# d3 (core)

#### Selections

d3.select - select an element from the current doc.

d3.selectAll - select multiple elements from the current doc. selection.attr - get/set attr vals.

selection.classed - add/remove CSS classes.

selection.style - get/set style properties.

selection.property - get/set raw properties.

**selection.text** - get/set text content.

selection.html - get/set inner HTML content.

selection.append - create and append new elements.

**selection.insert** - create and insert new elements before existing elements.

selection.remove - remove elements from the doc.

selection.data - get/set data for a group of elements, while computing a relational join.

selection.enter - returns placeholders for missing elements.
selection.exit - returns elements that are no longer needed.

**selection.datum** - get/set data for individual elements, without computing a join.

**selection.filter** - filter a selection based on data.

selection.sort - sort elements in the doc based on data.

 ${f selection.order}$  - reorders elements in the doc to match the selection.

**selection.on** - add/remove event listeners for interaction.

selection.transition - start a trans. on the selected elements.

selection.each - call a fcn for each selected element.

selection.call - call a fcn passing in the current selection.

**selection.empty** - returns true if the selection is empty.

 ${\bf selection.node}$  - access the first node in a selection.

**selection.select** - subselect a descendant element for each selected element.

 ${\bf selection.selectAll}$  - subselect multiple descendants for each selected element.

d3.selection - augment the selection prototype, or test instance types

d3.event - access the current user event for interaction.

d3.mouse - gets the mouse position relative to a specified container.

d3.touches - gets the touch positions relative to a specified container.

#### Transitions

d3.transition - start an animated trans..

transition.delay - specify per-element delay in ms.

transition.duration - specify per-element duration in ms.

transition.ease - specify trans. easing fcn.

transition.attr - smoothly trans to the new attr val.

transition.attrTween - smoothly trans b/w two attr vals.

 ${\bf transition.style}$  - smoothly trans to the new style property val.

 $\begin{tabular}{ll} \bf transition.style Tween - smoothly trans b/w two style \\ property vals. \end{tabular}$ 

transition.text - set the text content when the trans starts.
transition.tween - specify a custom tween operator to run as
part of the trans.

**transition.select** - start a trans on a descendant element for each selected element.

transition.selectAll - start a trans on multiple descendants for each selected element.

transition.filter - filter a trans based on data.

**transition.transition -** when this trans ends, start another one on the same elements.

transition.remove - remove sel. elements at the end of a trans. transition.each - add a listener for transition end events.

transition.call - call a fcn passing in the current trans.

d3.ease - customize trans timing.

ease - a parametric easing fcn.

d3.timer - start a custom animation timer.

d3.timer.flush - immediately execute any zero-delay timers.

d3.interpolate - interpolate two vals.

**interpolate** - a parametric interpolation fcn.

d3.interpolateNumber - interpolate two numbers.

d3.interpolateRound - interpolate two integers.

d3.interpolateString - interpolate two strings.

d3.interpolateRgb - interpolate two RGB colors.

d3.interpolateHsl - interpolate two HSL colors.

d3.interpolateLab - interpolate two L\*a\*b\* colors.

d3.interpolateHcl - interpolate two HCL colors.

d3.interpolateArray - interpolate two arrays of vals.

d3.interpolateObject - interpolate two arbitrary objects.

d3.interpolateTransform - interpolate two 2D matrix trans.

d3.interpolators - register a custom interpolator.

# Working with Arrays

d3.ascending - compare two values for sorting.

d3.descending - compare two values for sorting.

 ${f d3.min}$  - find the min value in an array.

d3.max - find the max value in an array.

d3.extent - find the min and max value in an array.

d3.sum - compute the sum of an array.

**d3.mean** - compute the arithmetic mean of an array.

**d3.median** - compute the median of an array (the 0.5-quantile).

d3.quantile - compute a quantile for a sorted array.

