

Examples

The examples below share the following data definition. We will omit this from the listed queries for compactness.

```
% ===== Data definitions =====
num_rows(406).

fieldtype(name,string).
cardinality(name,311).
entropy(name,56).

fieldtype(miles_per_gallon,number).
cardinality(miles_per_gallon,129).
entropy(miles_per_gallon,39).
extent(miles_per_gallon,9,46).

fieldtype(cylinders,number).
cardinality(cylinders,5).
entropy(cylinders,11).
extent(cylinders,3,8).

fieldtype(displacement,number).
cardinality(displacement,83).
entropy(displacement,34).
extent(displacement,68,455).

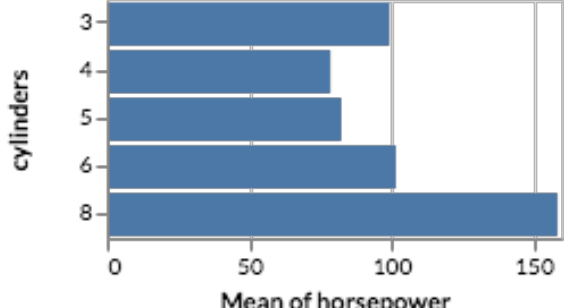
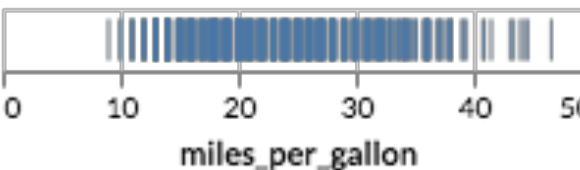
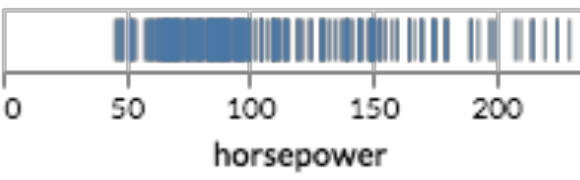
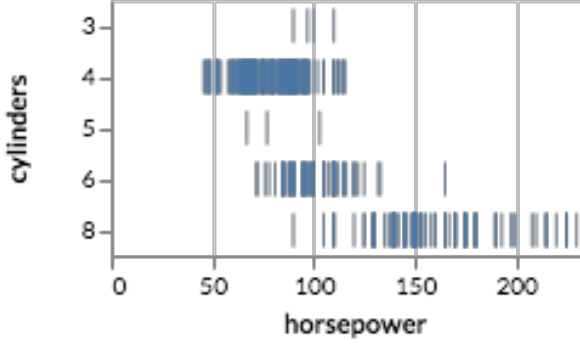
fieldtype(horsepower,number).
cardinality(horsepower,93).
entropy(horsepower,38).
extent(horsepower,46,230).

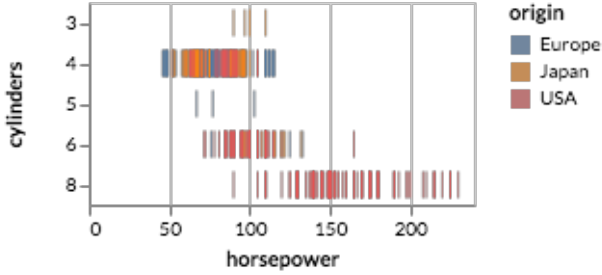
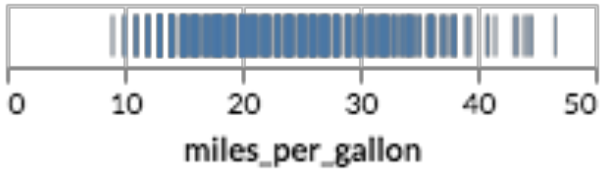
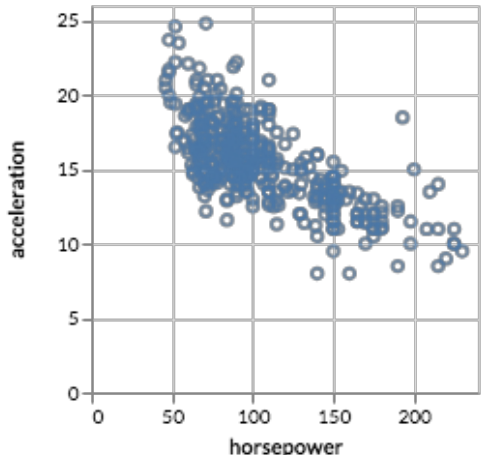
fieldtype(weight_in_lbs,number).
cardinality(weight_in_lbs,356).
entropy(weight_in_lbs,43).
extent(weight_in_lbs,1613,5140).

