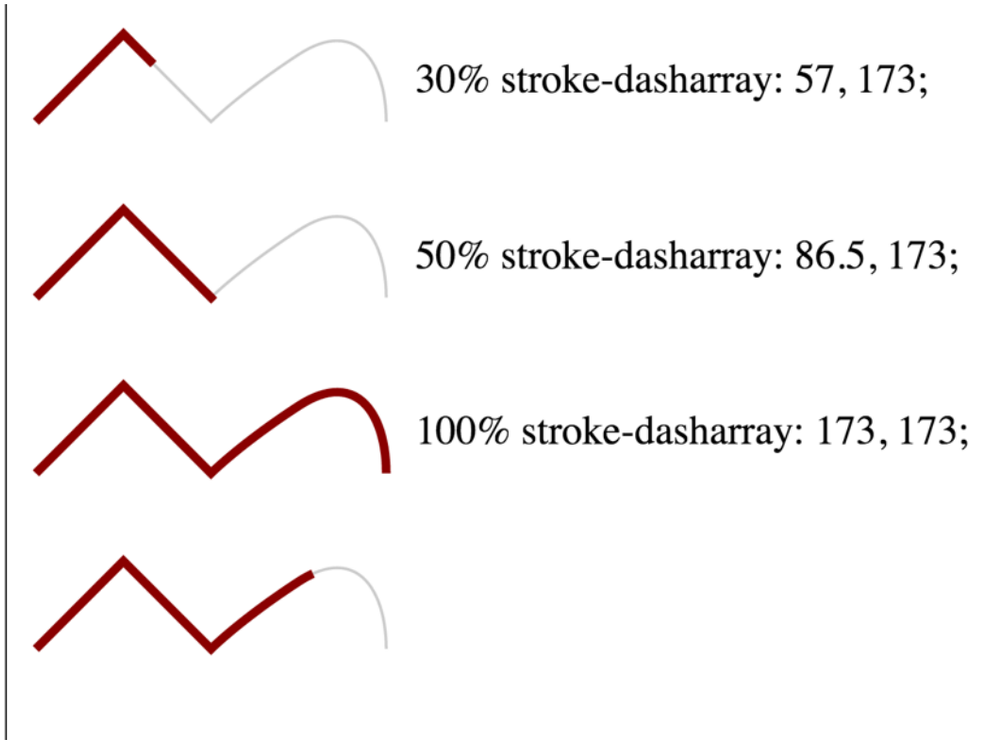
```
function transition() {
  circle.transition()
      .duration(5000)
      .attrTween("transform", translateAlong(path.node()))
}

transition();

// Returns an attrTween for translating along the specified
path element for t.
function translateAlong(path) {
  var l = path.getTotalLength();
  return function(d, i, a) {
    return function(t) {
      //console.log(t);
      var p = path.getPointAtLength(t * l);
      console.log(p);
      return "translate(" + p.x + "," + p.y + ")";
    };
  };
}
```

Stroke dasharray interpolation

You can interpolate the length of the stroke-dasharray style of a path to create the transition effect of filling it from start to finish.



