

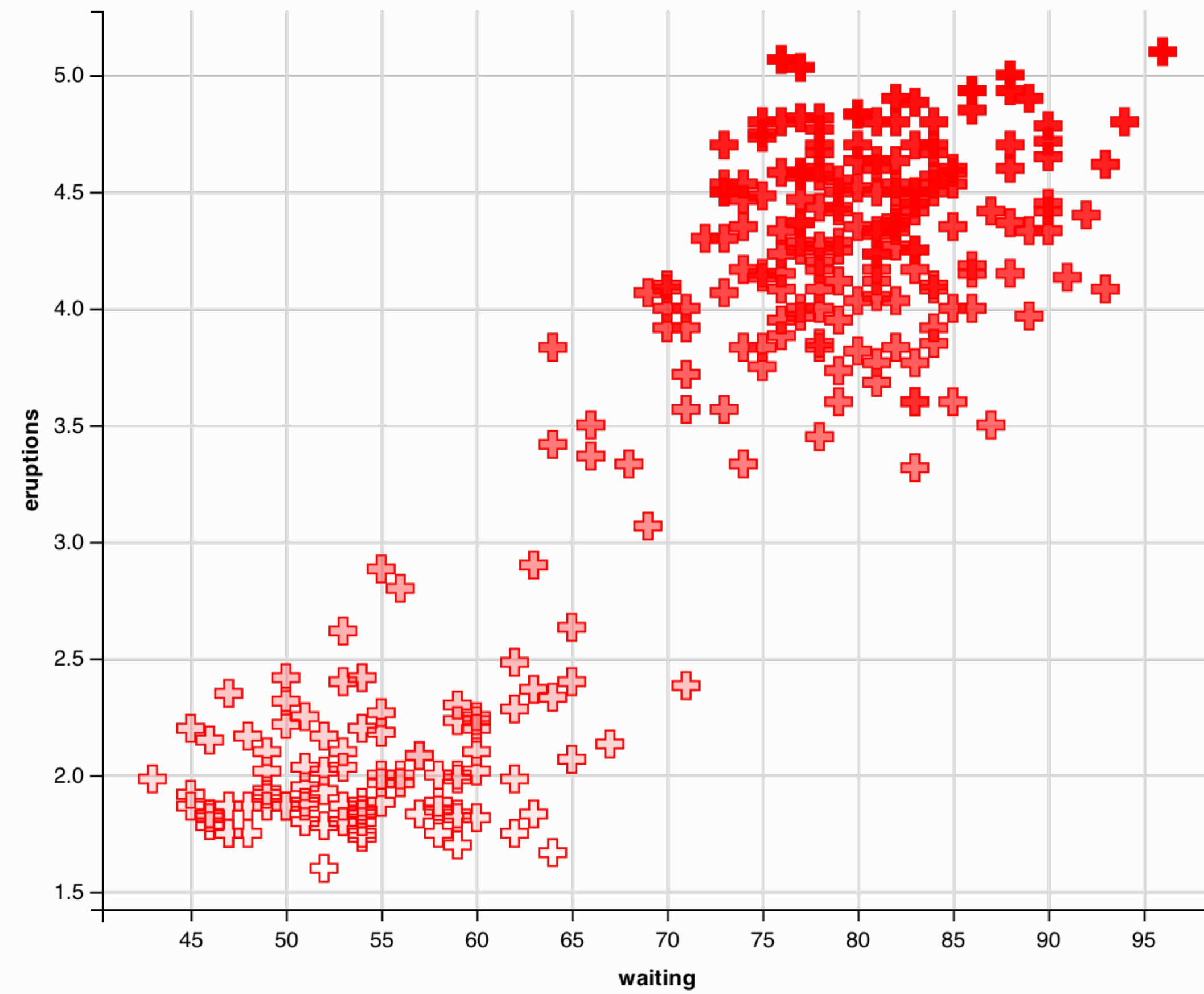
# **ggvis: a grammar of data visualization**