**d3.bisect** - search for a value in a sorted array.

d3.bisectRight - search for a value in a sorted array.

d3.bisectLeft - search for a value in a sorted array.

d3.bisector - bisect using an accessor.

d3.shuffle - randomize the order of an array.

 ${f d3.permute}$  - reorder an array of elements according to an array of indexes.

**d3.zip** - transpose a variable number of arrays.

 ${\bf d3.transpose}$  - transpose an array of arrays.

 ${f d3.keys}$  - list the keys of an assoc array.

d3.values - list the values of an associated array.

d3.entries - list the key-value entries of an assoc array.

**d3.merge** - merge multiple arrays into one array.

d3.range - generate a range of numeric vals.

 ${f d3.nest}$  - group array elements hierarchically.

**nest.key** - add a level to the nest hierarchy.

nest.sortKeys - sort the current nest level by key.

nest.sortValues - sort the leaf nest level by val.
nest.rollup - specify a rollup fcn for leaf vals.

nest.map - evaluate the nest operator, returning an assoc array.
nest.entries - evaluate the nest operator, returning an array of
key-values tuples.

d3.map - a shim for ES6 maps, since objects are not hashes!

map.has - returns true if the map contains the specified key.

map.get - returns the value for the specified key.

map.set - sets the value for the specified key.

map.remove - removes the entry for specified key.

map.keys - returns the maps array of keys.

map.values - returns the maps array of vals.

map.entries - returns the maps array of entries (key-values objects).

map.forEach - calls the specified fcn for each entry in the map.

 ${\bf d3.set}$  - a shim for ES6 sets, since objects are not hashes!

set.has - returns true if the set contains the specified val.

set.add - adds the specified val.

**set.remove** - removes the specified val.

set.values - returns the sets array of vals.

set.forEach - calls the specified fcn for each val in the set.

#### Math

 ${\bf d3.random.normal}$  - generate a random number with a normal dist.

 ${f d3.random.logNormal}$  - generate a random number with a log-normal dist.

 ${f d3.random.irwinHall}$  - generate a random number with an IrwinHall dist.

d3.transform - compute the standard form of a 2D matrix transform

#### String Formatting

d3.format - format a number as a string.

 ${f d3.formatPrefix}$  - returns the [SI prefix] for the specified val and precision.

d3.requote - quote a string for use in a regular expression.

d3.round - rounds a val to some digits after the decimal point.

# Loading External Resources

d3.xhr - request a resource using XMLHttpRequest.

xhr.header - set a request header.

**xhr.mimeType** - set the Accept request header and override the response MIME type.

xhr.response - set a response mapping fcn.

xhr.get - issue a GET request.

xhr.post - issue a POST request.

**xhr.send** - issue a request with the specified method and data.

**xhr.abort** - abort an outstanding request.

xhr.on - add an event listener for "progress", "load" or "error" events.

d3.text - request a text file.

d3.json - request a JSON blob.

d3.html - request an HTML doc fragment.

d3.xml - request an XML doc fragment.

d3.csv - request a comma-separated values (CSV) file.

d3.tsv - request a tab-separated values (TSV) file.

# CSV Formatting (d3.csv)

d3.csv - request a comma-separated values (CSV) file.

d3.csv.parse - parse a CSV string into objects using the header row.

d3.csv.parseRows - parse a CSV string into tuples, ignoring the header row.

d3.csv.format - format an array of objects into a CSV string.
d3.csv.formatRows - format an array of tuples into a CSV string.

d3.tsv - request a tab-separated values (TSV) file.

d3.tsv.parse - parse a TSV string into objects using the header row.

d3.tsv.parseRows - parse a TSV string into tuples, ignoring the header row.

d3.tsv.format - format an array of objects into a TSV string.
d3.tsv.formatRows - format an array of tuples into a TSV string.