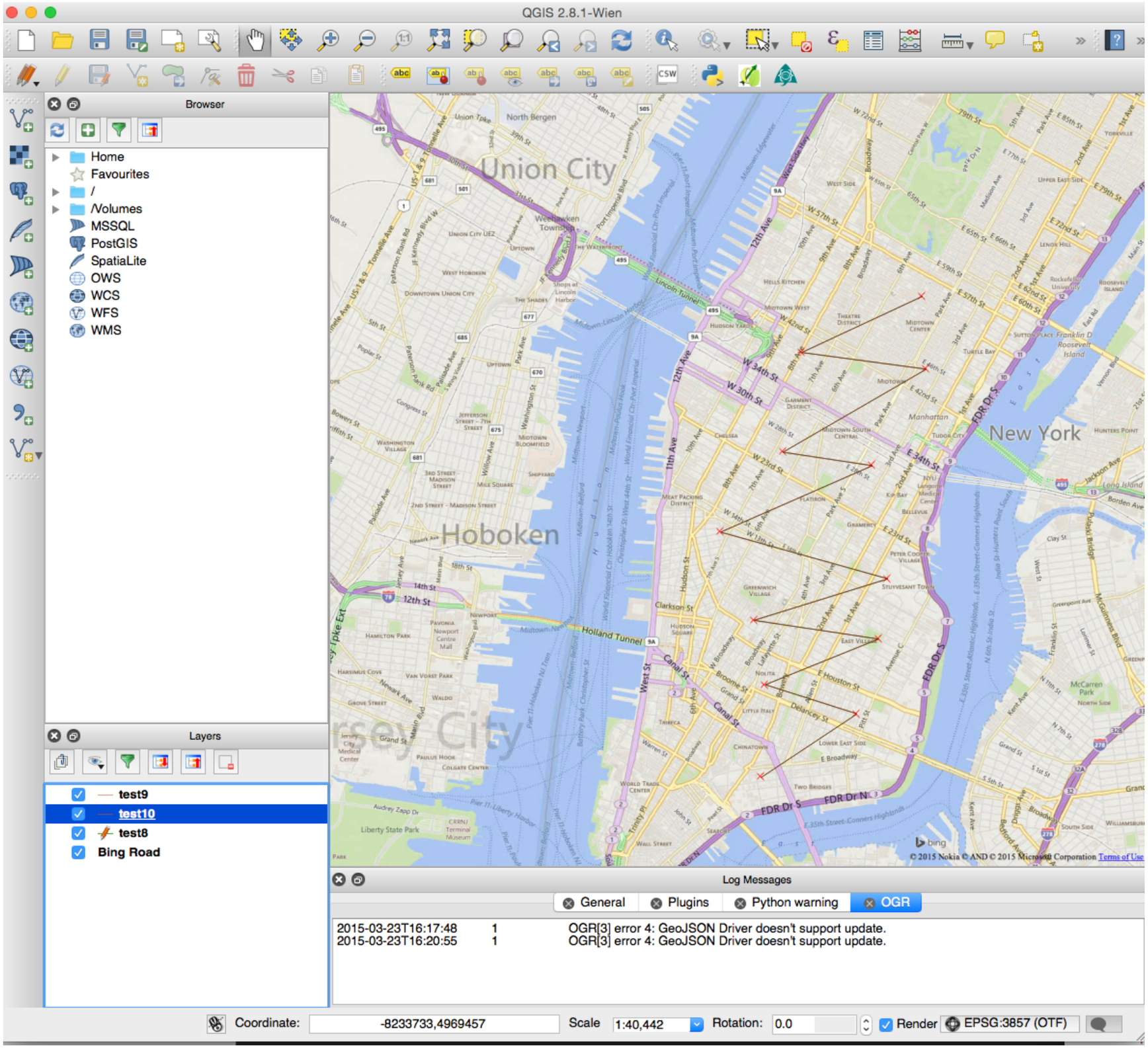
All together now..

Transition the circle and the path stroke-dasharray at the same