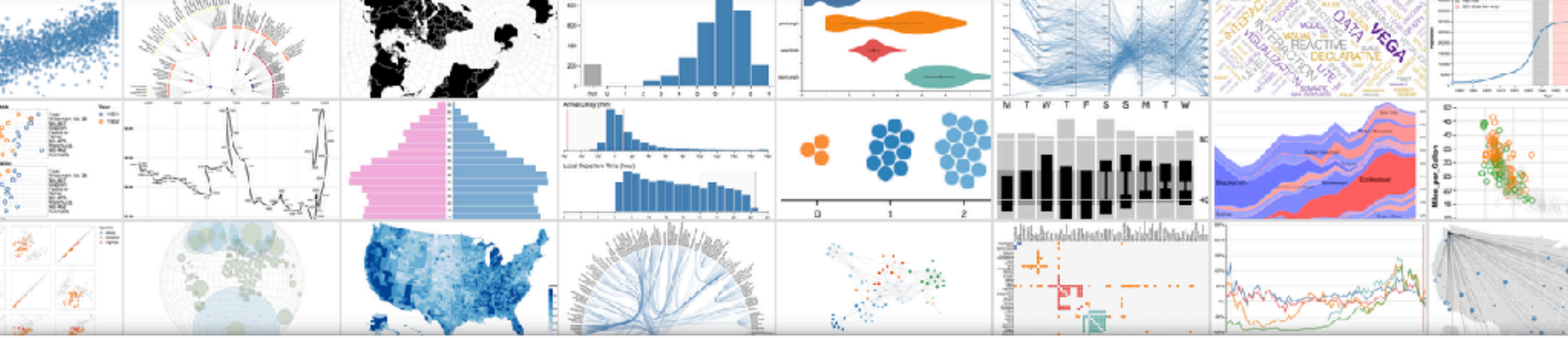


VEGA

a declarative visualization language for everyone,
(even machines)