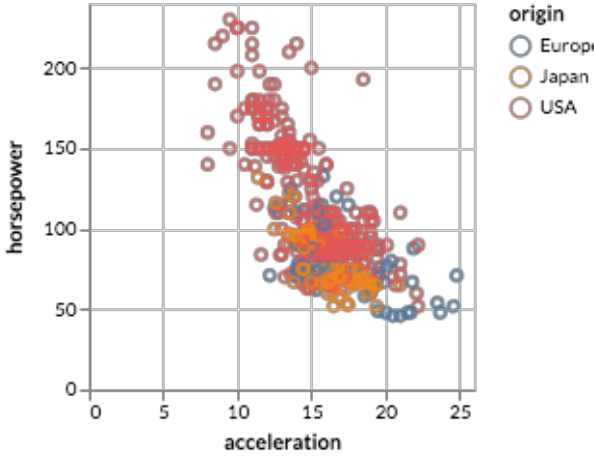
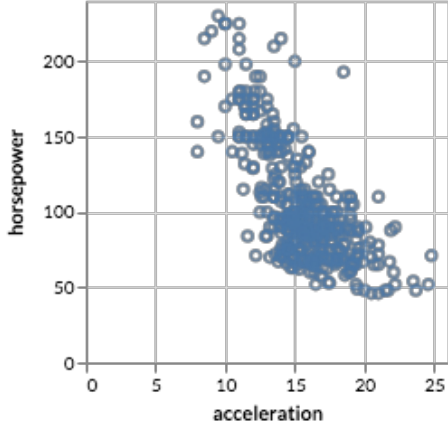
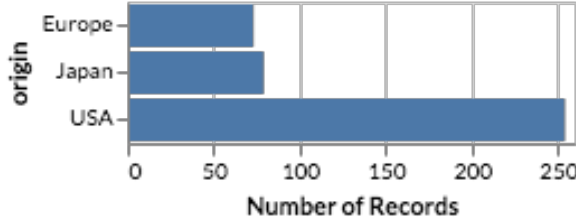
fieldtype(acceleration,number).
cardinality(acceleration,96).
entropy(acceleration,38).
extent(acceleration,8,24).

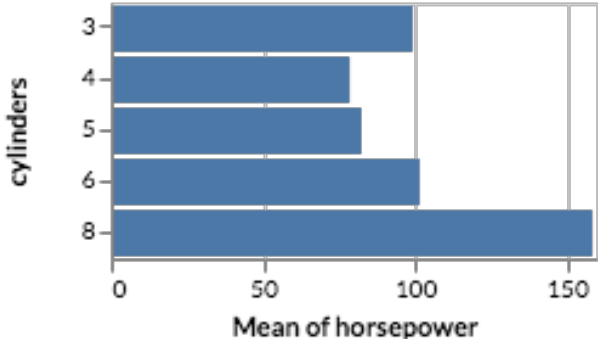
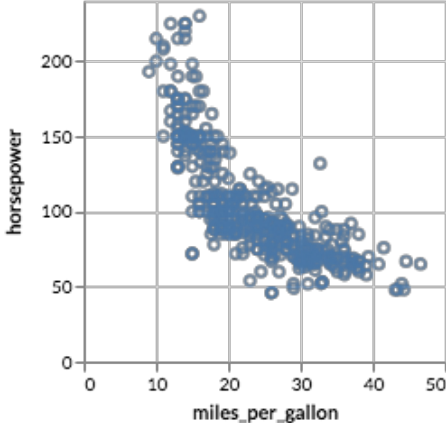
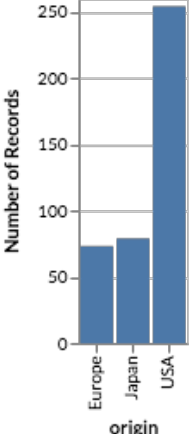
fieldtype(year,datetime).
cardinality(year,12).