duration, and it will appear they are part of the same interaction.

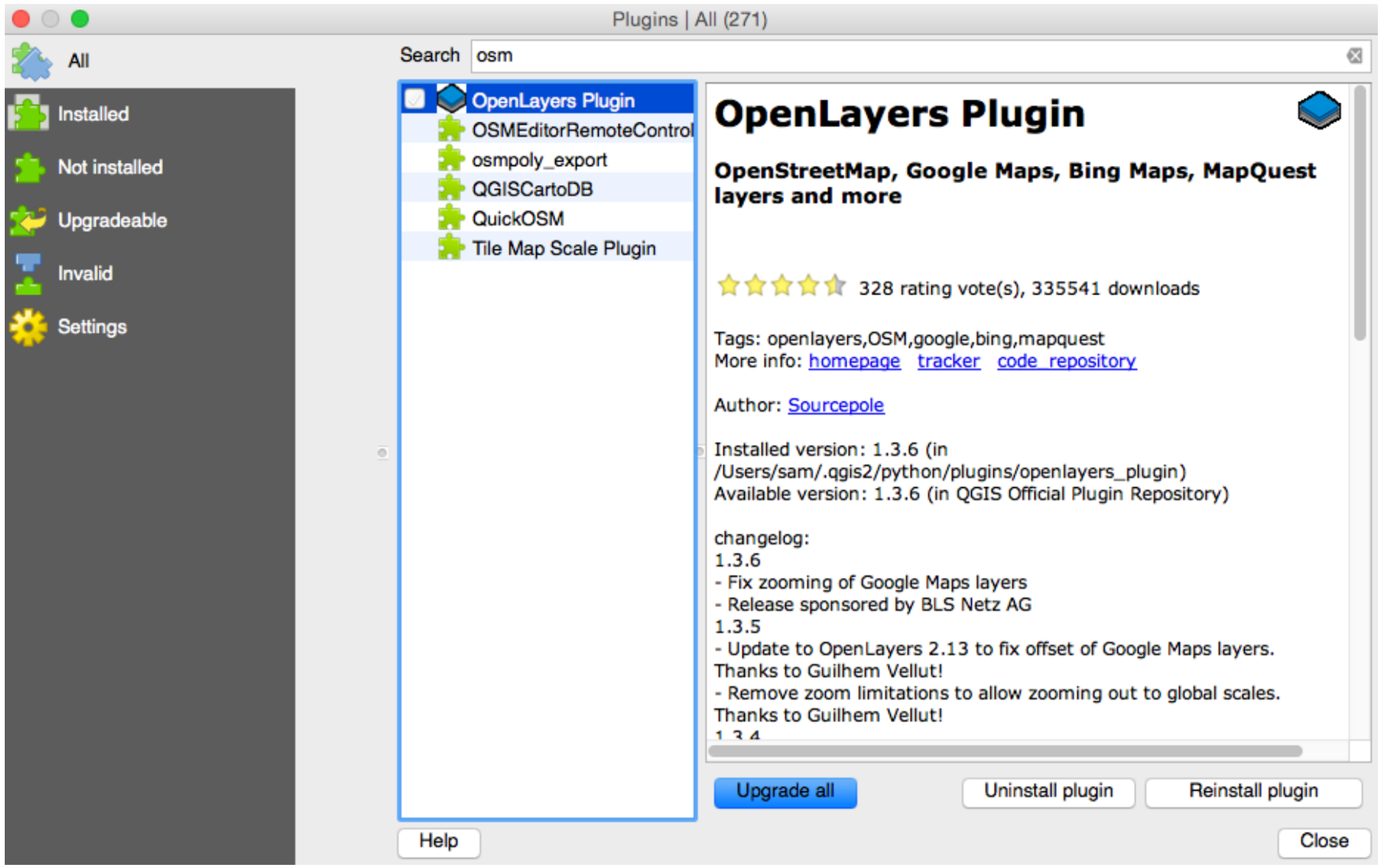
What can we do with this?