#### Colors

d3.rgb - specify a color in RGB space.

rgb.brighter - increase RGB channels by some exp. factor. rgb.darker - decrease RGB channels by some exp. factor. rgb.hsl - convert from RGB to HSL.

rgb.toString - convert an RGB color to a string.

d3.hsl - specify a color in HSL space.

hsl.brighter - increase lightness by some exp. factor.

**hsl.darker** - decrease lightness by some exp. factor.

hsl.rgb - convert from HSL to RGB.

hsl.toString - convert an HSL color to a string.

d3.lab - specify a color in L\*a\*b\* space.

lab.brighter - increase lightness by some exp. factor.

lab.darker - decrease lightness by some exp. factor.

lab.rgb - convert from L\*a\*b\* to RGB.

lab.toString - convert a L\*a\*b\* color to a string.

**d3.hcl** - specify a color in HCL space.

hcl.brighter - increase lightness by some exp. factor.

hcl.darker - decrease lightness by some exp. factor.

hcl.rgb - convert from HCL to RGB.

hcl.toString - convert an HCL color to a string.

# Namespaces

d3.ns.prefix - access/extend known XML namespaces.d3.ns.qualify - qualify a prefixed name, such as "xlink:href".

#### Internals

d3.functor - create a fcn that returns a constant.

d3.rebind - rebind an inherited getter/setter method to a subclass.

d3.dispatch - create custom event dispatchers.

dispatch.on - register an event listener.

dispatch - dispatch an event to registered listeners.

# d3.scale (Scales)

# Quantitative

d3.scale.linear - construct a linear quantitative scale.

linear - get the range val corresp to a given domain val.

linear.invert - get the domain val corresp to a given range val.linear.domain - get/set the scale's input domain.

linear.range - get/set the scale's output range.

 ${\bf linear.range}{\bf Round}$  - set the scale's output range, and enable

rounding.

linear.interpolate - get/set the scale's output interpolator.

linear.clamp - enable/disable clamping of the output range.
linear.nice - extend the scale domain to nice round numbers.

linear.ticks - get representative values from the input domain.
linear.tickFormat - get a formatter for displaying tick vals.

linear.copy - create a new scale from an existing scale.

 ${\bf d3.scale.sqrt}$  - construct a quantitative scale with a square root trans.

**d3.scale.pow** - construct a quantitative scale with an exponential trans.

**pow** - get the range val corresp to a given domain val.

**pow.invert** - get the domain val corresp to a given range val.

pow.domain - get/set the scale's input domain. pow.range - get/set the scale's output range.

pow.rangeRound - set the scale's output range, and enable

rounding. **pow.interpolate** - get/set the scale's output interpolator.

pow.clamp - enable/disable clamping of the output range.pow.nice - extend the scale domain to nice round numbers.

**pow.ticks** - get representative values from the input domain.

 $\mathbf{pow.tickFormat}$  - get a formatter for displaying tick vals.

 $\mathbf{pow.exponent}$  - get/set the exponent power.

**pow.copy** - create a new scale from an existing scale.

 ${f d3.scale.log}$  - construct a quantitative scale with an logarithmic trans.

log - get the range val corresp to a given domain val.

log.invert - get the domain val corresp to a given range val.

log.domain - get/set the scale's input domain.

log.range - get/set the scale's output range.

 ${f log.rangeRound}$  - set the scale's output range, and enable rounding.

log.interpolate - get/set the scale's output interpolator.

log.clamp - enable/disable clamping of the output range.log.nice - extend the scale domain to nice powers of ten.

log.mee - extend the scale domain to fince powers of ten.

 ${\bf log.ticks}$  - get representative values from the input domain.

log.tickFormat - get a formatter for displaying tick vals.

log.copy - create a new scale from an existing scale.

d3.scale.quantize - construct a linear quantitative scale with a discrete output range.

quantize - get the range val corresp to a given domain val. quantize.domain - get/set the scale's input domain.

quantize.range - get/set the scale's output range (as discrete

quantize.copy - create a new scale from an existing scale.d3.scale.threshold - construct a threshold scale with a discrete output range.

threshold - get the range val corresp to a given domain val.

threshold.domain - get/set the scale's input domain.

