Simplified Grammar of Graphics

Creating a Humble Chart

Start with Data

Data

Area	Sales
North	5
East	25
West	15
South	20
Central	10

Map the Aesthetics

Data			Aesthetics	
Area	Sales		x	y
North	5		1	5
East	25		2	25
West	15		3	15
South	20		4	20
Central	10		5	10

x (Nominal) = Area
y (Quantitative) = Sales

Encode Geometric & Scale

Data			Aesthetics			Geometric & Scale	
Area	**Sales**		**x**	**y**		**x**	**y**
North	5		1	5		20	▭
East	25		2	25		40	▬
West	15		3	15		100	▬
South	20		4	20		140	▬
Central	10		5	10		180	▬

x (N) = Area
y (Q) = Sales

x - position
y - bar
scale - 200 x 200

Choose a Coordinate

Aesthetics		Geometric & Scale		Coordinate
x	y	x	y	
1	5	20		
2	25	60		
3	15	100		
4	20	140		
5	10	180		

x (N) = Area
y (Q) = Sales

x - position
y - bar
scale - 200 x 200
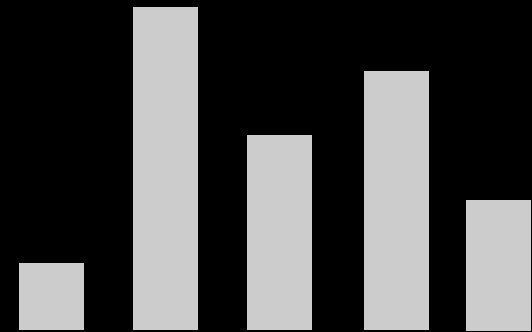
cartesian

Example #1

Points

Line

Bar

Bar - Stacked
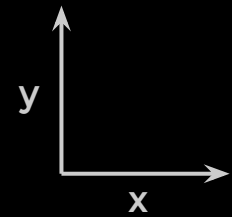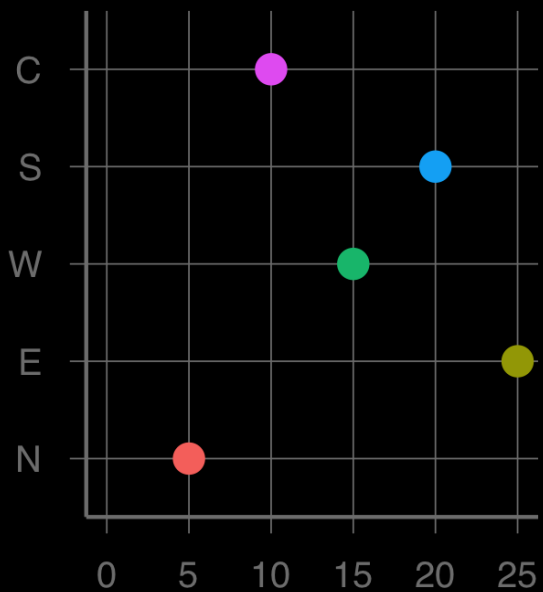
Bar - Stagger

**Coordinates
Cartesian**

y

x
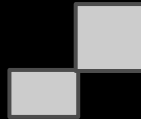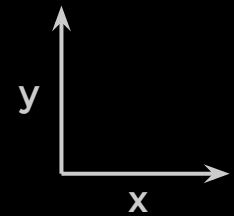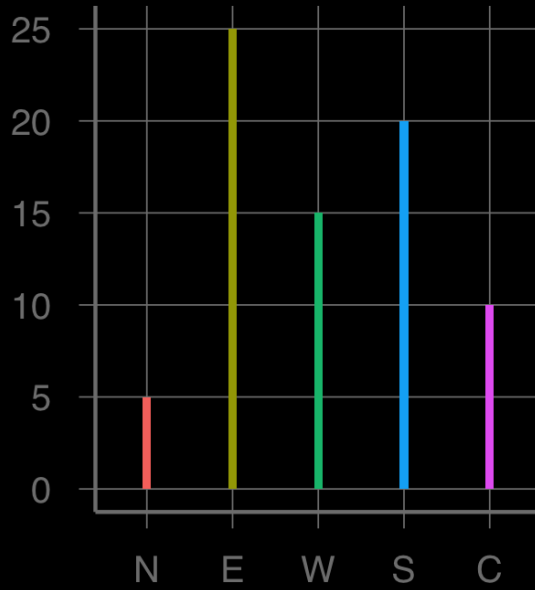
Dot Plot