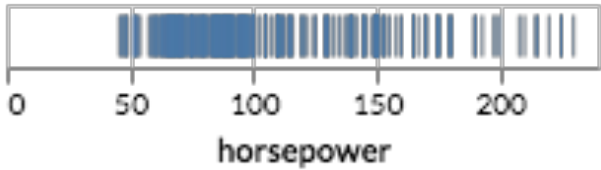
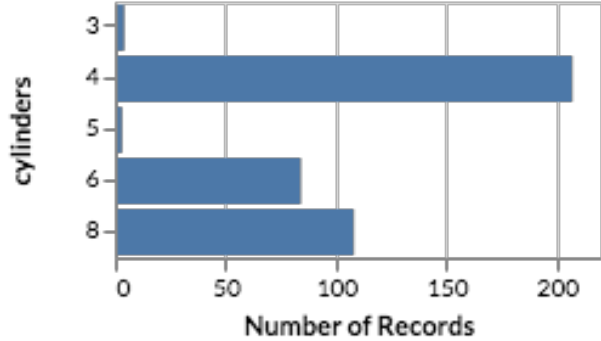
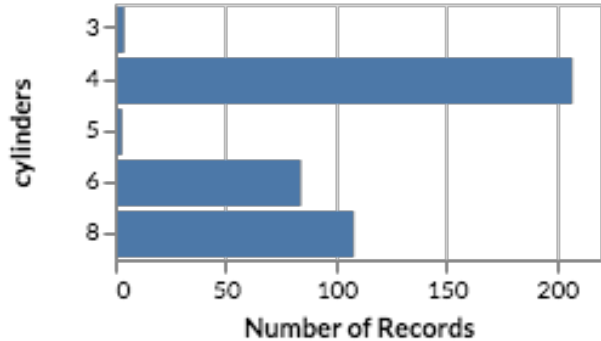
fieldtype(origin,string).
cardinality(origin,3).
entropy(origin,9).
```

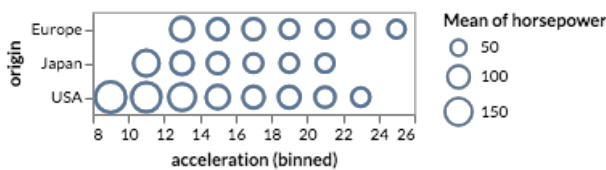
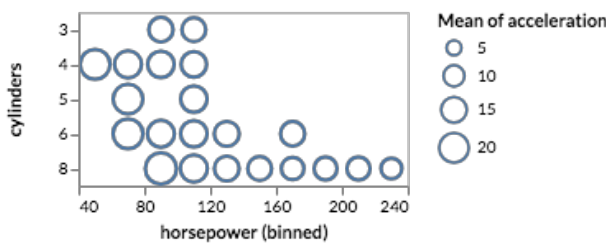
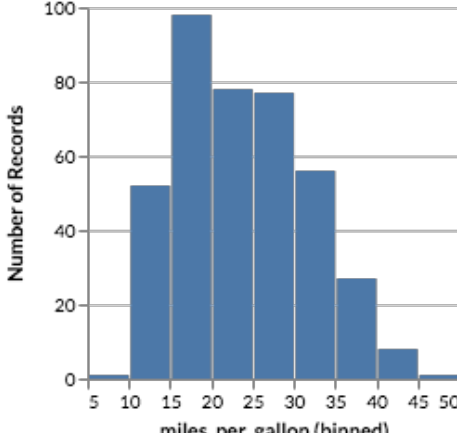
Draco ASP Query	Vega-Lite Chart												
<pre> encoding(e0). field(e0,horsepower). aggregate(e0,mean). encoding(e1). field(e1,cylinders). </pre>	 <table border="1"> <thead> <tr> <th>cylinders</th> <th>Mean of horsepower</th> </tr> </thead> <tbody> <tr> <td>3</td> <td>~100</td> </tr> <tr> <td>4</td> <td>~75</td> </tr> <tr> <td>5</td> <td>~85</td> </tr> <tr> <td>6</td> <td>~105</td> </tr> <tr> <td>8</td> <td>~150</td> </tr> </tbody> </table>	cylinders	Mean of horsepower	3	~100	4	~75	5	~85	6	~105	8	~150
cylinders	Mean of horsepower												
3	~100												
4	~75												
5	~85												
6	~105												
8	~150												
<pre> encoding(e0). field(e0,miles_per_gallon). type(e0,quantitative). </pre>													
<pre> encoding(e0). channel(e0,x). field(e0,horsepower). type(e0,quantitative). </pre>													
<pre> encoding(e0). field(e0,cylinders). type(e0,ordinal). encoding(e1). field(e1,horsepower). type(e1,quantitative). </pre>													

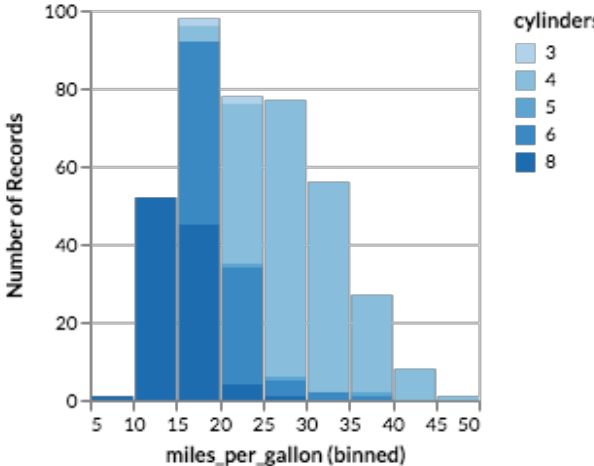
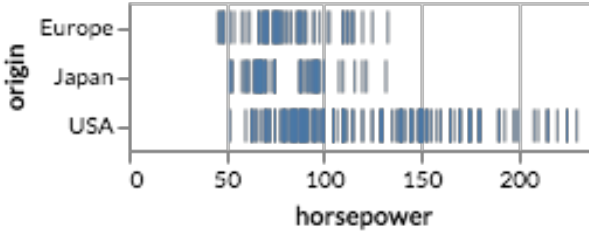
Draco ASP Query	Vega-Lite Chart
<pre> encoding(e0). field(e0,cylinders). type(e0,ordinal). encoding(e1). field(e1,horsepower). type(e1,quantitative). encoding(e2). field(e2,origin). type(e2,nominal). channel(e2,color). </pre>	 <p>A horizontal faceted bar chart. The y-axis is labeled 'cylinders' and ranges from 3 to 8. The x-axis is labeled 'horsepower' and ranges from 0 to 200. The chart is faceted by 'cylinders'. For each cylinder count, there are multiple horizontal bars representing different car models. The bars are colored by 'origin': Europe (blue), Japan (orange), and USA (red). The chart shows that for 3 and 4 cylinders, horsepower is generally lower (mostly below 100), while for 6, 7, and 8 cylinders, horsepower is generally higher (mostly between 100 and 200).</p>
<pre> mark(tick). encoding(e0). channel(e0,x). field(e0,miles_per_gallon). type(e0,quantitative). :- log(e0). </pre>	 <p>A horizontal bar chart. The x-axis is labeled 'miles_per_gallon' and ranges from 0 to 50. The chart displays a single set of horizontal bars for each car model, representing the log of miles per gallon. The bars are colored blue. The chart shows that most car models have a log of miles per gallon between 10 and 40.</p>