 ${f threshold.range}$  - get/set the scale's output range (as discrete values).

threshold.copy - create a new scale from an existing scale.

 ${\bf d3.scale.quantile}$  - construct a quantitative scale mapping to quantiles.

quantile - get the range val corresp to a given domain val.

**quantile.domain -** get/set the scale's input domain (as discrete values).

**quantile.range** - get/set the scale's output range (as discrete values)

quantile.quantiles - get the scale's quantile bin thresholds.

quantile.copy - create a new scale from an existing scale.

d3.scale.identity - construct a linear identity scale.

**identity** - the identity fcn.

**identity.invert** - equivalent to identity; the identity fcn.

identity.domain - get/set the scale's domain and range.

identity.range - equivalent to identity.domain.

identity.ticks - get representative values from the domain.

identity.tickFormat - get a formatter for displaying tick vals.

**identity.copy** - create a new scale from an existing scale.

# Ordinal

d3.scale.ordinal - construct an ordinal scale.

ordinal - get the range val corresp to a given domain val.

ordinal.domain - get/set the scale's input domain.

ordinal.range - get/set the scale's output range.

ordinal.rangePoints - divide a continuous output range for discrete points.

ordinal.rangeBands - divide a continuous output range for discrete bands.

ordinal.rangeRoundBands - divide a continuous output range for discrete bands.

 ${\bf ordinal.rangeBand}$  - get the discrete range band width.

ordinal.rangeExtent - get the min and max values of the output range.

ordinal.copy - create a new scale from an existing scale.

 ${
m d3.scale.category10}$  - construct an ordinal scale with ten categ colors.

 ${\bf d3.scale.category20}$  - construct an ordinal scale with twenty categ colors.

 ${f d3.scale.category20b}$  - construct an ordinal scale with twenty categoroles.

 ${\bf d3.scale.category20c}$  - construct an ordinal scale with twenty categ colors.

# d3.svg (SVG)

# Shapes

d3.svg.line - create a new line generator.

**line** - generate a piecewise linear curve, as in a line chart.

line.x - get/set the x-coord accessor.

line.y - get/set the y-coord accessor.

line.interpolate - get/set the interpolation mode.

line.tension - get/set the cardinal spline tension.

line.defined - control whether the line is def at a given point. d3.svg.line.radial - create a new radial line generator.

line - generate a piecewise linear curve, as in a polar line chart. line.radius - get/set the rad accessor.

line.angle - get/set the angle accessor.

line.defined - control whether the line is def at a given point.

d3.svg.area - create a new area generator.

**area** - generate a piecewise linear area, as in an area chart.

area.x - get/set the x-coord accessors.

area.x0 - get/set the x0-coord (baseline) accessor.

area.x1 - get/set the x1-coord (topline) accessor.

**area.v** - get/set the v-coord accessors.

area.y0 - get/set the y0-coord (baseline) accessor.

area.y1 - get/set the y1-coord (topline) accessor.

**area.interpolate** - get/set the interpolation mode.

**area.tension** - get/set the cardinal spline tension.

**area.defined** - control whether the area is def at a given point.

d3.svg.area.radial - create a new area generator.

**area** - generate a piecewise linear area, as in a polar area chart. area.radius - get/set the rad accessors.

area.innerRadius - get/set the inner rad (baseline) accessor. area.outerRadius - get/set the outer rad (topline) accessor.

area.angle - get/set the angle accessors.

area.startAngle - get/set the angle (baseline) accessor.

area.endAngle - get/set the angle (topline) accessor.