Beatriz.Malveiro @feedzai.com

gmail | github / @biamalveiro

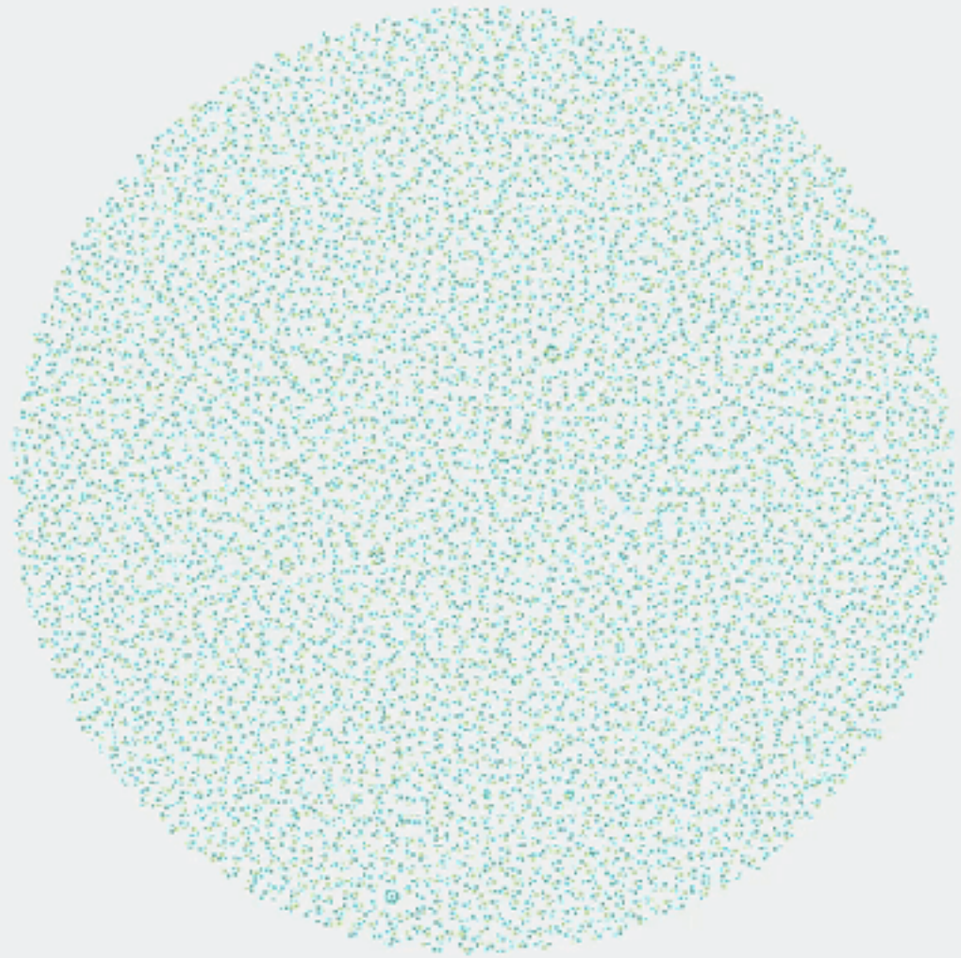
Data Visualization Engineer

Data Visualization
Lisboa **#vislis**

feedzai

TYPE CUSTOMER × DEVICE × CARD ×

feedzai genome



GRAPH SUMMARY

15K	1K	$3M	$274K
EVENTS(#)	#FRAUD	AMOUNT($)	$FRAUD

CUSTOMER(4040)

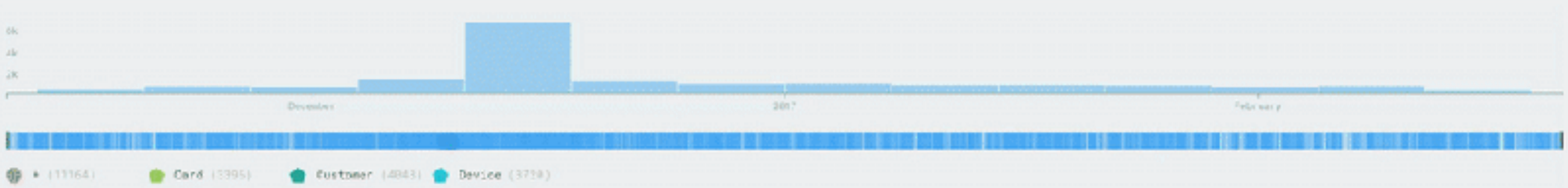
1. PARIS SAS… 2K
2. MADISON M… 103
3. ADALINE A… 76

DEVICE(3720)

1. 8A326F3CD… 5K
2. 3EC953486… 171
3. 2C6B8845D… 85

CARD(3395)

1. EB6D2F6B9… 67
2. 5B6A8B8B9… 58
3. 3B6BF5670… 53



All (11164) Card (3395) Customer (4043) Device (3720)