Line Chart

Column Chart
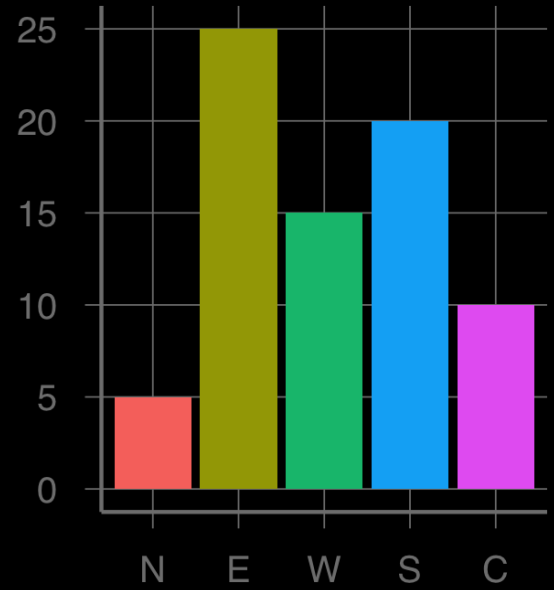
Stacked Column
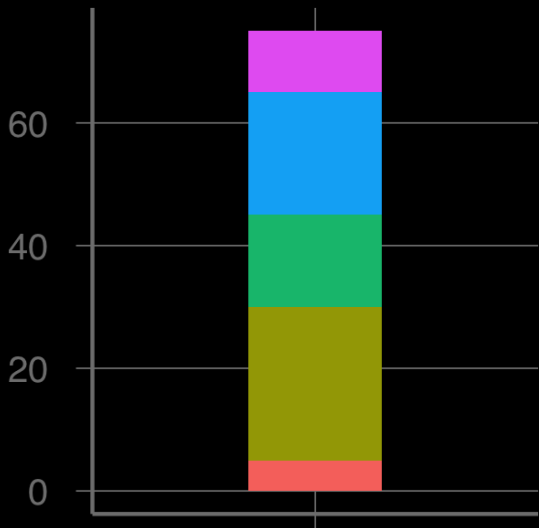
Waterfall

Example #2

Points

Line

Bar

Bar - Stacked

Bar - Stagger
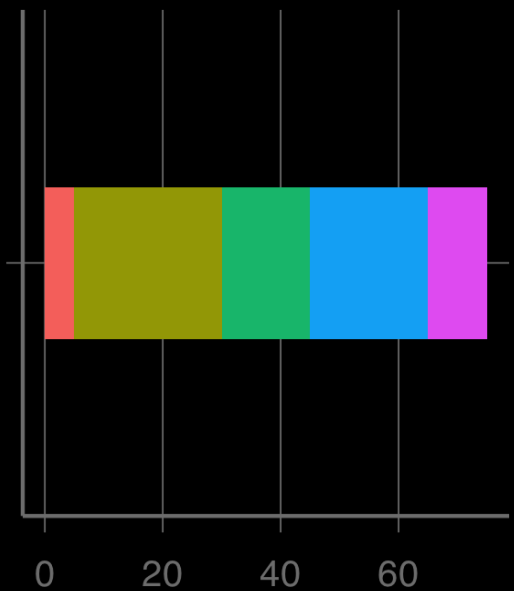
**Coordinates
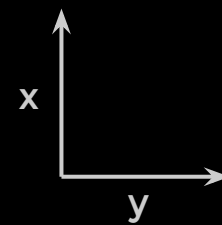Cartesian - Flip**