**area.defined** - control whether the area is def at a given point.

d3.svg.arc - create a new arc generator.

arc - generate a solid arc, as in a pie/donut chart.

arc.innerRadius - get/set the inner rad accessor.

arc.outerRadius - get/set the outer rad accessor.

arc.startAngle - get/set the start angle accessor.

arc.endAngle - get/set the end angle accessor.

arc.centroid - compute the arc centroid.

d3.svg.symbol - create a new symbol generator.

**symbol** - generate categ symbols, as in a scatterplot.

**symbol.type** - get/set the symbol type accessor.

symbol.size - get/set the symbol size (in square px) accessor.

d3.svg.symbolTypes - the array of supported symbol types.

d3.svg.chord - create a new chord generator.

**chord** - generate a quadratic Bzier connecting two arcs, as in a chord diagram.

**chord.radius** - get/set the arc rad accessor.

chord.startAngle - get/set the arc start angle accessor.

**chord.endAngle** - get/set the arc end angle accessor.

chord.source - get/set the source arc accessor.

**chord.target** - get/set the target arc accessor.

d3.svg.diagonal - create a new diagonal generator.

diagonal - generate a two-dim Bzier connector, as in a node-link diagram.

diagonal.source - get/set the source point accessor.

diagonal.target - get/set the target point accessor.

diagonal.projection - get/set an optional point transform.

d3.svg.diagonal.radial - create a new diagonal generator.

diagonal - generate a two-dim Bzier connector, as in a node-link diagram.

#### Axes

**d3.svg.axis** - create a new axis generator.

axis - creates/updates an axis for the given sel. or trans.

axis.scale - get/set the axis scale.

**axis.orient** - get/set the axis orientation.

axis.ticks - control how ticks are generated for the axis.

axis.tickValues - specify tick values explicitly.

axis.tickSubdivide - optionally subdivide ticks uniformly.

axis.tickSize - specify the size of major, minor and end ticks. axis.tickPadding - specify padding b/w ticks and tick labels.

axis.tickFormat - override the tick formatting for labels.

#### Controls

d3.svg.brush - click and drag to select one- or two-dim regions.

**brush** - creates or updates a brush for the given sel. or trans.

**brush.x** - get/set the brushs x-scale.

**brush.y** - get/set the brushs y-scale.

brush.extent - get/set the brushs extent.

**brush.clear** - reset the brush extent.

brush.empty - returns true if the brush extent is empty.

brush.on - respond to events when the brush is moved.

# d3.time (Time)

# Time Formatting

d3.time.format - create a new local time formatter for a given specifier.

**format** - format a date into a string.

**format.parse** - parse a string into a date.

d3.time.format.utc - create a new UTC time formatter for a given specifier.

d3.time.format.iso - the ISO 8601 UTC time formatter.

#### Time Scales

d3.time.scale - construct a linear time scale.

scale - get the range val corresp to a given domain val.

scale.invert - get the domain val corresp to a given range val. scale.domain - get/set the scale's input domain.

scale.range - get/set the scale's output range.

scale.rangeRound - set the scale's output range, and enable

**scale.interpolate** - get/set the scale's output interpolator. scale.clamp - enable/disable clamping of the output range. scale.ticks - get representative values from the input domain. scale.tickFormat - get a formatter for displaying tick vals. scale.copy - create a new scale from an existing scale.

#### Time Intervals

d3.time.interval - a time interval in local time.

interval - alias for interval.floor.

**interval.range** - returns dates within the specified range.

interval.floor - rounds down to the nearest interval.

interval.round - rounds up/down to the nearest interval.

interval.ceil - rounds up to the nearest interval.

**interval.offset** - returns a date offset by some interval.

interval.utc - returns the UTC-equivalent time interval.

