decksh

a little language for decks

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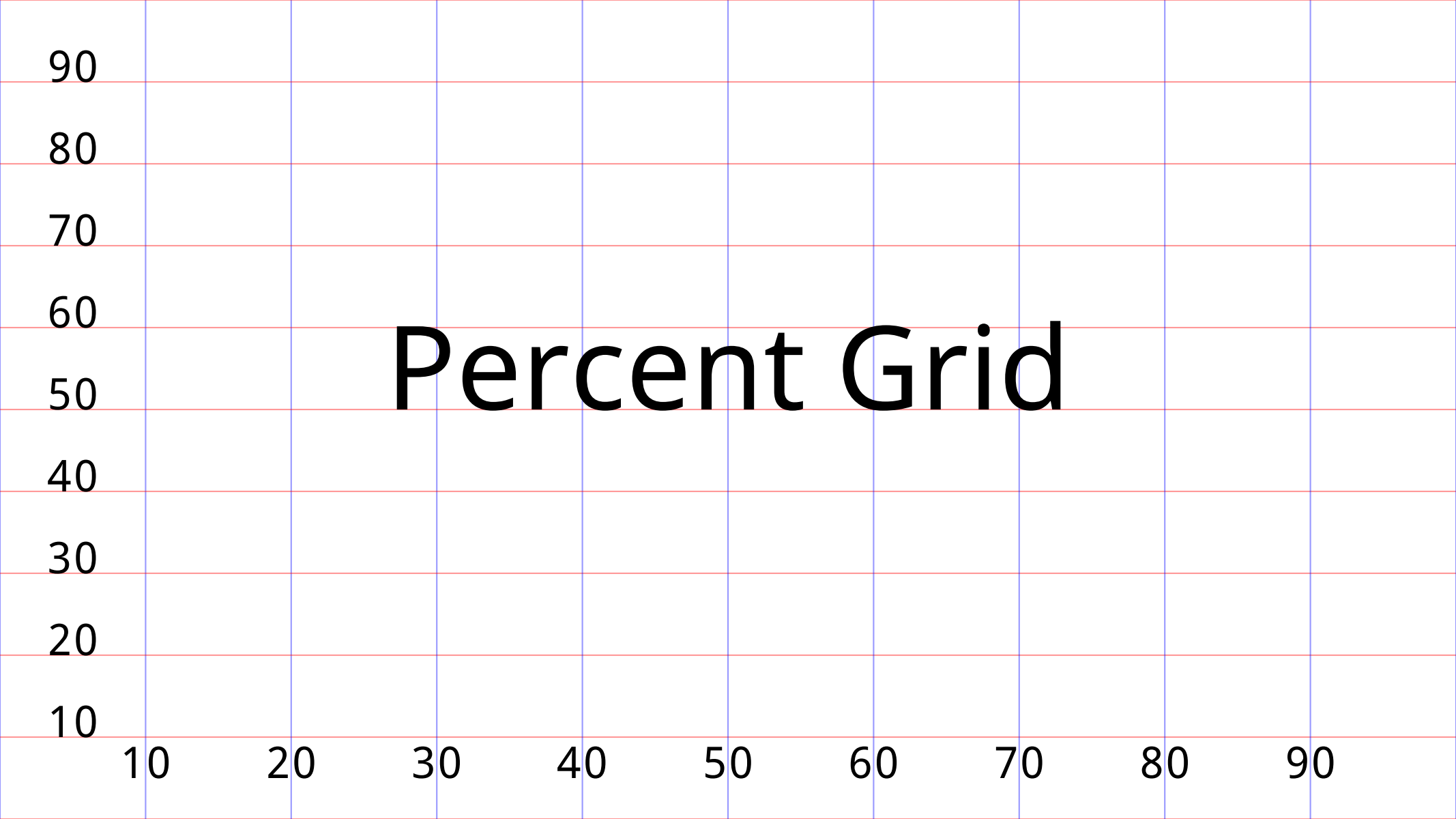
When you say “language,” most programmers think of the big ones, like FORTRAN or COBOL or Pascal. In fact, a language is any mechanism to express intent, and the input to many programs can be viewed profitably as statements in a language. This column is about those “little languages.”