x

y
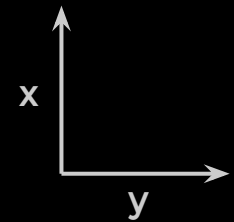
Dot Plot

Line Chart
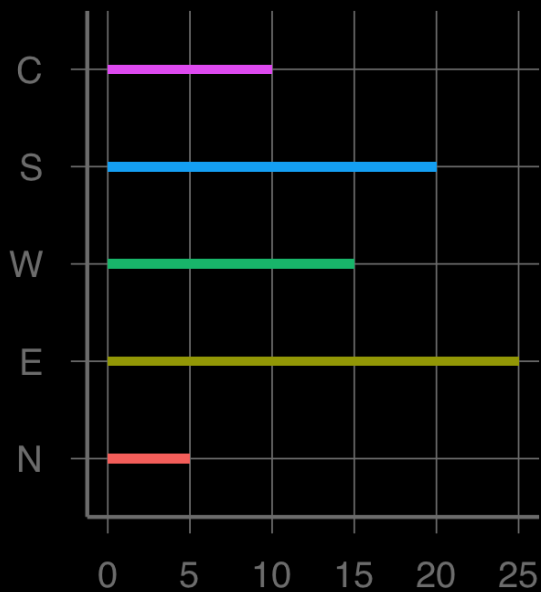
Bar Chart

Stacked Bar

Cascade

Example #3

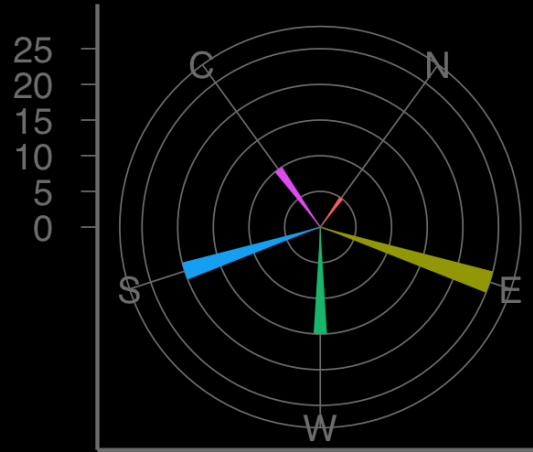Points

Line

Bar

Bar - Stacked
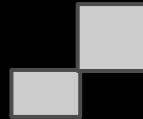
Bar - Stagger

Coordinates
Polar - x
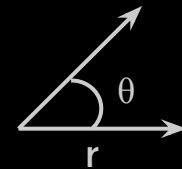
$x = \theta$
$y = r$
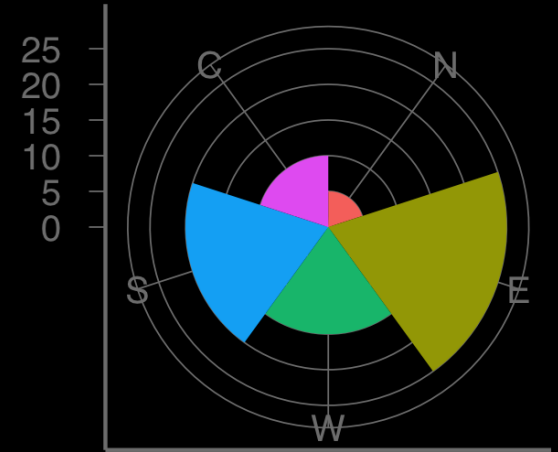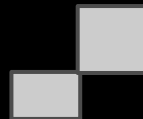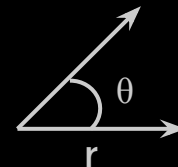
Marked Radar
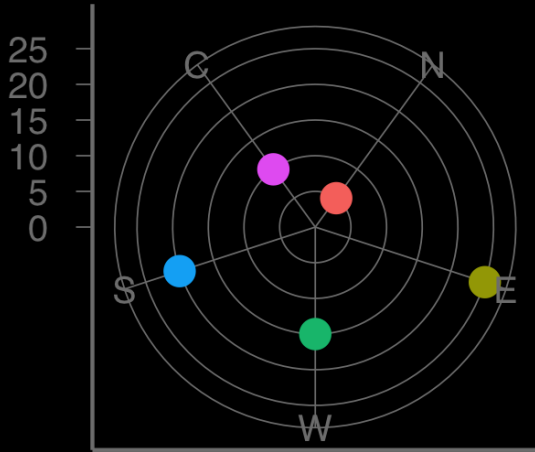
Line Radar?

CoxComb

Bullseye

Polar Waterfall?

θ

r

x = θ
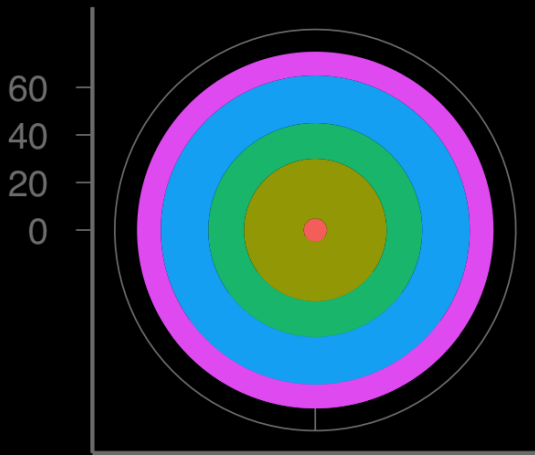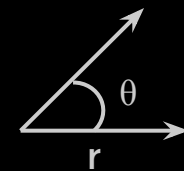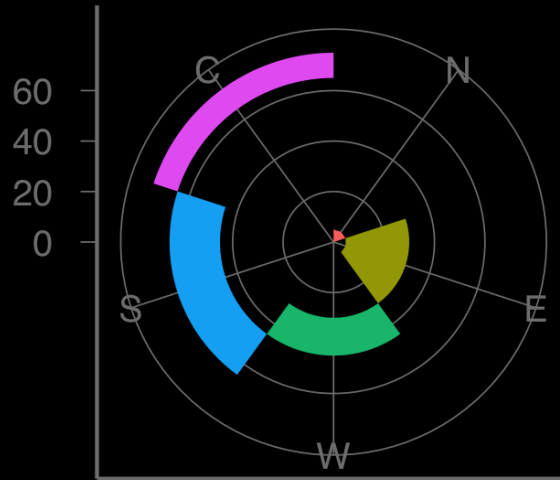
y = r