Introduction



ggvis

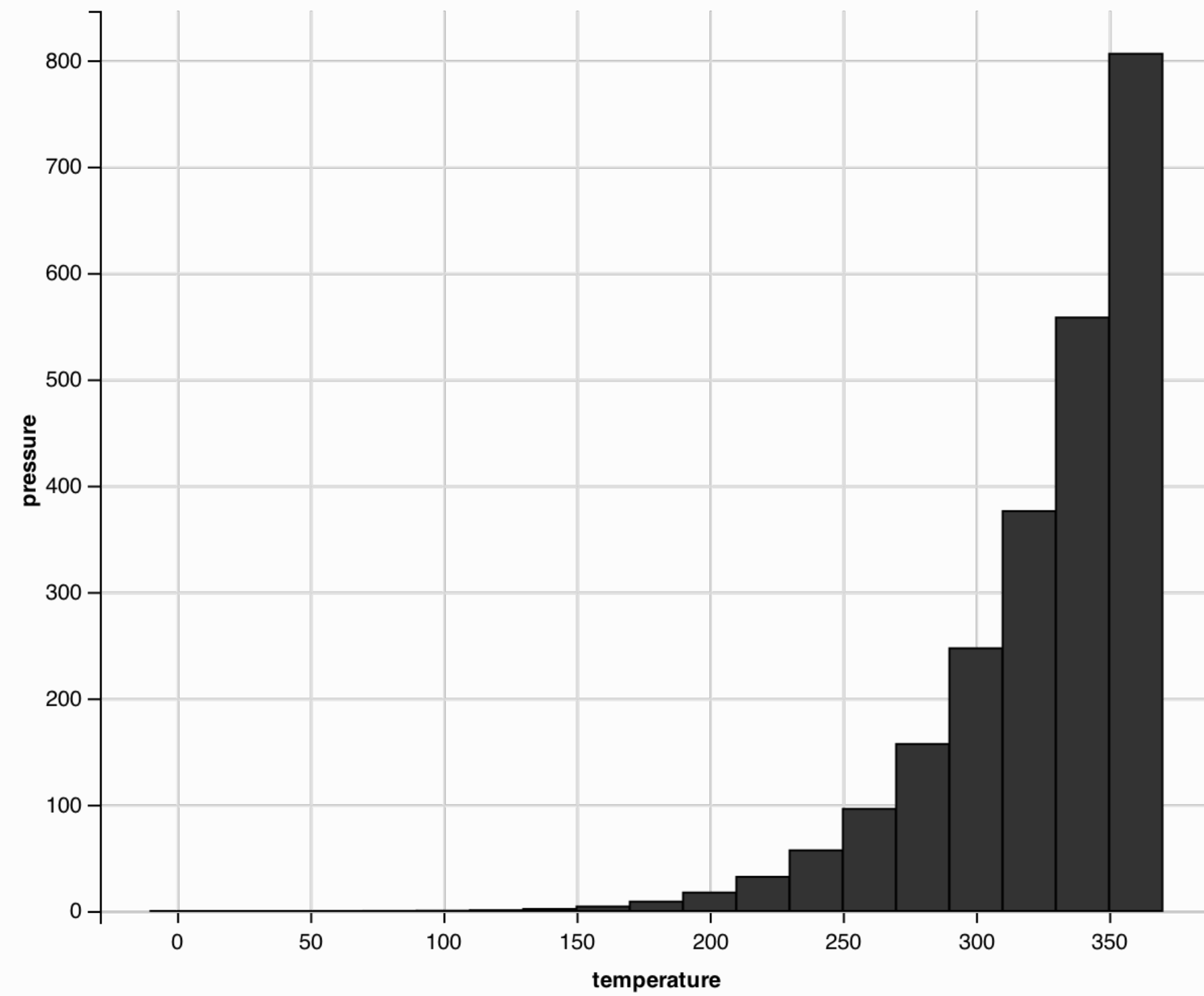
# ggvis





ggvis

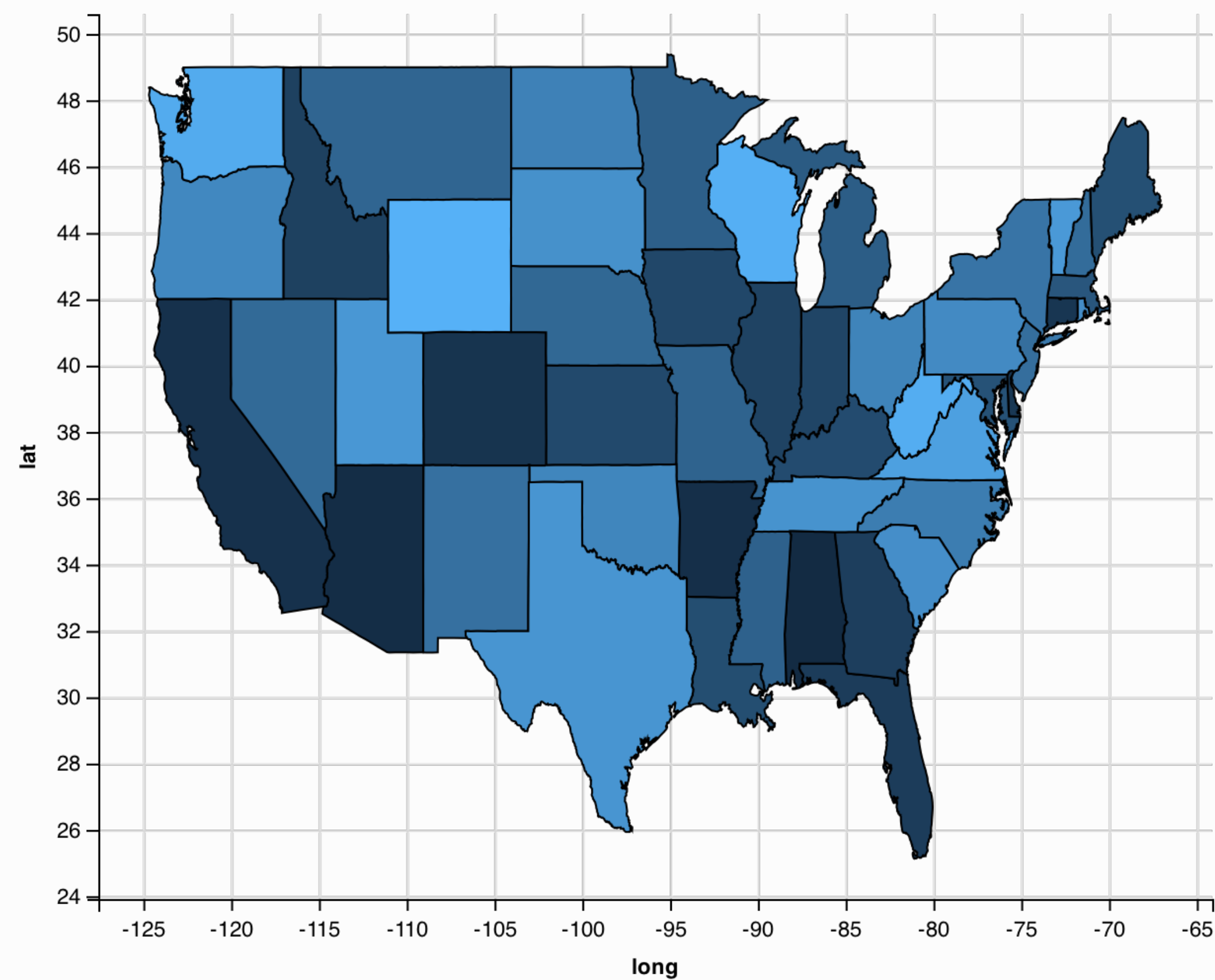
# ggvis





ggvis

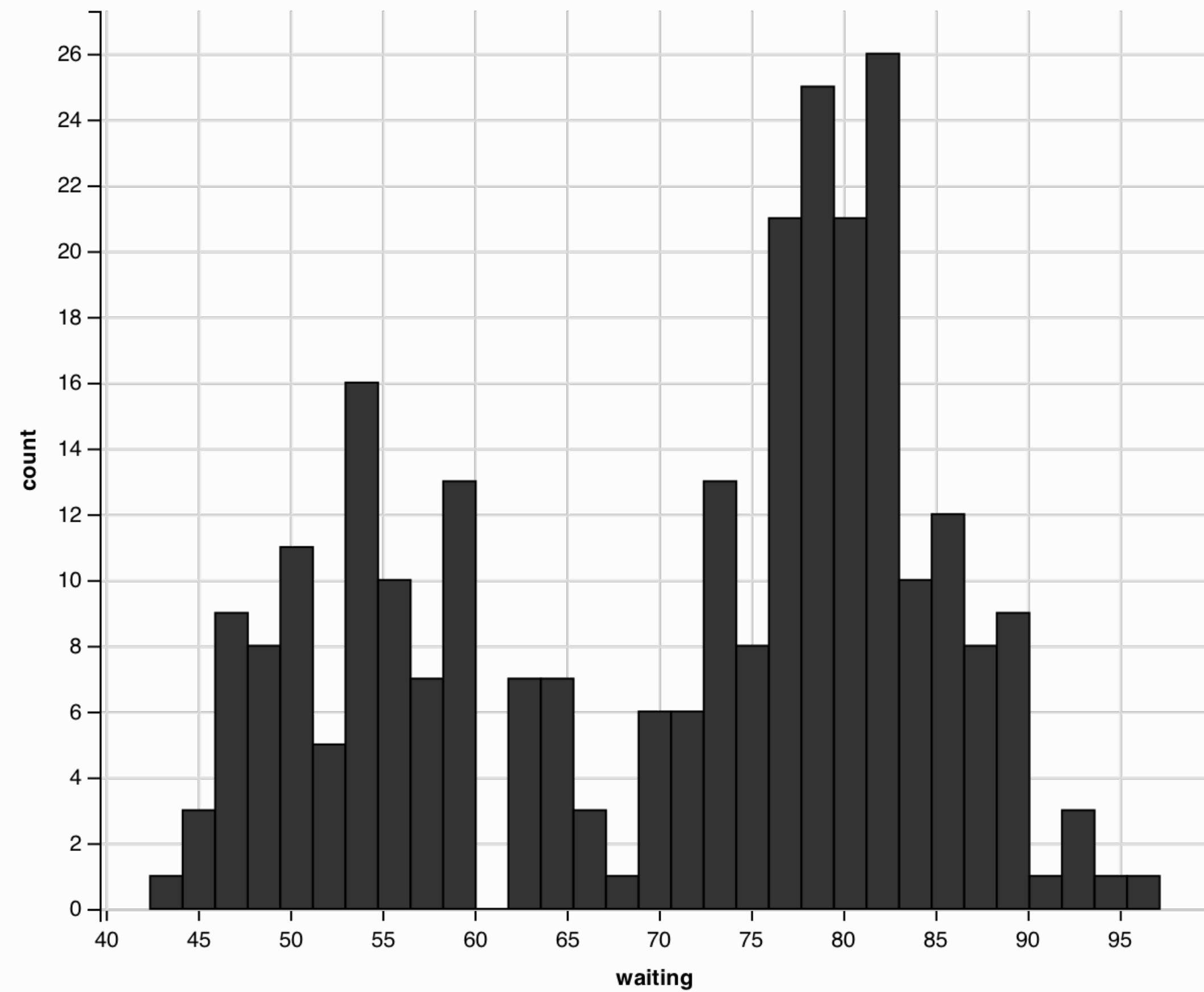
# ggvis





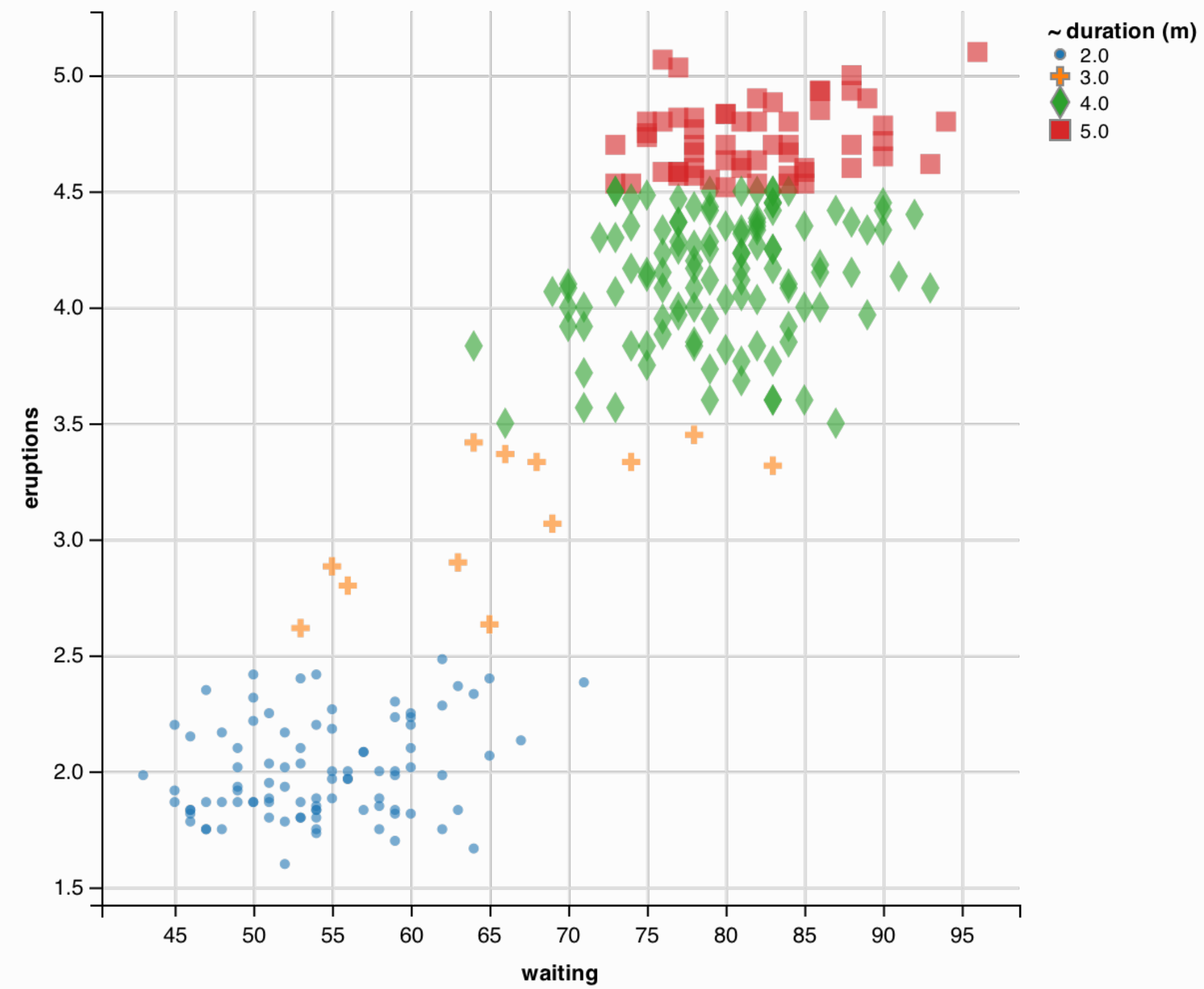
ggvis

# ggvis





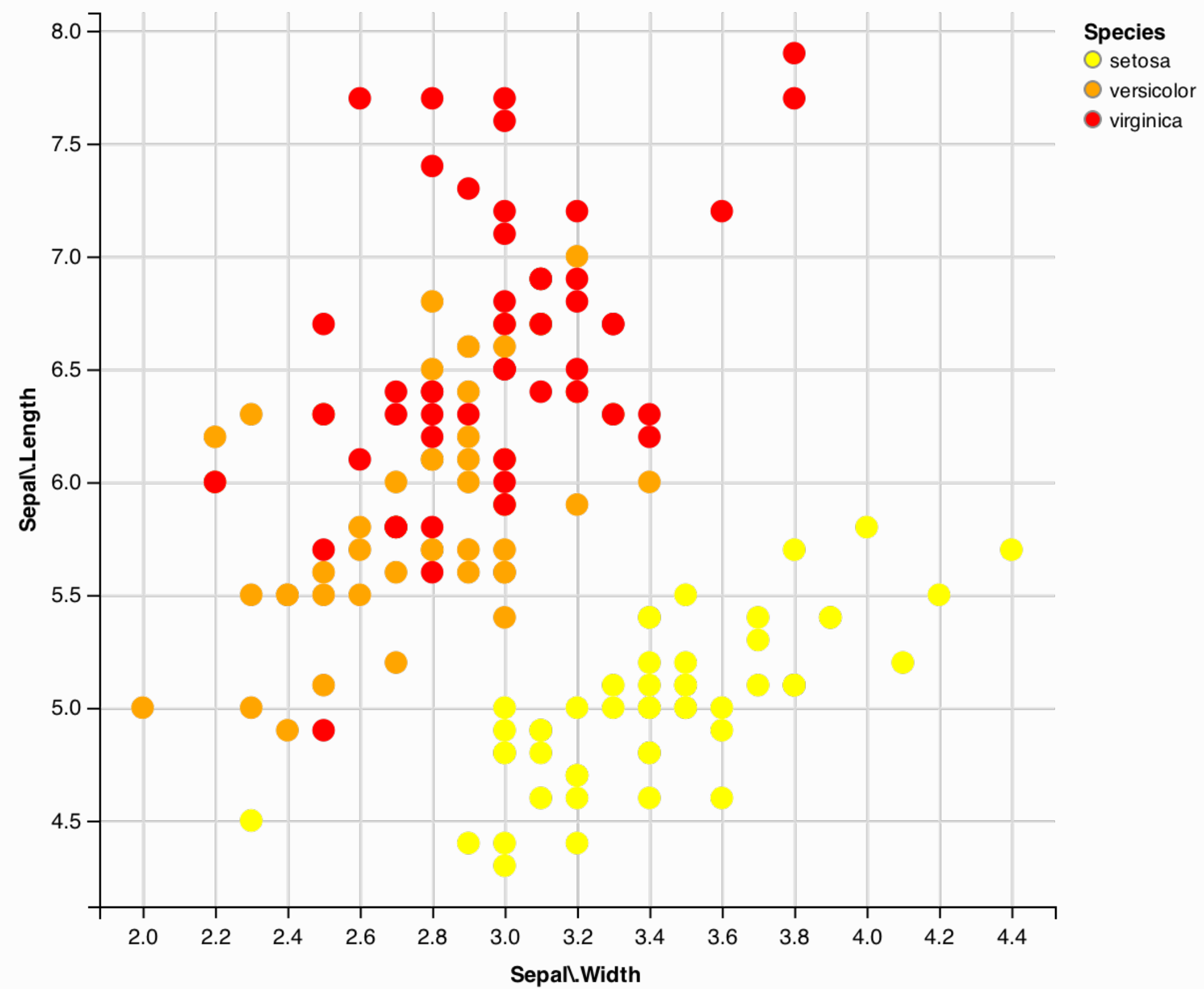
ggvis





ggvis

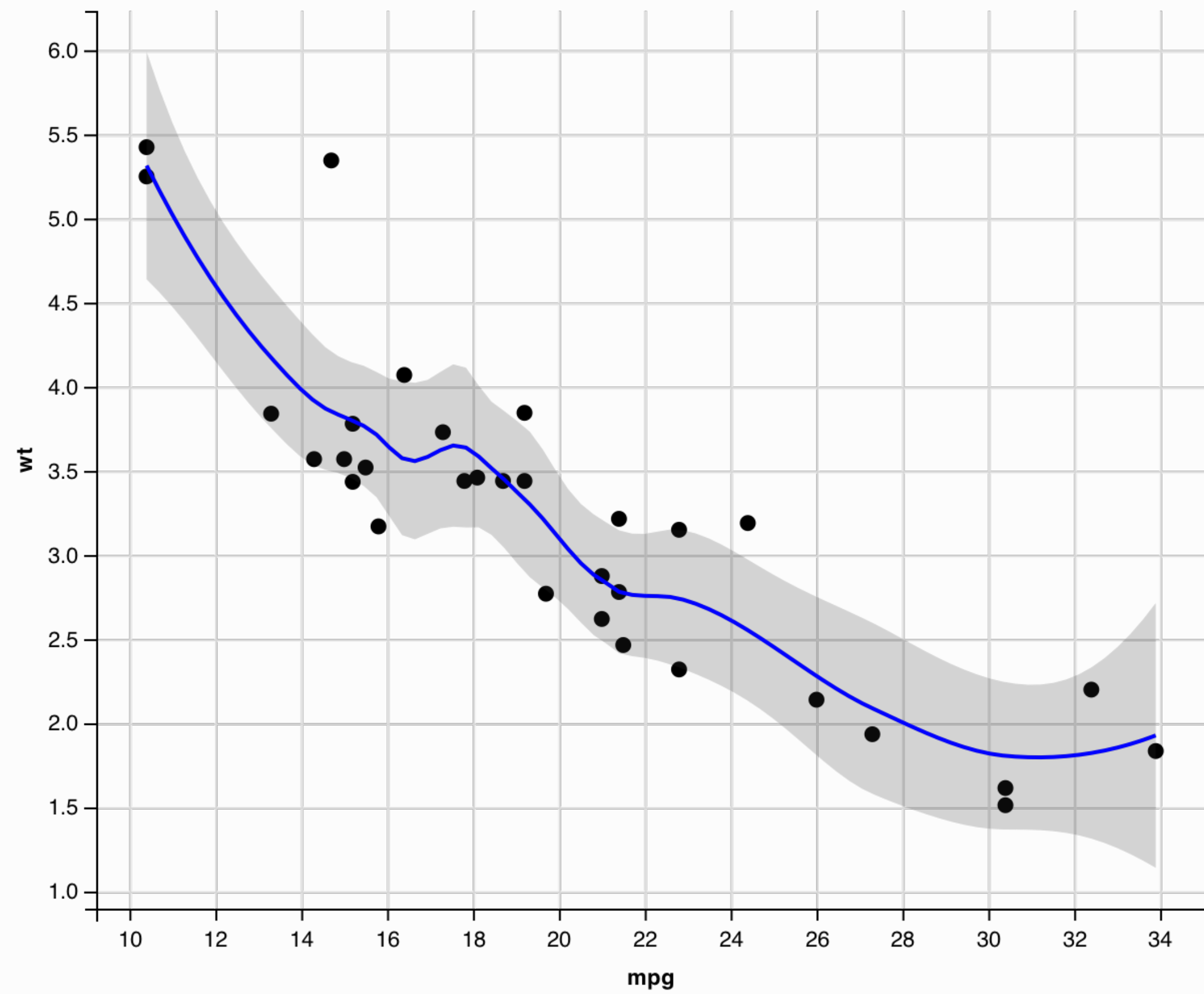
# ggvis





ggvis