**d3.time.day** - every day (12:00 AM).

d3.time.days - alias for day.range.

d3.time.dayOfYear - computes the day num.

d3.time.hour - every hour (e.g., 1:00 AM).

d3.time.hours - alias for hour.range.

d3.time.minute - every minute (e.g., 1:02 AM).

d3.time.minutes - alias for minute.range.

d3.time.month - every month (e.g., February 1, 12:00 AM).

d3.time.months - alias for month.range.

d3.time.second - every second (e.g., 1:02:03 AM).

d3.time.seconds - alias for second.range.

d3.time.sunday - every Sunday.

d3.time.sundays - alias for sunday.range.

d3.time.sundayOfYear - computes the sun-based wk num.

d3.time.monday - every Monday.

d3.time.mondays - alias for monday.range.

d3.time.mondayOfYear - computes the mon-based wk num.

d3.time.tuesday - every Tuesday.

d3.time.tuesdays - alias for tuesday.range.

d3.time.tuesdayOfYear - computes the tues-based wk num.

d3.time.wednesday - every Wednesday.

d3.time.wednesdays - alias for wednesday.range.

d3.time.wednesdayOfYear - computes the wed-based wk num

d3.time.thursday - every Thursday.

d3.time.thursdays - alias for thursday.range.

d3.time.thursdayOfYear - computes the thurs-based wk num.

d3.time.friday - every Friday.

 ${\bf d3.time.fridays}$  - alias for friday.range.

d3.time.fridayOfYear - computes the fri-based wk num.

d3.time.saturday - every Saturday.

d3.time.saturdays - alias for saturday.range.

d3.time.saturdayOfYear - computes the sat-based wk num.

d3.time.week - alias for sunday.

d3.time.weeks - alias for sunday.range.

d3.time.weekOfYear - alias for sundayOfYear.

d3.time.year - every year (e.g., January 1, 12:00 AM).

d3.time.years - alias for year.range.

# d3.layout (Layouts)

### Bundle

d3.layout.bundle - construct a new default bundle layout. **bundle -** apply Holten's hierarchical bundling algorithm to edges.

#### Chord

d3.layout.chord - produce a chord diagram from a matrix of relationships.

chord.matrix - get/set the matrix data backing the layout.
chord.padding - get/set the angular padding b/w chord
segments.

chord.sortGroups - get/set the comparator fcn for groups.
chord.sortSubgroups - get/set the comparator fcn for
 subgroups.

chord.sortChords - get/set the comparator fcn for chords
(z-order).

chord.chords - retrieve the computed chord angles.chord.groups - retrieve the computed group angles.

#### Cluster

d3.layout.cluster - cluster entities into a dendrogram.
cluster.sort - get/set the comparator fcn for sibling nodes.
cluster.children - get/set the accessor fcn for child nodes.
cluster.nodes - compute the cluster layout and return the array of nodes.

cluster.links - compute the parent-child links b/w tree nodes.
cluster.separation - get/set the spacing fcn b/w neighboring
nodes.

**cluster.size** - get/set the layout size in x and y.

#### Force

d3.layout.force - position linked nodes using physical sim. force.on - listen to updates in the computed layout positions. force.nodes - get/set the array of nodes to layout. force.links - get/set the array of links b/w nodes. force.size - get/set the layout size in x and y. force.linkDistance - get/set the link distance. force.linkStrength - get/set the link strength. force.friction - get/set the friction coefficient. force.charge - get/set the charge strength. force.gravity - get/set the gravity strength. force.theta - get/set the accuracy of the charge interaction. force.start - start/restart the sim when the nodes change. force.resume - reheat the cooling parameter and restart sim. force.stop - immediately terminate the sim. force.alpha - get/set the layout's cooling parameter. force.tick - run the layout sim one step.

dragging.

Hierarchy

 ${\bf d3.layout.hierarchy}$  - derive a custom hierarchical layout implementation.

force.drag - bind a behavior to nodes to allow interactive

hierarchy.sort - get/set the comparator fcn for sibling nodes.
 hierarchy.children - get/set the accessor fcn for child nodes.
 hierarchy.nodes - compute the layout and return the array of nodes.

hierarchy.links - compute the parent-child links b/w tree nodes.

hierarchy.value - get/set the val accessor fcn. hierarchy.revalue - recompute the hierarchy vals.