<pre> encoding(e0). field(e0,horsepower). encoding(e1). field(e1,acceleration). </pre>	 <p>A scatter plot. The x-axis is labeled 'horsepower' and ranges from 0 to 200. The y-axis is labeled 'acceleration' and ranges from 0 to 25. The plot shows a negative correlation between horsepower and acceleration. As horsepower increases, acceleration generally decreases. The data points are represented by blue circles.</p>

Draco ASP Query	Vega-Lite Chart								
<pre> encoding(e0). field(e0,horsepower). encoding(e1). field(e1,acceleration). encoding(e2). field(e2,origin). channel(e2,color). type(e2,nominal). </pre>	 <p>A scatter plot showing the relationship between acceleration (x-axis, 0 to 25) and horsepower (y-axis, 0 to 200). The data points are colored by origin: Europe (blue), Japan (orange), and USA (red). The plot shows a general negative correlation between acceleration and horsepower, with the USA having the highest horsepower values and Europe having the lowest.</p>								
<pre> encoding(e0). field(e0,acceleration). encoding(e1). field(e1,horsepower). </pre>	 <p>A scatter plot showing the relationship between acceleration (x-axis, 0 to 25) and horsepower (y-axis, 0 to 200). All data points are colored blue, representing the 'Europe' origin. The plot shows a general negative correlation between acceleration and horsepower.</p>								
<pre> encoding(e0). field(e0,origin). type(e0,nominal). </pre>	 <p>A horizontal bar chart showing the number of records for each origin. The x-axis is labeled 'Number of Records' and ranges from 0 to 250. The y-axis is labeled 'origin' and lists Europe, Japan, and USA. The USA has the highest number of records, followed by Japan, and then Europe.</p> <table border="1"> <thead> <tr> <th>origin</th> <th>Number of Records</th> </tr> </thead> <tbody> <tr> <td>Europe</td> <td>~75</td> </tr> <tr> <td>Japan</td> <td>~80</td> </tr> <tr> <td>USA</td> <td>~250</td> </tr> </tbody> </table>	origin	Number of Records	Europe	~75	Japan	~80	USA	~250
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Europe	~75								
Japan	~80								
USA	~250								

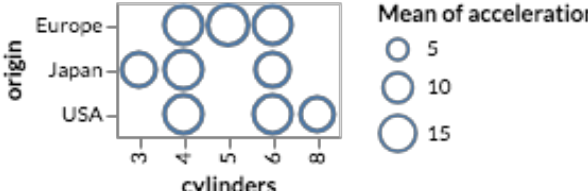
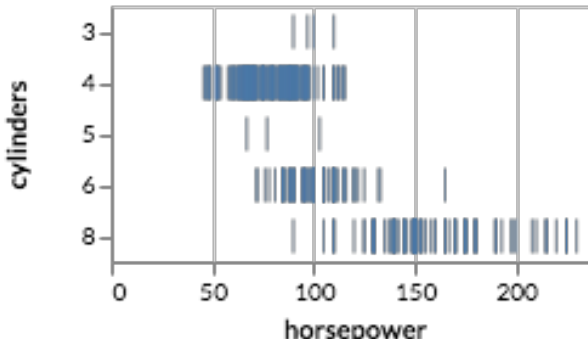
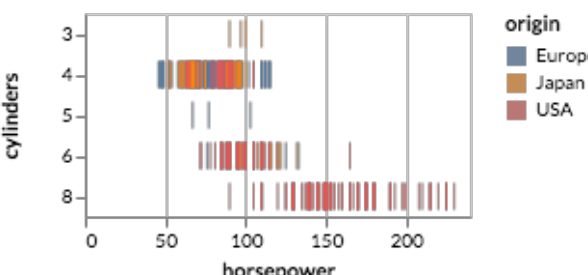
Draco ASP Query	Vega-Lite Chart												
<pre> encoding(e0). channel(e0,x). field(e0,horsepower). type(e0,quantitative). aggregate(e0,mean). encoding(e1). channel(e1,y). field(e1,cylinders). type(e1,ordinal). </pre>	 <table border="1"> <thead> <tr> <th>cylinders</th> <th>Mean of horsepower</th> </tr> </thead> <tbody> <tr> <td>3</td> <td>~100</td> </tr> <tr> <td>4</td> <td>~75</td> </tr> <tr> <td>5</td> <td>~80</td> </tr> <tr> <td>6</td> <td>~100</td> </tr> <tr> <td>8</td> <td>~160</td> </tr> </tbody> </table>	cylinders	Mean of horsepower	3	~100	4	~75	5	~80	6	~100	8	~160