# ggvis

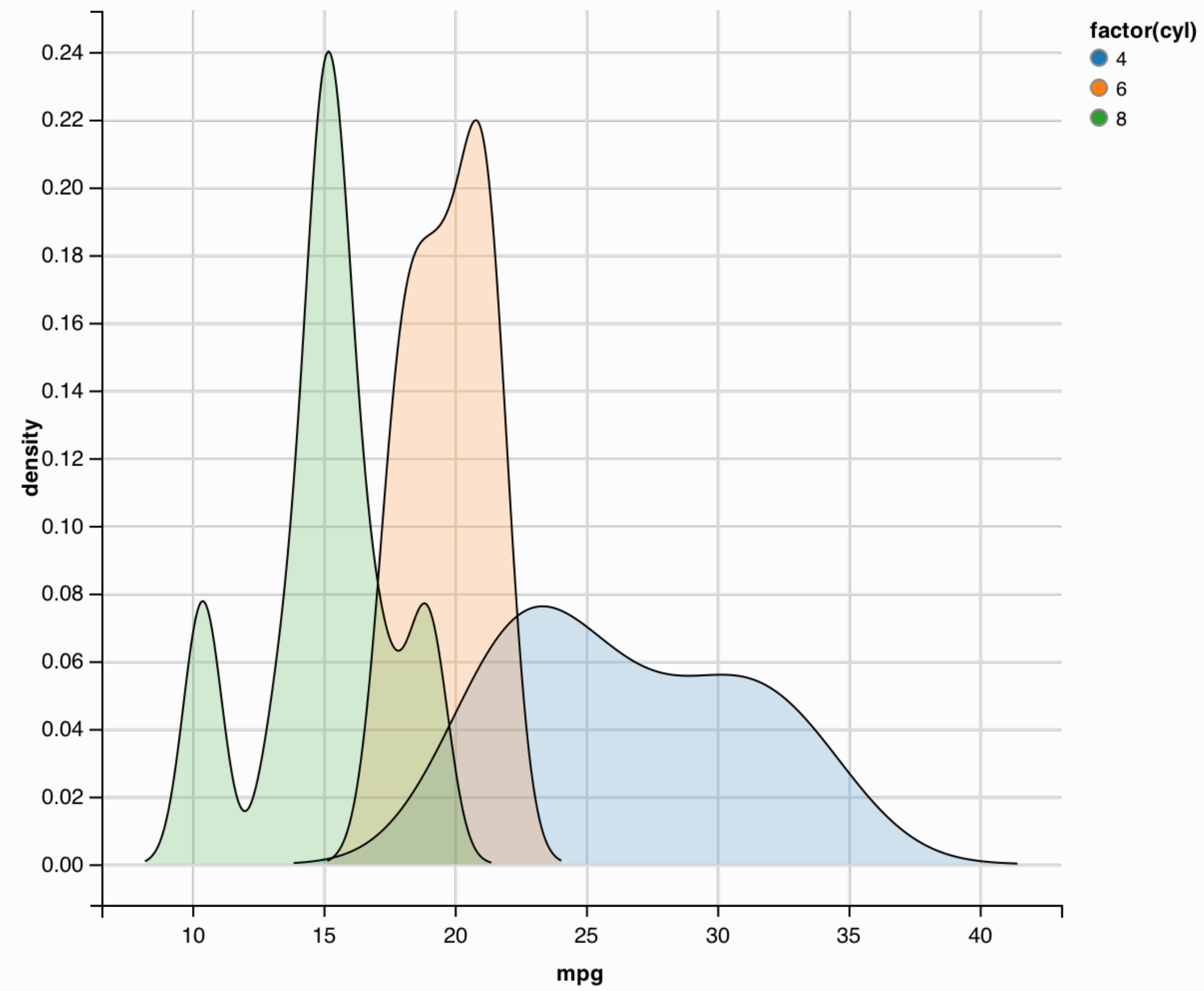






ggvis

# ggvis







ggvis

**graph** = **mtcars** + **cartesian** + **points** + **fill =** + ...  
data coordinate system mark properties



ggvis



+

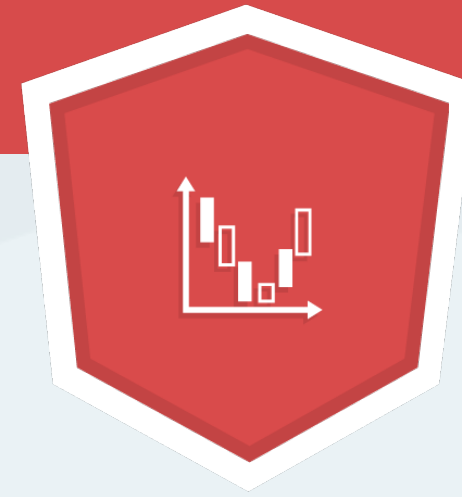


Display abilities  
and interactivity



ggvis





# **ggvis: a grammar of data visualization**

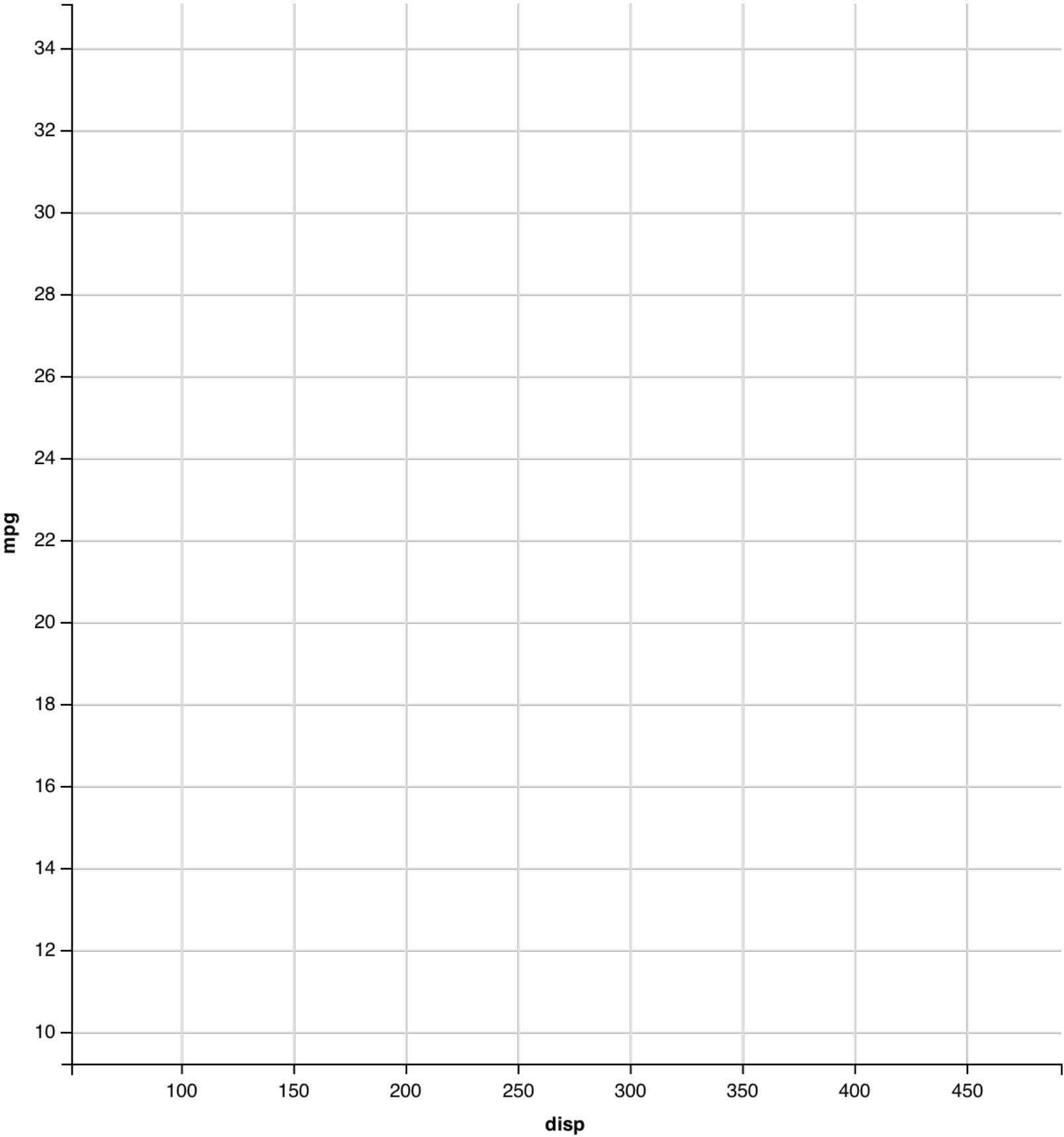