8,13,22,3

Abstract Data → **Visual Representation**

Human visual system is high-bandwidth channel to brain

8,13,22,3

Abstract Data

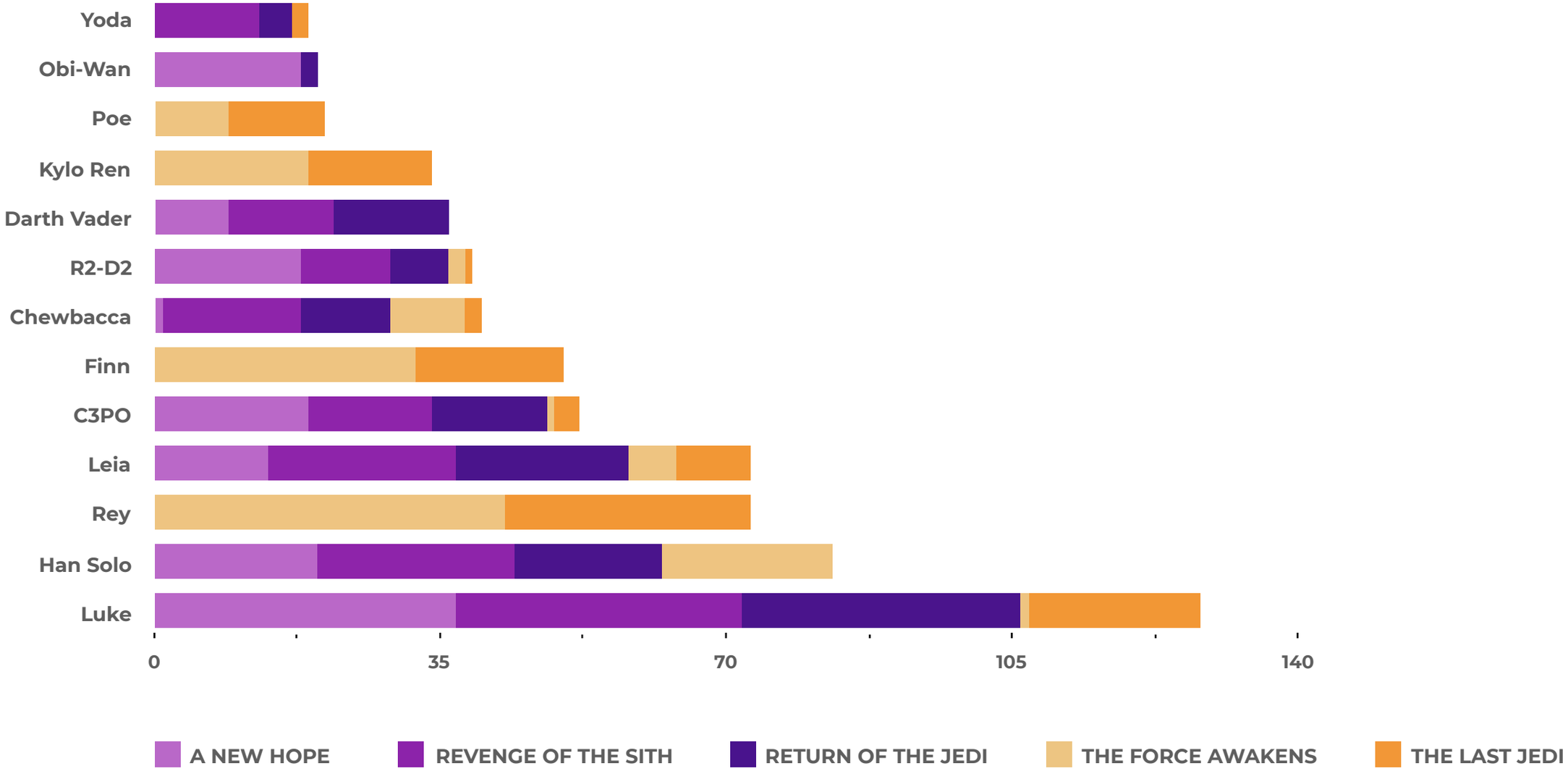
Visual Representation

Character	Episode 4	Episode 5	Episode 6	Episode 7	Episode 8
Lando Clarissien	0	9	5	0	0
Yoda	0	13	4	0	2
Obi-Wan Kenobi	18	0	2	0	0
Poe Dameron	0	0	0	9	12
Kylo Ren	0	0	0	19	15
Darth Vader	9	13	14	0	0
R2-D2	18	11	7	2	1
Chewbacca	1	17	11	9	2
Finn	0	0	0	32	18
C3PO	19	15	14	1	3
Leia Organa	14	23	21	6	9
Rey	0	0	0	43	30
Han Solo	20	24	18	21	0
Luke Skywalker	37	35	34	1	21