Jon Bentley, ACM Programming Pearls, Little Languages, 1986

Deck

a Go package for presentations


Percent Grid
90
80
70
60
50
40
30
20
10
10
20
30
40
50
60
70
80
90

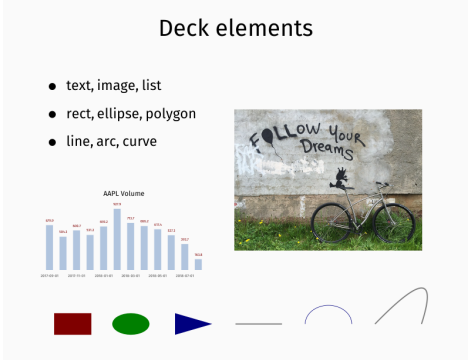
decksh → deck markup → SVG PDF PNG

```
deck
    slide "rgb(250,250,250)" "black"
        ctext   "Deck elements" 50 90 5
        image   "follow.jpg"    70 50 640 480 50
        blist   10 75 3
            li "text, image, list"
            li "rect, ellipse, polygon"
            li "line, arc, curve"
        elist

        gy=10
        rect    15 gy 8 6             "rgb(127,0,0)"
        ellipse 27.5 gy 8 6           "rgb(0,127,0)"
        line    50 gy 60 gy
        curve   80 gy 95 30 90 gy
        arc     70 gy 10 8 0 180 0.1  "rgb(0,0,127)"
        polygon "37 37 45" "13 7 10"  "rgb(0,0,127)"

        opts="-fulldeck=f -textsize 1  -xlabel=2  -barwidth 1.5"
        dchart -left 10 -right 42 -top 42 -bottom 25 opts AAPL.d
    eslide
edeck
```

```
<deck>
<slide bg="rgb(250,250,250)" fg="black">
<text align="c" xp="50" yp="90" sp="5">Deck elements</text>
<image name="follow.jpg" xp="70" yp="50" width="640" height="480" scale="50" />
<list type="bullet" xp="10" yp="75" sp="3">
<li>text, image, list</li>
<li>rect, ellipse, polygon</li>
<li>line, arc, curve</li>
</list>
<rect xp="15" yp="10" wp="8" hp="6" color="rgb(127,0,0)" />
<ellipse xp="27.5" yp="10" wp="8" hp="6" color="rgb(0,127,0)" />
<line xp1="50" yp1="10" xp2="60" yp2="10" />
<curve xp1="80" yp1="10" xp2="95" yp2="30" xp3="90" yp3="10" />
<arc xp="70" yp="10" wp="10" hp="8" a1="0" a2="180" sp="0.1" color="rgb(0,0,127)" />
<polygon xc="37 37 45" yc="13 7 10" color="rgb(0,0,127)" />
<text xp="26.00" yp="45.60" sp="1.50" align="center" wp="0.00" font="sans" opacity="100.00"
color="black" type="">AAPL Volume</text>
<line xp1="10.00" yp1="25.00" xp2="10.00" yp2="37.46" sp="1.50" opacity="100.00"
color="lightsteelblue" />
<text xp="10.00" yp="38.46" sp="0.75" align="center" wp="0.00" font="sans" opacity="100.00"
color="rgb(127,0,0)" type="">679.9</text>
<text xp="10.00" yp="23.00" sp="0.80" align="center" wp="0.00" font="sans" opacity="100.00"
color="rgb(75,75,75)" type="">2017-09-01</text>
<line xp1="12.91" yp1="25.00" xp2="12.91" yp2="34.24" sp="1.50" opacity="100.00"
color="lightsteelblue" />
<text xp="12.91" yp="35.24" sp="0.75" align="center" wp="0.00" font="sans" opacity="100.00"
color="rgb(127,0,0)" type="">504.3</text>
...
</slide>
</deck>
```



```
// hello world
deck
    slide "black" "white"
        ctext "hello, world" 50 25 10
        circle 50 0 100 "blue"
    eslide
edeck
```