Grammar



ggvis

mp	cy	dis	h
21.0	6	160.0	2
21.0	6	160.0	2
22.8	4	108.0	1
21.4	6	258.0	2
18.7	8	360.0	3
18.1	6	225.0	2
14.3	8	360.0	5
24.4	4	146.7	1
22.8	4	140.8	1
19.2	6	167.6	2
17.8	6	167.6	2
16.4	8	275.8	3
17.3	8	275.8	3
15.2	8	275.8	3
10.4	8	472.0	4
10.4	8	460.0	4
14.7	8	440.0	4
32.4	4	78.7	1
30.4	4	75.7	1
33.9	4	71.1	1

data      mark



coordinate  
system

properties



ggvis

fill

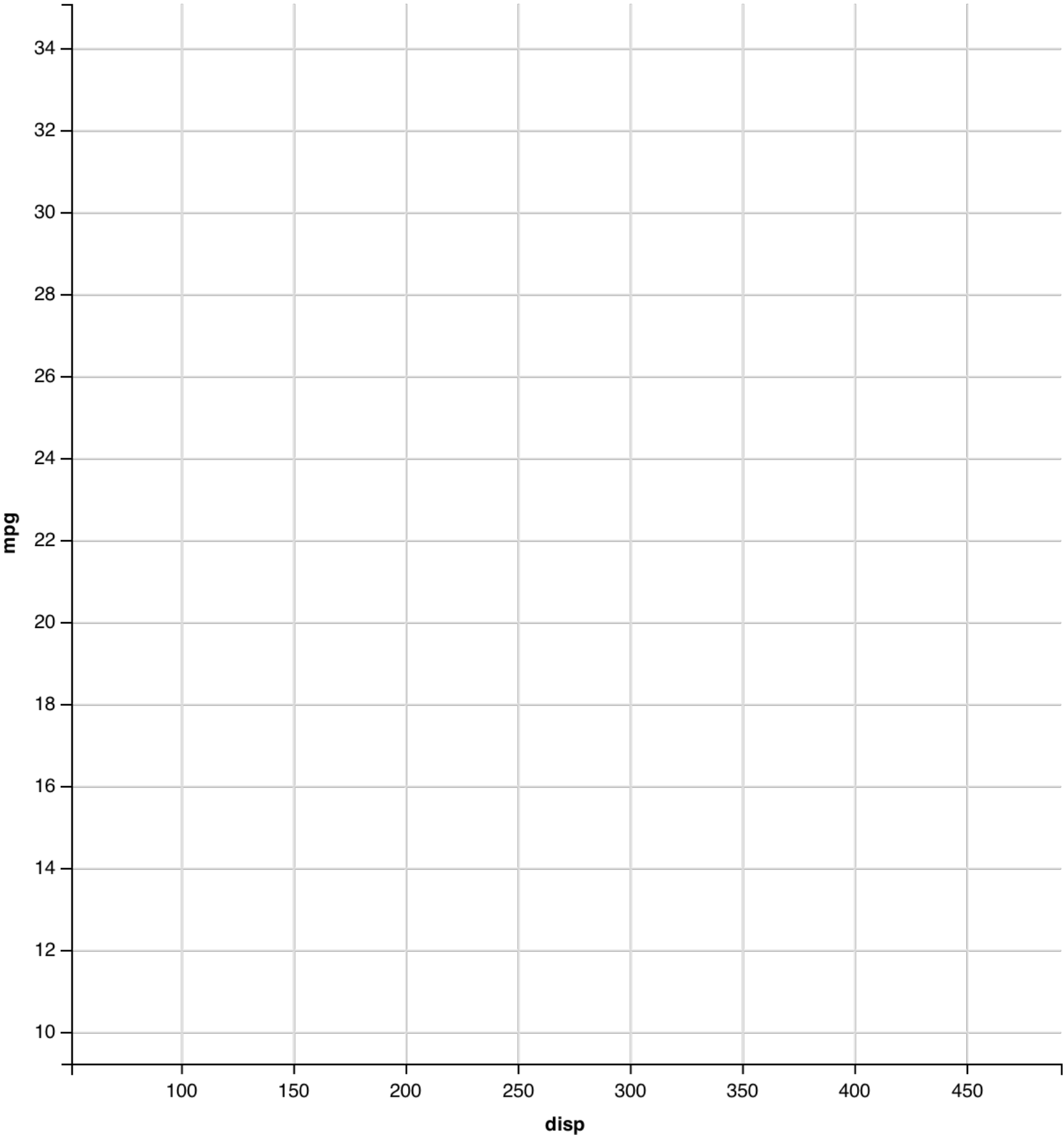


mp	cy	dis	h
21.0	6	160.0	2
21.0	6	160.0	2
22.8	4	108.0	1
21.4	6	258.0	2
18.7	8	360.0	3
18.1	6	225.0	2
14.3	8	360.0	5
24.4	4	146.7	1
22.8	4	140.8	1
19.2	6	167.6	2
17.8	6	167.6	2
16.4	8	275.8	3
17.3	8	275.8	3
15.2	8	275.8	3
10.4	8	472.0	4
10.4	8	460.0	4
14.7	8	440.0	4
32.4	4	78.7	1
30.4	4	75.7	1
33.9	4	71.1	1