8,13,22,3

Abstract Data

Visual Representation



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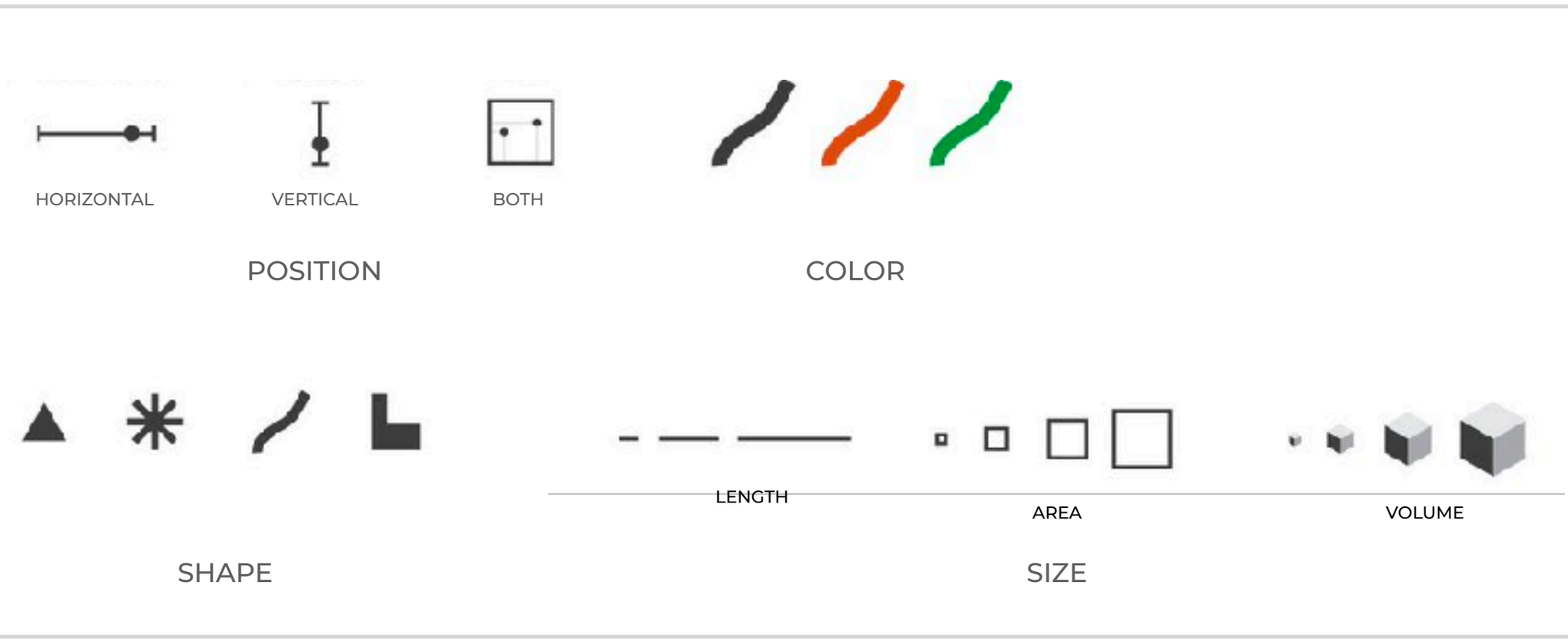
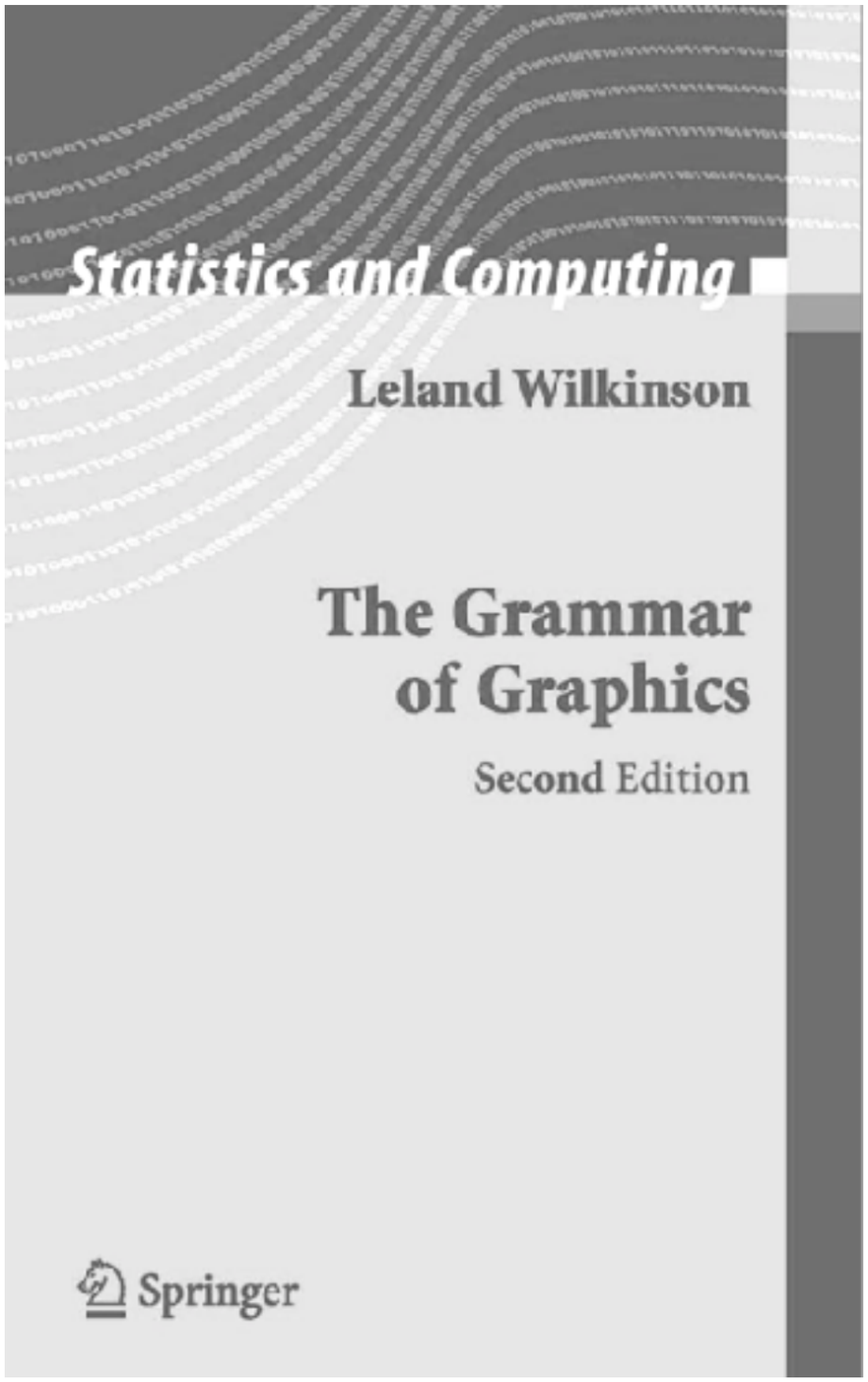
Marks Geometric Primitives