# Histogram

d3.layout.histogram - construct a new default histogram.
histogram - compute the dist of data using quantized bins.
histogram.value - get/set the val accessor fcn.
histogram.range - get/set the considered val range.
histogram.bins - specify how values are organized into bins.
histogram.frequency - compute the dist as
counts/probabilities.

# Pack

 ${\bf d3.layout.pack}$  - produce a hierarchical layout using recursive circle-packing.

pack.sort - control the order in which sibling nodes are traversed.

pack.children - get/set the children accessor fcn.

 ${\bf pack.nodes}$  - compute the pack layout and return the array of nodes.

pack.links - compute the parent-child links b/w tree nodes.
pack.value - get/set the val accessor used to size circles.
pack.size - specify the layout size in x and y.
pack.padding - specify the layout padding in (approx) px.

#### Partition

d3.layout.partition - recursively partition a node tree into a sunburst or icicle.

partition.sort - control the order in which sibling nodes are traversed.

partition.children - get/set the children accessor fcn.
partition.nodes - compute the partition layout and return the
array of nodes.

partition.links - compute the parent-child links b/w tree nodes.
partition.value - get/set the val accessor used to size circles.
partition.size - specify the layout size in x and y.

#### Pie

pie - compute the start/end angles for arcs in a pie/donut chart.
pie.value - get/set the val accessor fcn.
pie.sort - control the clockwise order of pie slices.
pie.startAngle - get/set the overall start angle of the pie.

pie.endAngle - get/set the overall end angle of the pie.

d3.layout.stack - construct a new default stack layout.

d3.layout.pie - construct a new default pie layout.

#### Stack

stack - compute the baseline for each series in a stacked
bar/area chart.
stack.values - get/set the values accessor fcn per series.
stack.order - control the order in which series are stacked.
stack.offset - specify the overall baseline algorithm.
stack.x - get/set the x-dimension accessor fcn.
stack.y - get/set the y-dimension accessor fcn.
stack.out - get/set the output fcn for storing the baseline.

#### Tree

d3.layout.tree - position a tree of nodes tidily.
tree.sort - control the order in which sibling nodes are traversed.

tree.children - get/set the children accessor fcn.

tree.nodes - compute the tree layout and return the array of nodes.

tree.links - compute the parent-child links b/w tree nodes.
tree.separation - get/set the spacing fcn b/w neighboring nodes.

tree.size - specify the layout size in x and y.

#### Treemap

d3.layout.treemap - use recursive spatial subdivision to display a tree of nodes.

**treemap.sort** - control the order in which sibling nodes are traversed.

treemap.children - get/set the children accessor fcn.

 ${\bf treemap.nodes}$  - compute the tree map layout and return the array of nodes.

**treemap.links** - compute the parent-child links b/w tree nodes. **treemap.value** - get/set the val accessor used to size treemap cells.

**treemap.size** - specify the layout size in x and y.

 ${f tree map.padding}$  - specify the padding b/w a parent and its children.

treemap.round - enable/disable rounding to exact px.
treemap.sticky - make the layout sticky for stable updates.
treemap.mode - change the treemap layout algorithm.

# d3.geo (Geography)

#### Paths

d3.geo.path - create a new geographic path generator.
path - project the specified feature and render it to the context.
path.projection - get/set the geographic proj.
path.context - get/set the render context.
path.pointRadius - get/set the radius to display point features.

path.area - compute the proj area of a given feature.path.centroid - compute the proj centroid of a given feature.

 ${\bf path.bounds}$  - compute the proj bounds of a given feature.

 ${f d3.geo.circle}$  - create a circle generator.

**circle -** generate a piecewise circle as a Polygon.

circle.origin - specify the origin in lat and long.

circle.angle - specify the angular radius in degrees.