data

mark



coordinate  
system



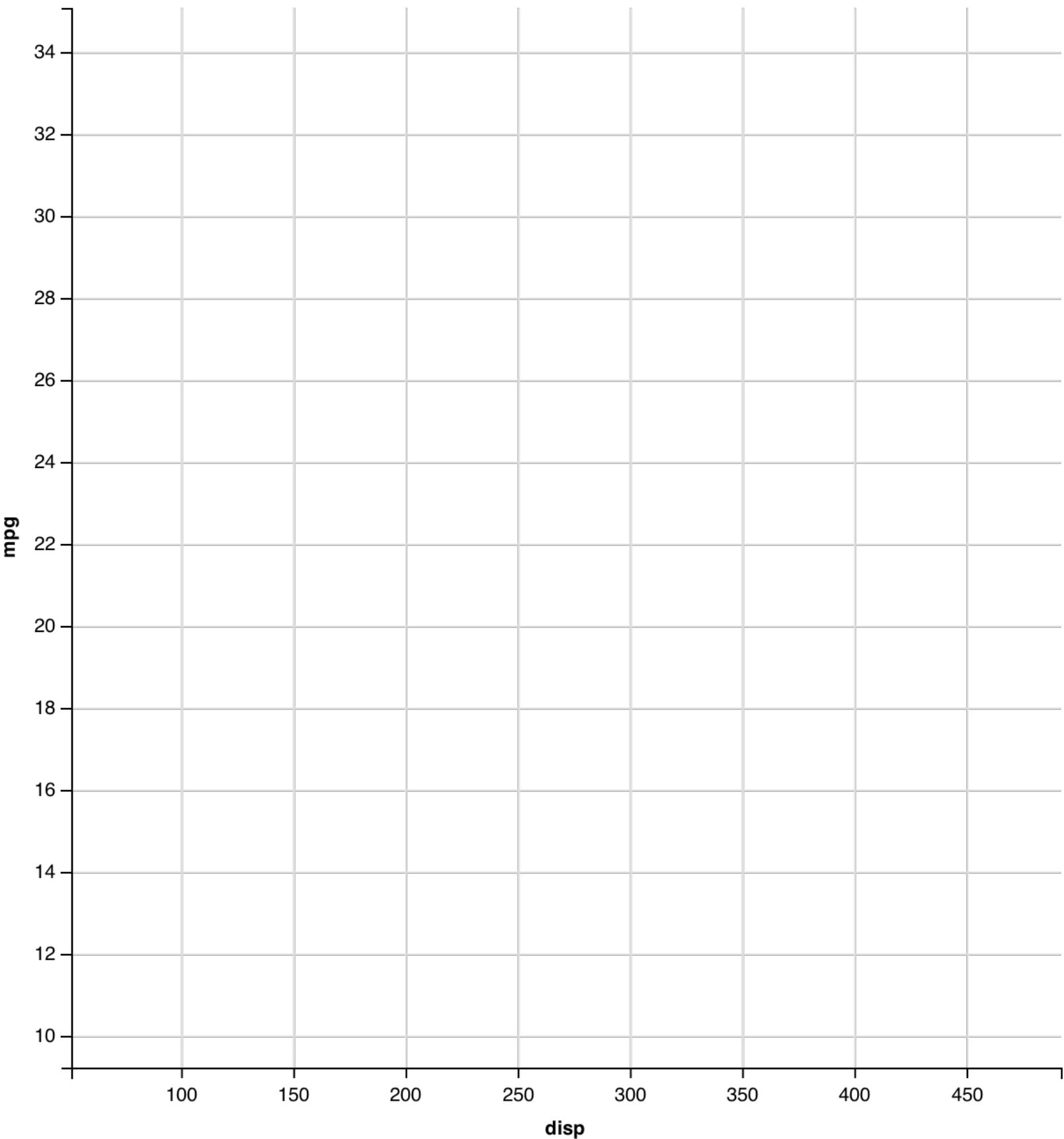
properties

shape

fill

mp	cy	dis	h
21.0	6 +	160.0	2
21.0	6 +	160.0	2
22.8	4 ●	108.0	1
21.4	6 +	258.0	2
18.7	8 ◆	360.0	3
18.1	6 +	225.0	2
14.3	8 ◆	360.0	5
24.4	4 ●	146.7	1
22.8	4 ●	140.8	1
19.2	6 +	167.6	2
17.8	6 +	167.6	2
16.4	8 ◆	275.8	3
17.3	8 ◆	275.8	3
15.2	8 ◆	275.8	3
10.4	8 ◆	472.0	4
10.4	8 ◆	460.0	4
14.7	8 ◆	440.0	4
32.4	4 ●	78.7	1
30.4	4 ●	75.7	1
33.9	4 ●	71.1	1

data      mark



coordinate  
system

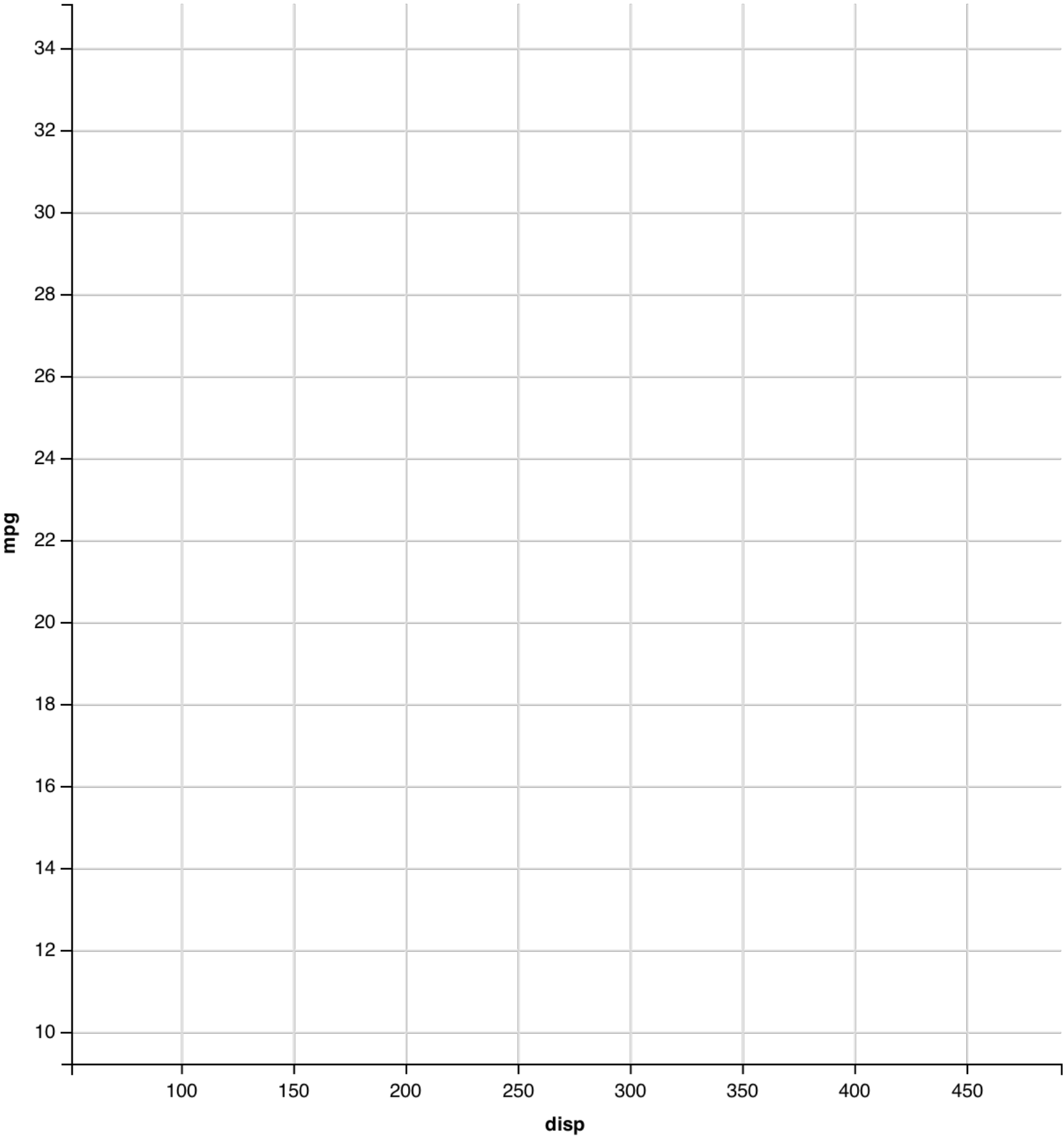


ggvis

properties

				shape	x	fill	
mp	cy	dis	h				
21.0	6	160.0	2	+			
21.0	6	160.0	2	+			
22.8	4	108.0	1	●			
21.4	6	258.0	2	+			
18.7	8	360.0	3	◆			
18.1	6	225.0	2	+			
14.3	8	360.0	5	◆			
24.4	4	146.7	1	●			
22.8	4	140.8	1	●			
19.2	6	167.6	2	+			
17.8	6	167.6	2	+			
16.4	8	275.8	3	◆			
17.3	8	275.8	3	◆			
15.2	8	275.8	3	◆			
10.4	8	472.0	4	◆			
10.4	8	460.0	4	◆			
14.7	8	440.0	4	◆			
32.4	4	78.7	1	●			
30.4	4	75.7	1	●			
33.9	4	71.1	1	●			