Channels Control appearance of marks

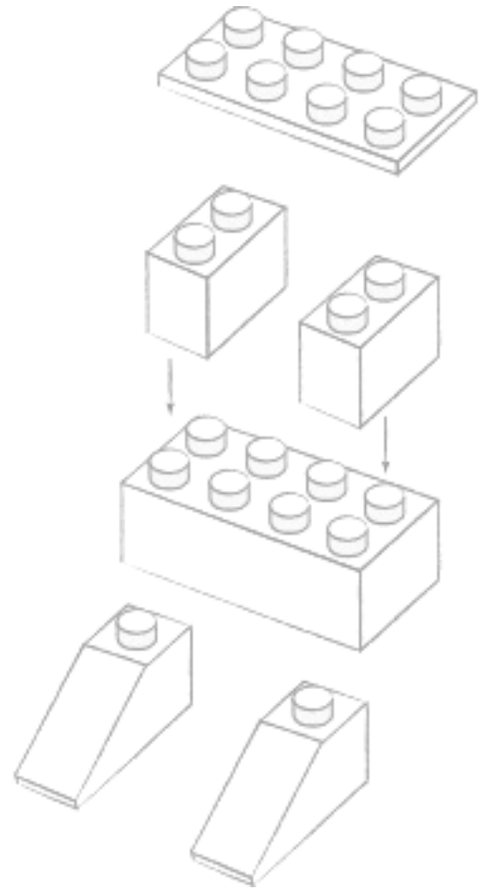




Building Blocks

For composing an expressive range of graphics

Grammar of Graphics



Data	Input data source to visualize.
Transform	Filter, aggregation, binning, etc.
Mark	Data-representative graphics.
Encoding	Mapping between data and mark properties.
Scale	Functions that map data values to visual values.
Guides	Axes & legends that visualize scales.