**circle.precision** - specify the precision of the piecewise circle. **d3.geo.area** - compute the spherical area of a given feature.

d3.geo.bounds - compute the lat-long bounding box for a

d3.geo.centroid - compute the spherical centroid of a feature.
d3.geo.distance - compute the great-arc dist b/w two points.
d3.geo.interpolate - interpolate b/w 2 points along a great arc.
d3.geo.length - compute the length of a line string/the circumf. of a polygon.

# **Projections**

d3.geo.projection - create a standard proj from a raw proj. **projection** - project the specified location. **projection.invert** - invert the proj for the specified point.

**projection.rotate** - get/set the proj's three-axis rotation.

**projection.center -** get/set the proj's center location.

projection.translate - get/set the proj's translation position. **projection.scale** - get/set the proj's scale factor.

projection.clipAngle - get/set the rad of the proj's clip circle. **projection.clipExtent** - get/set the proj viewport clip ext (px) **projection.precision** - get/set the precision threshold for adaptive resampling.

projection.stream - wrap the specified stream listener, projecting input geometry.

d3.geo.projectionMutator - create a standard proj from a mutable raw proj.

d3.geo.albers - the Albers equal-area conic proj.

albers.parallels - get/set the proj's two standard parallels.

d3.geo.albersUsa - a composite Albers proj for the US.

d3.geo.azimuthalEqualArea - the azimuthal equal-area proj.

d3.geo.azimuthalEquidistant - the azimuthal equidist proj.

d3.geo.conicConformal - the conic conformal projection.

d3.geo.conicEquidistant - the conic equidist projection.

d3.geo.conicEqualArea - the conic equal-area (Albers) proj.

d3.geo.equirectangular - the equirect(plate carrèe) proj.

d3.geo.gnomonic - the gnomonic proj.

d3.geo.mercator - the spherical Mercator proj.

**d3.geo.orthographic** - the azimuthal orthographic proj.

d3.geo.stereographic - the azimuthal stereographic proj.

d3.geo.azimuthalEqualArea.raw - the raw azim eq-area proj. d3.geo.azimuthalEquidistant.raw - the azim equidist proj.

d3.geo.conicConformal.raw - the raw conic conformal proj.

d3.geo.conicEquidistant.raw - the raw conic equidist proj.

d3.geo.conicEqualArea.raw - the raw conic equal-area

(Albers) proj.

d3.geo.equirectangular.raw - the raw equirect (plate carrèe)

d3.geo.gnomonic.raw - the raw gnomonic proj.

d3.geo.mercator.raw - the raw Mercator proj.

d3.geo.orthographic.raw - the raw azimuthal orthographic proj.

d3.geo.stereographic.raw - the raw azimuthal stereographic

d3.geo.transverseMercator.raw - the raw transverse Mercator proj.

#### Streams

d3.geo.stream - convert a GeoJSON object to a geometry

**stream.point** - indicate an x, y (and optionally z) coord.

stream.lineStart - indicate the start of a line or ring. stream.lineEnd - indicate the end of a line or ring.

stream.polygonStart - indicate the start of a polygon.

stream.polygonEnd - indicate the end of a polygon.

stream.sphere - indicate a sphere.

# d3.geom (Geometry)

### Voronoi

d3.geom.voronoi - compute the Voronoi diagram for the specified points.

d3.geom.delaunay - compute the Delaunay triangulation for the specified points.

# Quadtree

d3.geom.quadtree - constructs a quadtree for an array of points.

quadtree.add - add a point to the quadtree.

quadtree.visit - recursively visit nodes in the quadtree.

# Polygon

d3.geom.polygon -

polygon.area -

polygon.centroid -

polygon.clip -

# Hull

d3.geom.hull -

# d3.behavior (Behaviors)

# Drag

d3.behavior.drag -

drag.origin -

drag.on -

# Zoom

d3.behavior.zoom -

zoom.on -

zoom.scale -

zoom.translate -

zoom.scaleExtent -

zoom.x -

zoom.y -