data      mark



coordinate  
system



ggvis

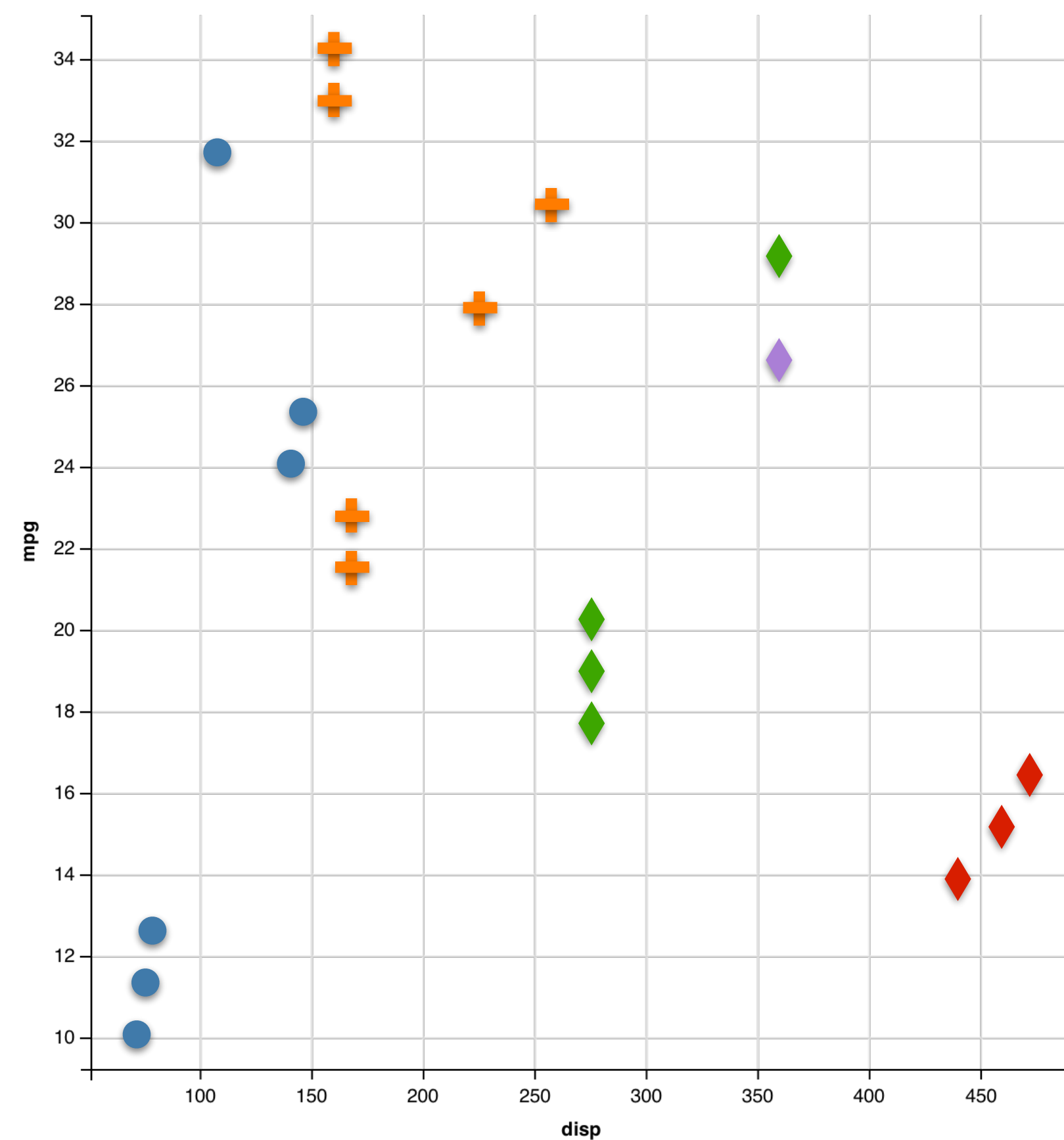


## properties

y	shape	x	fill
mp	cy	dis	h
21.0	6	160.0	2
21.0	6	160.0	2
22.8	4	108.0	1
21.4	6	258.0	2
18.7	8	360.0	3
18.1	6	225.0	2
14.3	8	360.0	5
24.4	4	146.7	1
22.8	4	140.8	1
19.2	6	167.6	2
17.8	6	167.6	2
16.4	8	275.8	3
17.3	8	275.8	3
15.2	8	275.8	3
10.4	8	472.0	4
10.4	8	460.0	4
14.7	8	440.0	4
32.4	4	78.7	1
30.4	4	75.7	1
33.9	4	71.1	1

# data

# mark



# coordinate system



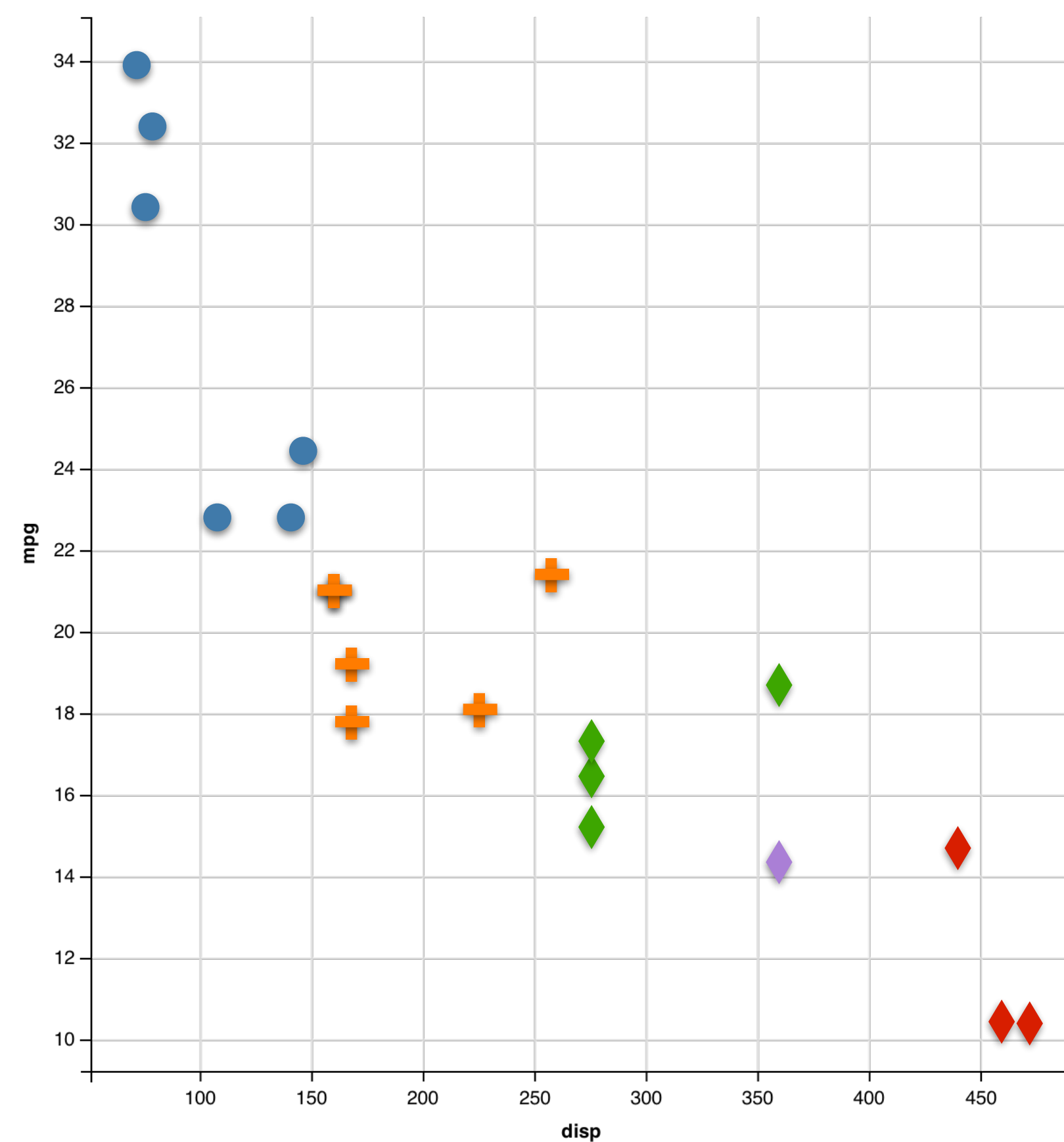
ggvis

## properties

y ↑↓ mp	shape ↑↓ cy	x ↑↓ dis	fill ↑↓ h
21.0	6	160.0	2
21.0	6	160.0	2
22.8	4	108.0	1
21.4	6	258.0	2
18.7	8	360.0	3
18.1	6	225.0	2
14.3	8	360.0	5
24.4	4	146.7	1
22.8	4	140.8	1
19.2	6	167.6	2
17.8	6	167.6	2
16.4	8	275.8	3
17.3	8	275.8	3
15.2	8	275.8	3
10.4	8	472.0	4
10.4	8	460.0	4
14.7	8	440.0	4
32.4	4	78.7	1
30.4	4	75.7	1
33.9	4	71.1	1