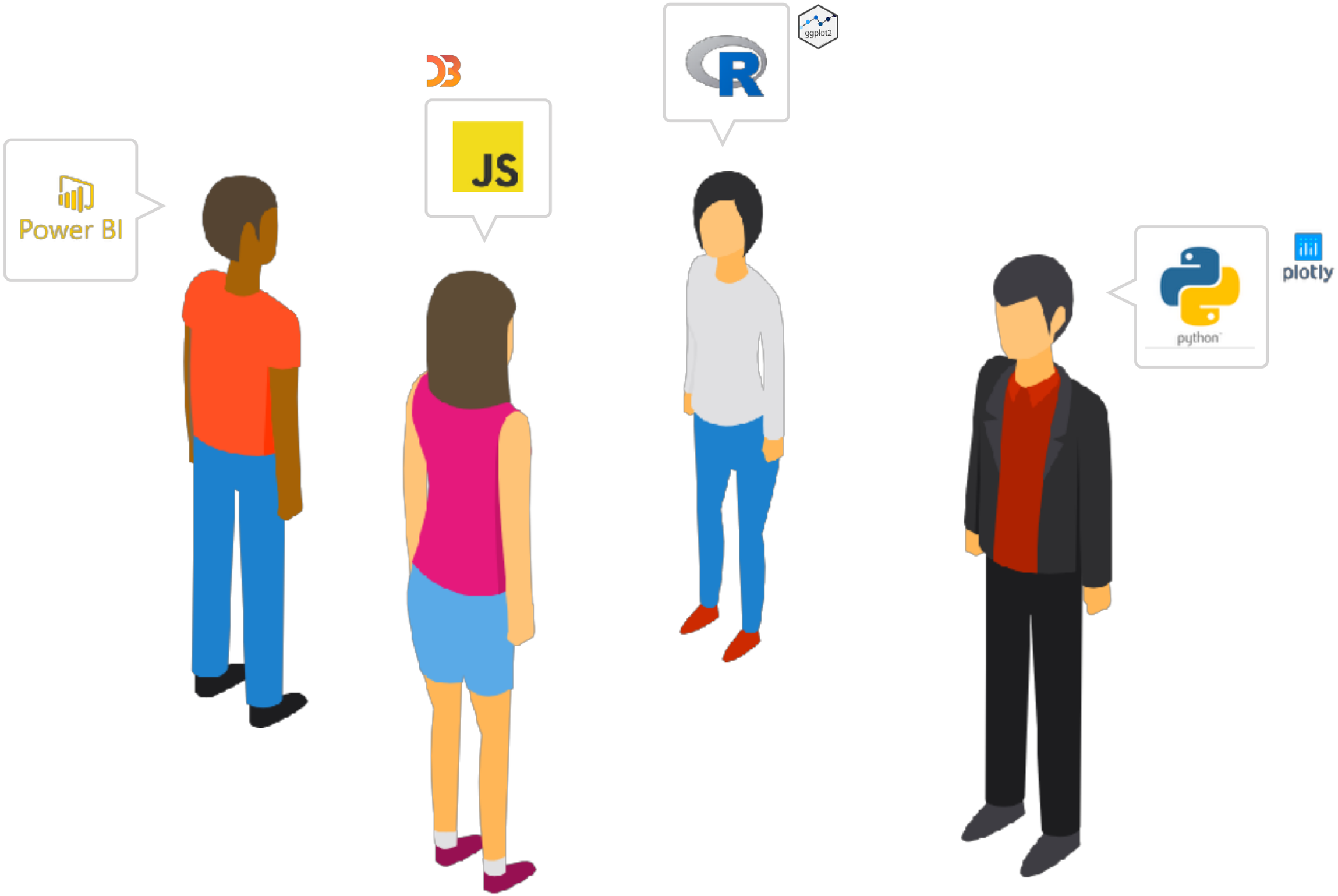
VEGA

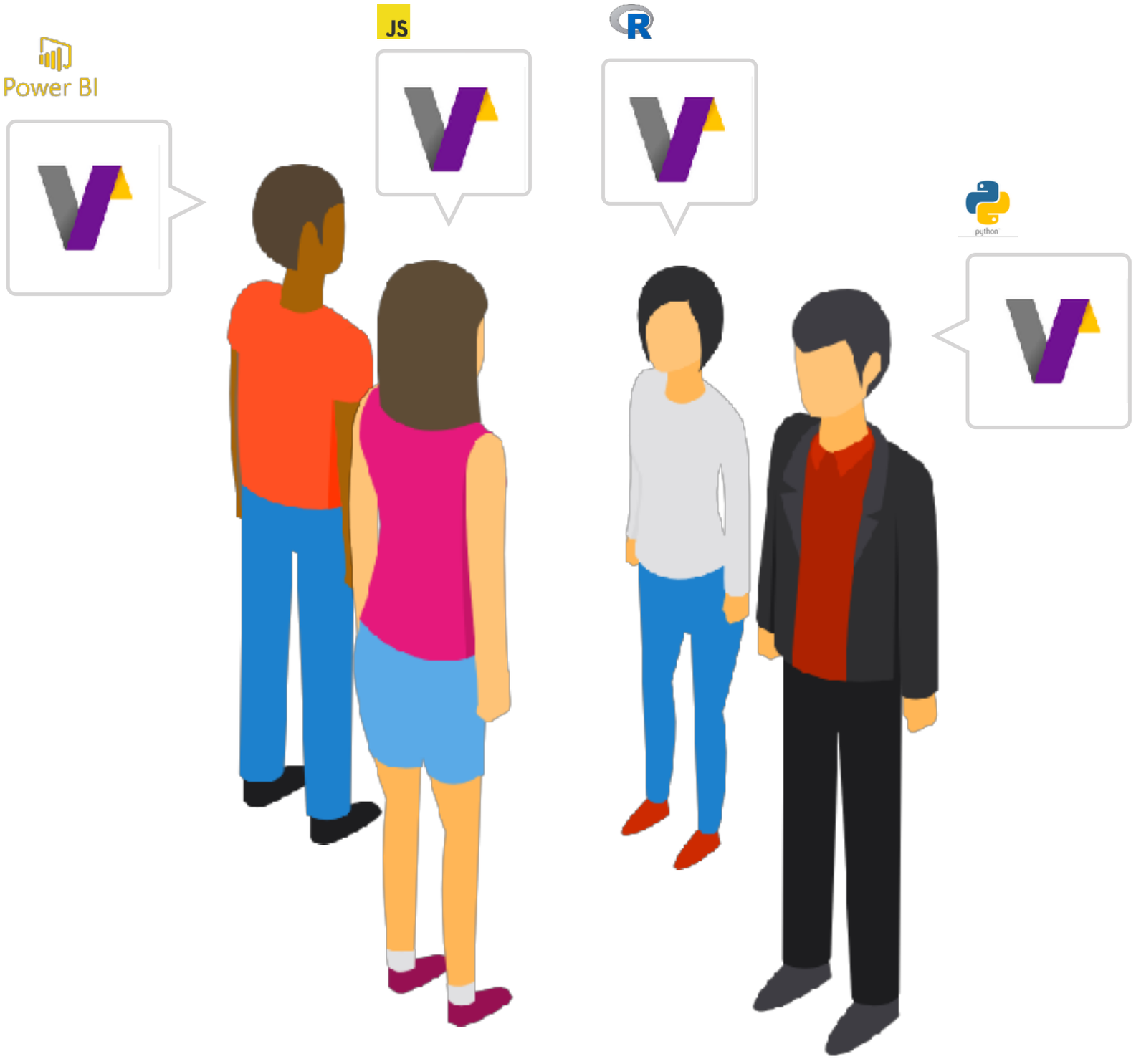
A **declarative language** for creating, saving, and sharing interactive visualization designs.