GIS

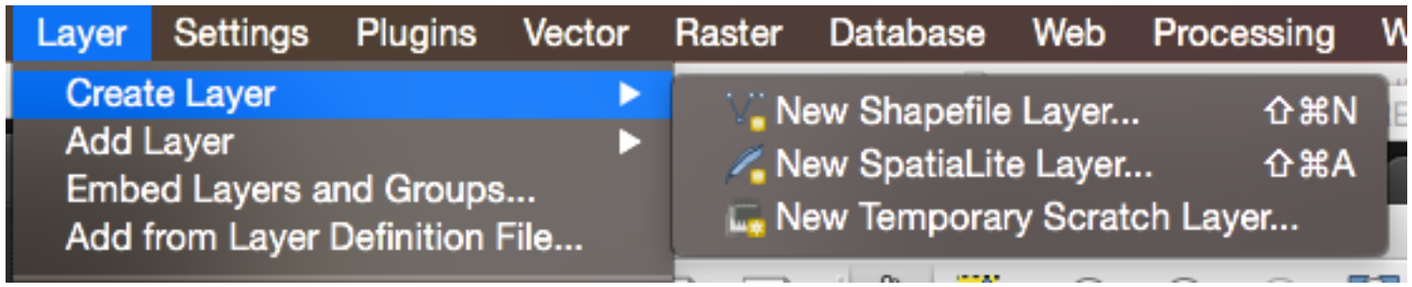
Qgis Linestring



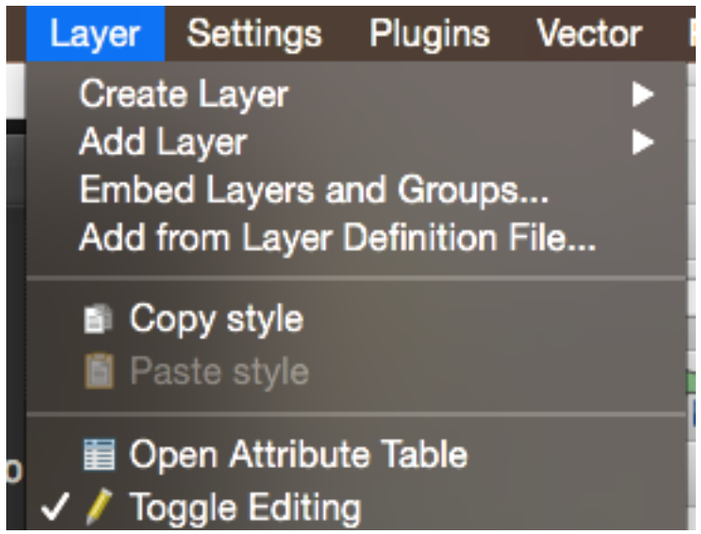
Qgis Linestring



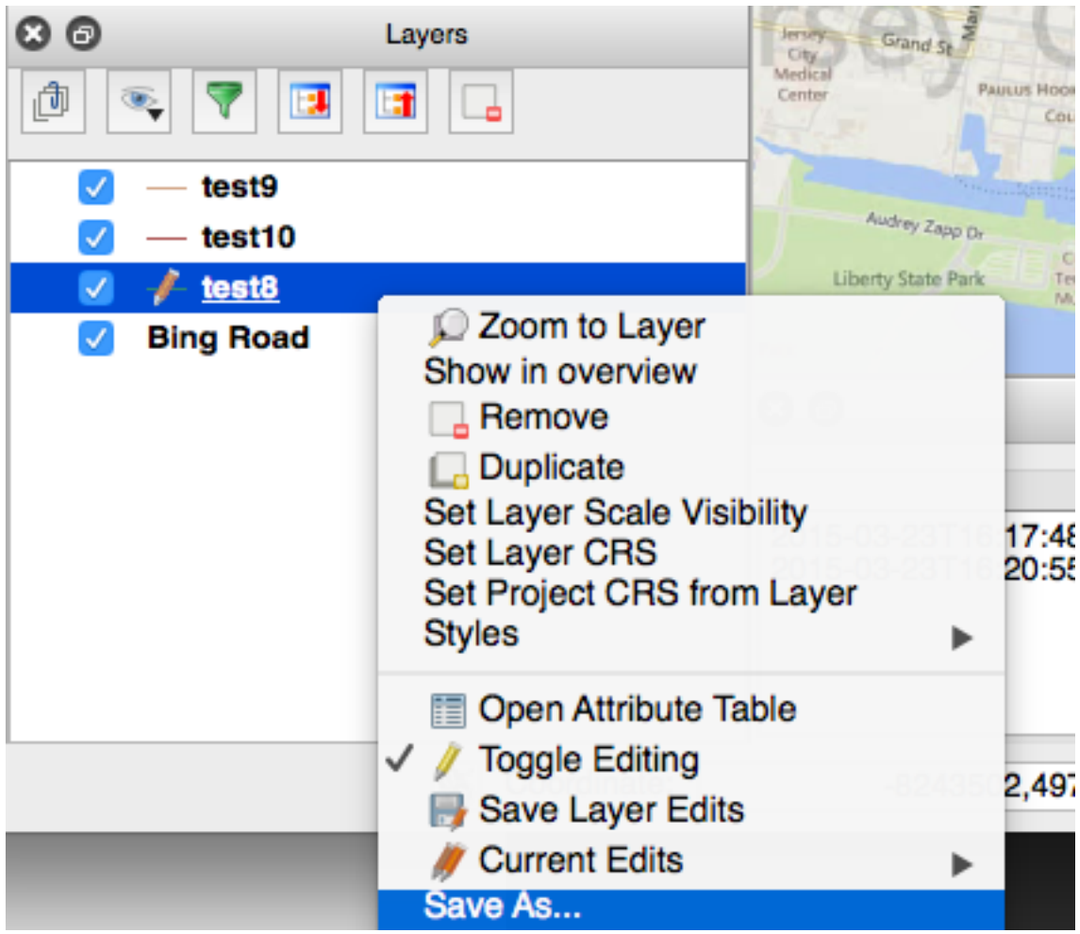
Qgis Linestring



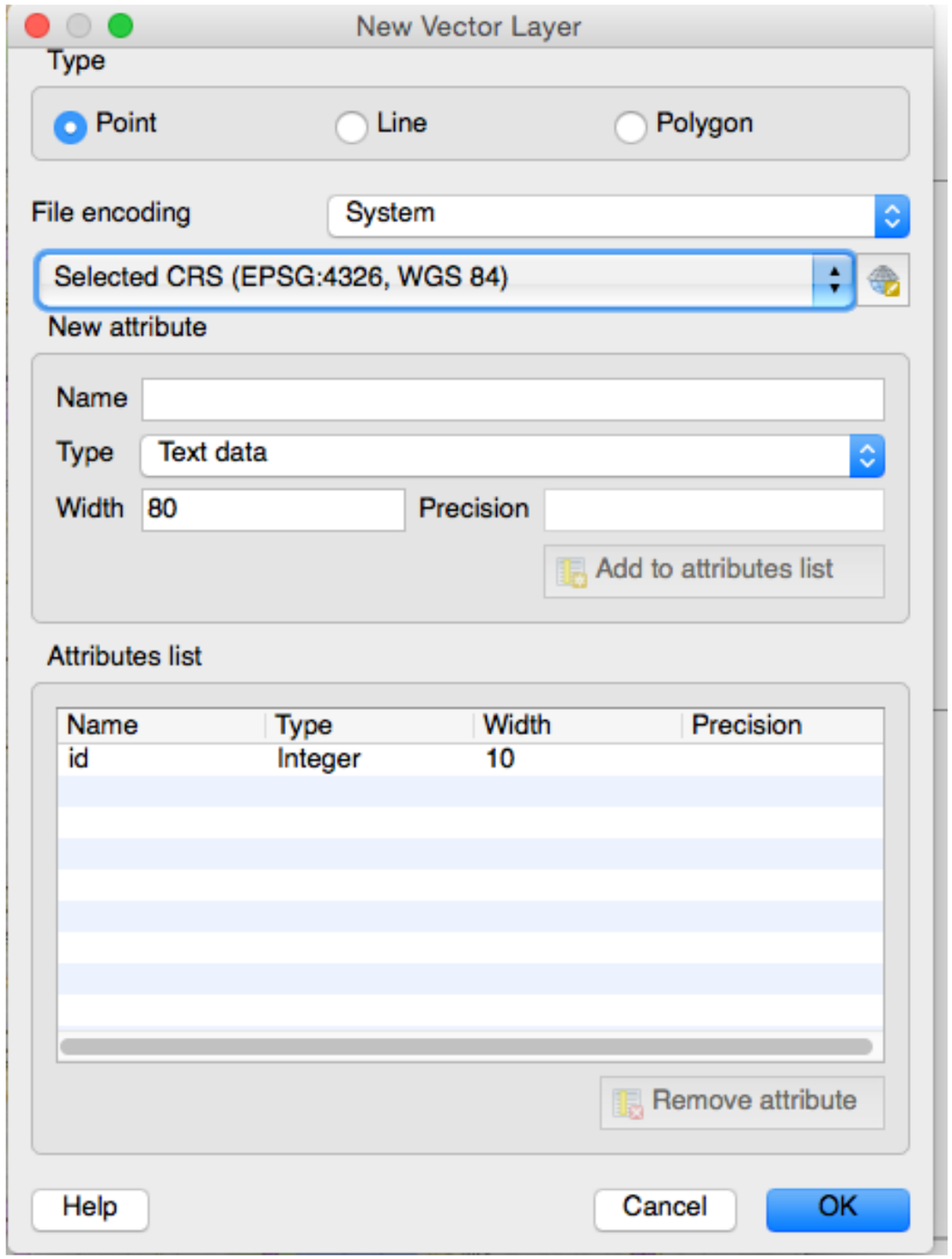
Qgis Linestring



Qgis Linestring



Qgis Linestring



Qgis Linestring -> D3

LYUBAN

A Modern Train, a Rotting City

A few times every day, the high-speed train between St. Petersburg and Moscow barrels through the threadbare town of Lyuban. When word gets out that the head of Russia's state railway company — a close friend of President Vladimir V. Putin — is aboard, the station's employees line up on the platform standing at attention, saluting Russia's modernization for the seconds it takes the train to fly through. *Whoosh*.

But Vladimir G. Naperkovsky is not one of them. He watched with a cold, blue-eyed stare as the train passed the town where he was born, with its pitted roads and crumbling buildings. At 52, having shut down his small computer repair business, Mr. Naperkovsky is leaving for another region in Russia, hoping it is not too late to start a new life in a more prosperous place. The reasons are many, but his view boils down to this: "Gradually," he said, explaining his view of Lyuban, "everything is rotting."

At the edges of Russia's two great cities, another Russia begins.

This will not be apparent at next year's Winter Olympics in Sochi, nor is it visible from the German-engineered high-speed train. It is along the highway between Moscow and St. Petersburg — a narrow 430-mile stretch of road that is a 12-hour trip by car — that one sees the great stretches of Russia so neglected by the state that they seem drawn backward in time.

Google directions -> Polyline -> D3


```
function applyLatLngToLayer(d) {
        var y = d.geometry.coordinates[1]
        var x = d.geometry.coordinates[0]
        return map.latLngToLayerPoint(new
L.LatLng(y, x))

    }
```

Keys

stroke-dasharray (css)
.getPointAtLength(target) (path.prototype)
.getTotalLength(target) (path.prototype)

Converting either a Linestring or a collection of points to a line using the d3.svg.line()