Example #4

Points

Line

Bar

Bar - Stacked

Bar - Stagger

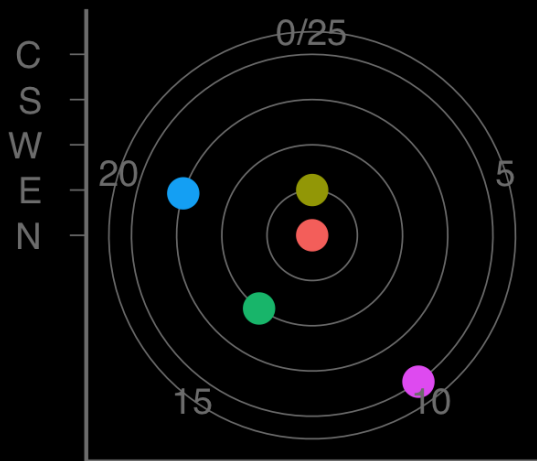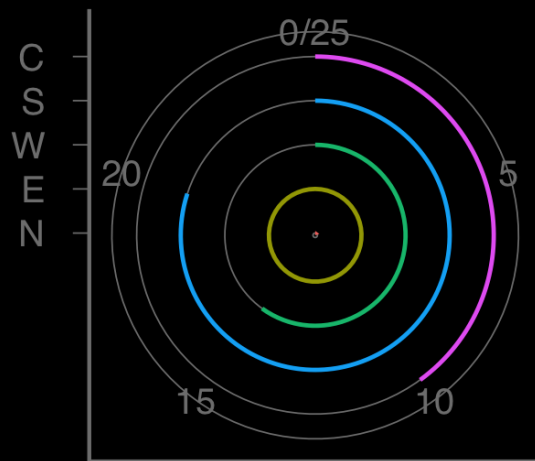**Coordinates
Polar - Y**

$x = r$
$y = \theta$
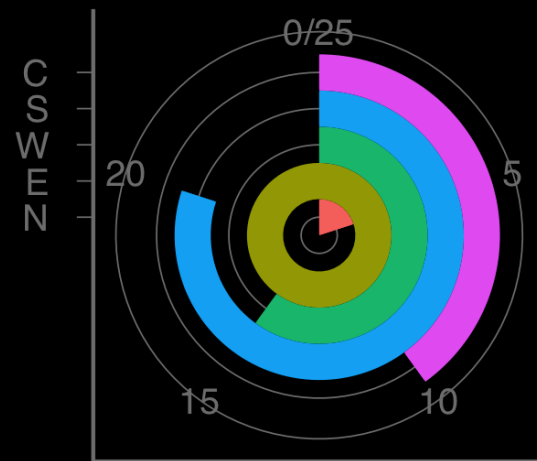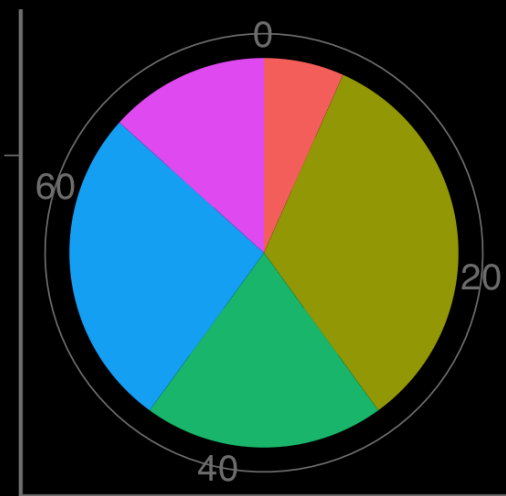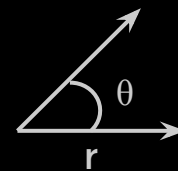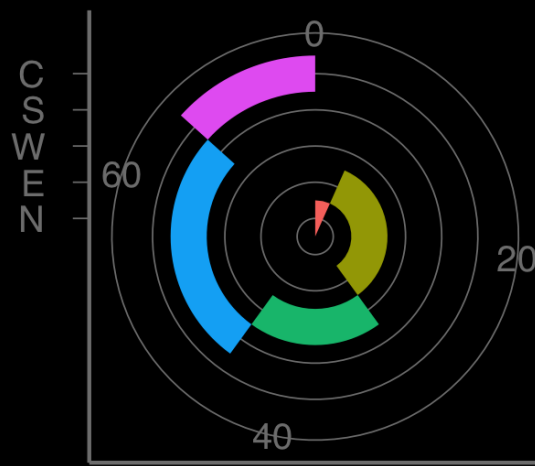
Target?

Wind Rose?

Wind Rose

Pie Chart

Polar Cascade?

x = r
y = θ

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