# data

# mark



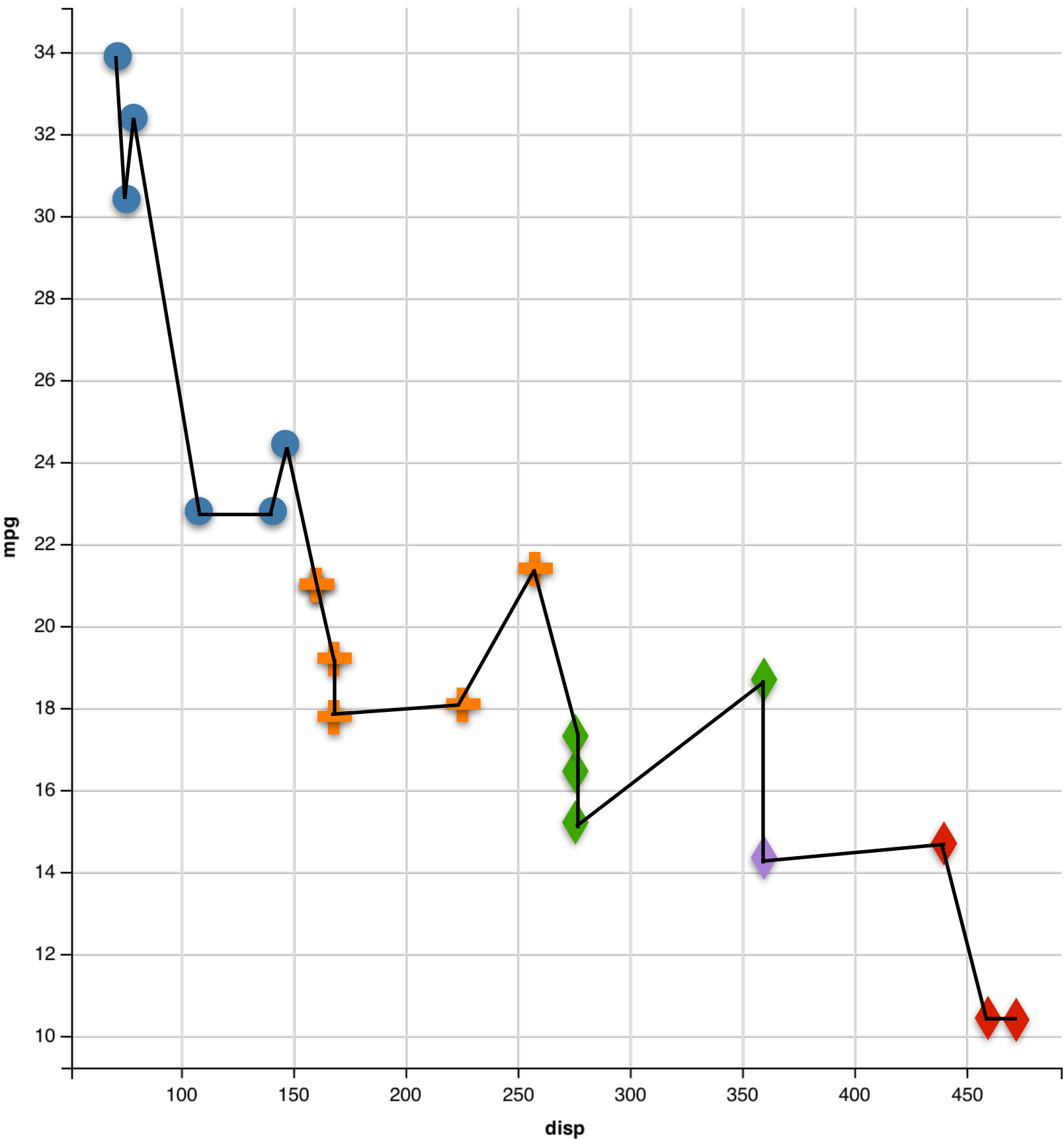
# coordinate system

properties

y ↑↓ mp	shape ↑↓ cy	x ↑↓ dis	fill ↑↓ h	
21.0	6	160.0	2	
21.0	6	160.0	2	
22.8	4	108.0	1	
21.4	6	258.0	2	
18.7	8	360.0	3	
18.1	6	225.0	2	
14.3	8	360.0	5	
24.4	4	146.7	1	
22.8	4	140.8	1	
19.2	6	167.6	2	
17.8	6	167.6	2	
16.4	8	275.8	3	
17.3	8	275.8	3	
15.2	8	275.8	3	
10.4	8	472.0	4	
10.4	8	460.0	4	
14.7	8	440.0	4	
32.4	4	78.7	1	
30.4	4	75.7	1	
33.9	4	71.1	1	

data

mark  
points  
lines



coordinate  
system



ggvis



**mark**

points  
lines  
bars

# coordinate system

properties

y

↑↓

x

↑↓

fill

↑↓

mp	cy	dis	h
21.0	6	160.0	2
21.0	6	160.0	2
22.8	4	108.0	1
21.4	6	258.0	2
18.7	8	360.0	3
18.1	6	225.0	2
14.3	8	360.0	5
24.4	4	146.7	1
22.8	4	140.8	1
19.2	6	167.6	2
17.8	6	167.6	2
16.4	8	275.8	3
17.3	8	275.8	3
15.2	8	275.8	3
10.4	8	472.0	4
10.4	8	460.0	4
14.7	8	440.0	4
32.4	4	78.7	1
30.4	4	75.7	1
33.9	4	71.1	1

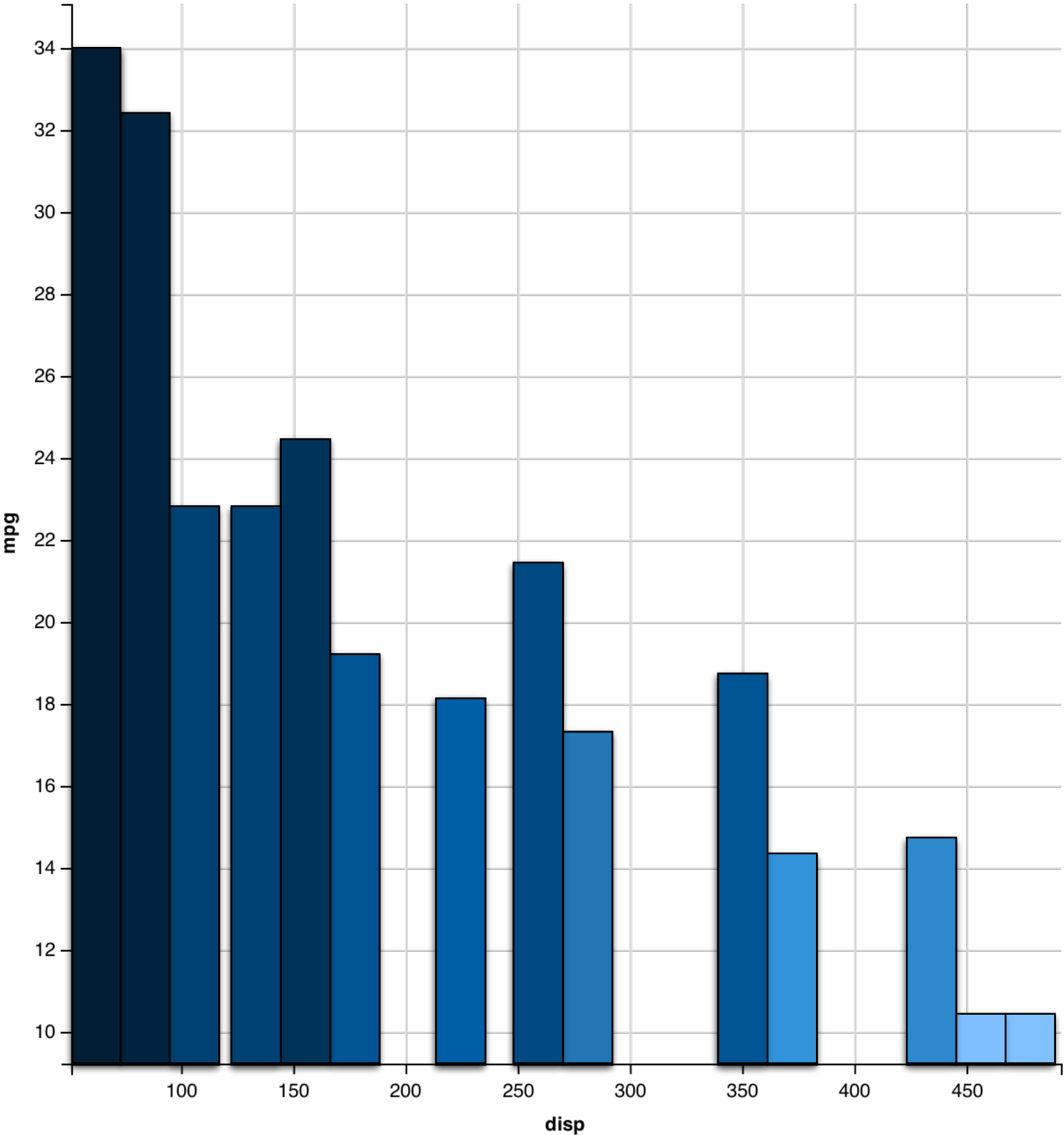
data

mark

points

lines

bars



coordinate

system

ggvis



ggvis

**graph** = **mtcars** + **cartesian** + **points** + **fill =** + ...  
data coordinate system mark properties