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<pre>encoding(e0). field(e0,horsepower).</pre>	
<pre>encoding(e0). field(e0,cylinders). type(e0,ordinal).</pre>	
<pre>encoding(e0). encoding(e1). type(e1,quantitative). aggregate(e1,count).</pre>	

Draco ASP Query	Vega-Lite Chart
<pre> encoding(e0). field(e0,origin). type(e0,nominal). encoding(e1). field(e1,horsepower). type(e1,quantitative). encoding(e2). field(e2,acceleration). type(e2,quantitative). </pre>	 <p>A bubble chart with 'origin' on the y-axis (categorical: Europe, Japan, USA) and 'acceleration (binned)' on the x-axis (quantitative: 8 to 26). The size of each bubble represents the 'Mean of horsepower' (50, 100, 150). The chart shows that European cars generally have higher acceleration and horsepower compared to Japanese and American cars.</p>
<pre> encoding(e0). field(e0,cylinders). type(e0,ordinal). encoding(e1). field(e1,horsepower). type(e1,quantitative). encoding(e2). field(e2,acceleration). type(e2,quantitative). </pre>	 <p>A bubble chart with 'cylinders' on the y-axis (ordinal: 3, 4, 5, 6, 8) and 'horsepower (binned)' on the x-axis (quantitative: 40 to 240). The size of each bubble represents the 'Mean of acceleration' (5, 10, 15, 20). The chart shows that as the number of cylinders increases, the horsepower and acceleration generally decrease.</p>
<pre> mark(bar). encoding(e0). channel(e0,x). field(e0,miles_per_gallon). type(e0,quantitative). :- not bin(e0,_). </pre>	 <p>A histogram showing the distribution of 'miles_per_gallon (binned)'. The x-axis ranges from 5 to 50, and the y-axis represents the 'Number of Records' from 0 to 100. The distribution is unimodal and slightly right-skewed, with a peak around 15-20 mpg.</p>

Draco ASP Query	Vega-Lite Chart
<pre> mark(bar). encoding(e0). channel(e0,x). field(e0,miles_per_gallon). type(e0,quantitative). :- not bin(e0,_). encoding(e1). channel(e1,color). field(e1,cylinders). </pre>	 <p>A stacked bar chart showing the distribution of miles_per_gallon (binned) by the number of cylinders. The x-axis represents miles_per_gallon (binned) from 5 to 50. The y-axis represents the Number of Records from 0 to 100. The legend indicates cylinder counts: 3 (lightest blue), 4, 5, 6, and 8 (darkest blue). The highest frequency is in the 15-20 mpg bin, dominated by 8 cylinders.</p>
<pre> encoding(e0). field(e0,origin). type(e0,nominal). encoding(e1). field(e1,horsepower). type(e1,quantitative). </pre>	 <p>A faceted strip plot showing the distribution of horsepower for cars from Europe, Japan, and the USA. The y-axis lists the origins: Europe, Japan, and USA. The x-axis represents horsepower from 0 to 200. Each origin has a horizontal strip of points representing individual car horsepower values.</p>