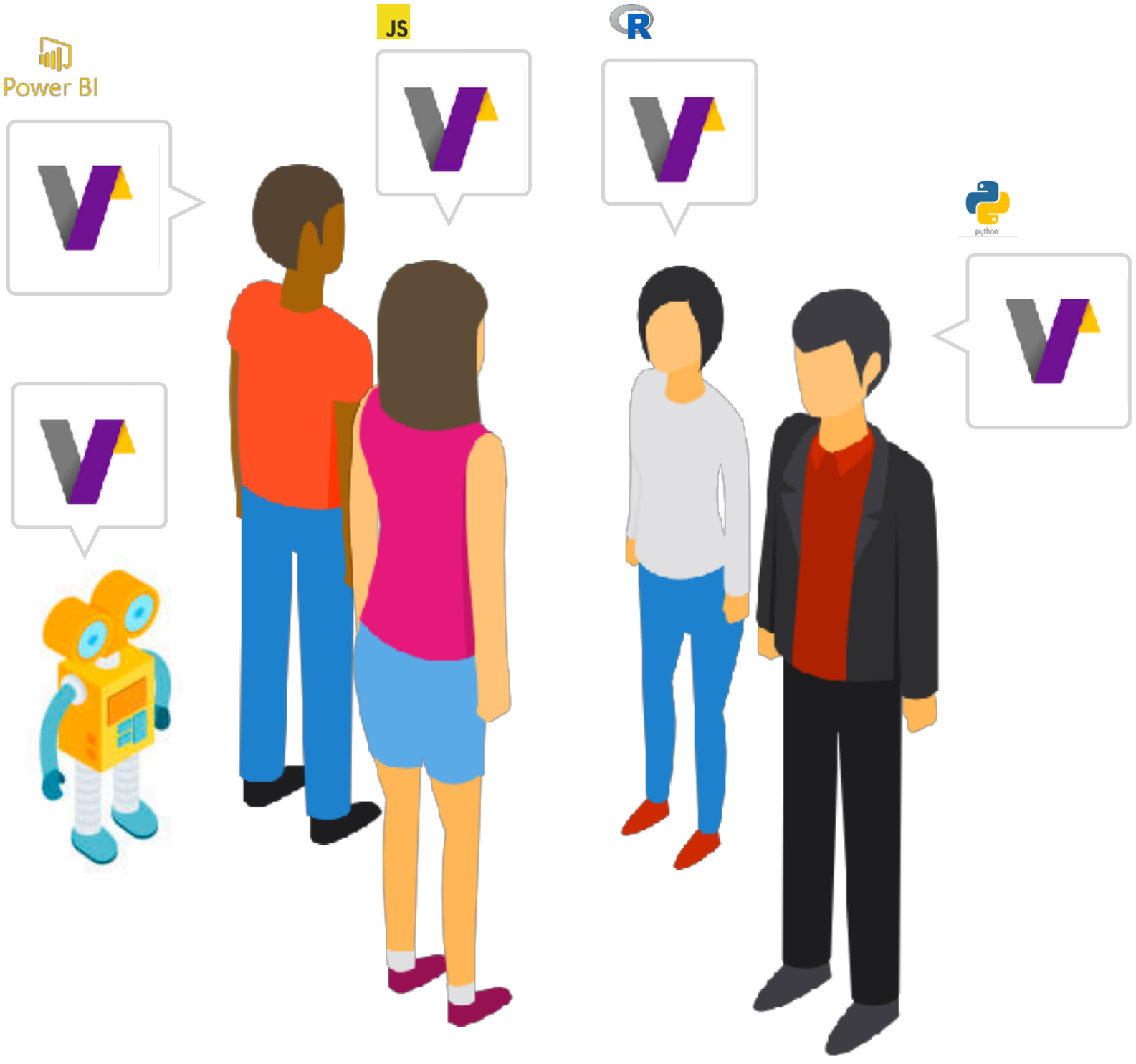
Describes the visual appearance and interactive behaviour of a visualization in a **JSON format**

Why?

- Make visualizations more reusable and shareable
- Enable programmatic generation of visualizations.






Power BI
JS
python

VEGA **is not** a replacement for D3!

D3 is intentionally a low-level system, a **“visualization kernel” -** D3 supports higher-level visualization tools, such as Vega.

VEGA-LITE

Sensible defaults for concise language

COMPILES TO

VEGA

Fine-grained control