Draco ASP Query	Vega-Lite Chart																																										
<pre>encoding(e0). channel(e0,x). field(e0,horsepower). type(e0,quantitative). aggregate(e0,mean). encoding(e1). channel(e1,y). field(e1,cylinders). type(e1,ordinal). encoding(e2). field(e2,origin). type(e2,nominal).</pre>	<p>This faceted chart displays the mean horsepower for different cylinder counts across three origins: Europe, Japan, and USA. The x-axis represents the 'Mean of horsepower' ranging from 0 to 150. The y-axis represents the 'cylinders' count, with categories 3, 4, 5, 6, and 8. The chart is faceted by 'origin'.</p> <table><tr><th>origin</th><th>cylinders</th><th>Mean of horsepower</th></tr><tr><td>Europe</td><td>3</td><td>~80</td></tr><tr><td>Europe</td><td>4</td><td>~85</td></tr><tr><td>Europe</td><td>5</td><td>~85</td></tr><tr><td>Europe</td><td>6</td><td>~115</td></tr><tr><td>Japan</td><td>3</td><td>~100</td></tr><tr><td>Japan</td><td>4</td><td>~75</td></tr><tr><td>Japan</td><td>5</td><td>~75</td></tr><tr><td>Japan</td><td>6</td><td>~115</td></tr><tr><td>USA</td><td>3</td><td>~80</td></tr><tr><td>USA</td><td>4</td><td>~85</td></tr><tr><td>USA</td><td>5</td><td>~85</td></tr><tr><td>USA</td><td>6</td><td>~100</td></tr><tr><td>USA</td><td>8</td><td>~155</td></tr></table>	origin	cylinders	Mean of horsepower	Europe	3	~80	Europe	4	~85	Europe	5	~85	Europe	6	~115	Japan	3	~100	Japan	4	~75	Japan	5	~75	Japan	6	~115	USA	3	~80	USA	4	~85	USA	5	~85	USA	6	~100	USA	8	~155
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<pre> encoding(e0). field(e0,cylinders). type(e0,ordinal). encoding(e1). field(e1,horsepower). type(e1,quantitative). </pre>	 <p>A horizontal strip plot with 'cylinders' on the y-axis (values 3, 4, 5, 6, 8) and 'horsepower' on the x-axis (values 0, 50, 100, 150, 200). Each cylinder count has a horizontal line representing the distribution of horsepower values.</p>
<pre> encoding(e0). field(e0,cylinders). type(e0,ordinal). encoding(e1). field(e1,horsepower). type(e1,quantitative). encoding(e2). field(e2,origin). channel(e2,color). type(e2,nominal). </pre>	 <p>A faceted horizontal strip plot with 'cylinders' on the y-axis (values 3, 4, 5, 6, 8) and 'horsepower' on the x-axis (values 0, 50, 100, 150, 200). The plot is faceted by 'origin' (Europe, Japan, USA), with each facet showing the horsepower distribution for a specific cylinder count and origin. A legend on the right indicates the color for each origin: Europe (blue), Japan (orange), and USA (red).</p>