Running decksh

`decksh`	*read from stdin, write to stdout*
`decksh mydeck`	*read from file, write to stdout*
`decksh -o out.xml`	*read from stdin, write to file*
`decksh -o out.xml mydeck`	*read from file, write to file*
`chmod +x mydeck; ./mydeck`	*executable deck*

```
#!/path/to/decksh
deck
    slide
        ...
    eslide
edeck
```

Keywords and arguments

```
text "string....."   x y n  [font][color][op]
```

```
text "hello, world"  80 50 2                    hello, world
text "hello, world"  80 40 2 "serif"            hello, world
text "hello, world"  80 30 2 "serif" "red"      hello, world
text "hello, world"  80 20 2 "serif" "red" 50   hello, world
```

Keywords

Structure

deck
edeck
slide
eslide
canvas

Loop

for
efor

Text

text
ctext
etext
textblock
textfile
textcode

Lists

list
blist
nlist
li
elist

Graphics

rect
ellipse
square
circle
polygon
arc
curve
line
hline
vline

Arrows

rarrow
larrow
uarrow
darrow
crarrow
clarrow
cuarrow
cdarrow

Images

image
cimage

Charts

dchart
legend

Assignments

```
// decksh assignments
x=10                            // number assignment
y=20
factor=2
what="hello world"              // string assignment

size=x/factor                   // assignment with binop
text what x y size              // text "hello world" 10 20 5

y-=10                           // assignment operation
size+=factor                    // assignment op, substitute
text what x y size              // text "hello world" 10 10 7

for v=0 100 5                   // loop from 0 to 100 by 5
    line 100 v 0 v 0.1 "blue" // blue horizontal lines
    line v 100 v 0 0.1 "red"  // red vertical lines
efor
```

Text

hello world

`text`

x y size [font] [color] [op] [link]

hello world

`ctext`

x y size [font] [color] [op] [link]

hello world

`etext`

x y size [font] [color] [op] [link]

The quick brown fox jump over the lazy dog

`textblock`

"text" x y width size [font] [color] [op] [link]

This is the contents of a file

`textfile`

"file" x y size [font] [color] [op] [sp]

```
package main

import "fmt"

func main() {
    fmt.Println("hello, world")
}
```

`textcode`

"filename" x y width size [color]

Graphics

rect

x y w h [color] [op]

ellipse

x y w h [color] [op]

square

x y w [color] [opacity]

circle

x y w [color] [op]

polygon

"xc" "yc" [color] [op]

arc

x y w h a1 a2 [lw] [color] [op]

curve

x1 y2 x2 y2 x3 y3 [color] [op]

line

x1 y2 x2 y2 [lw] [color] [op]

hline

x y len [lw] [color] [op]

vline

x y len [lw] [color] [op]

Images

`image`

"file" x y w h [scale] [link]

Up in the clouds

`cimage`

"file" "caption" x y w h [scale] [link]

Lists

One
Two
Three
Four

`list`

x y size [font] [color] [opacity] [spacing]

- One
- Two
- Three
- Four

`blist`

x y size [font] [color] [opacity] [spacing]

1. One
2. Two
3. Three
4. Four

`nlist`

x y size [font] [color] [opacity] [spacing]

Arrows

larrow

x y len [aw] [ah] [lw] [color] [op]

rarrow

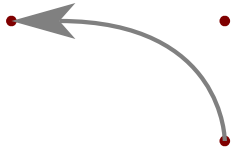
...

uarrow

...

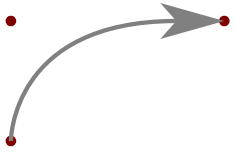
darrow

...



lcarrow

x1 y1 x2 y2 x3 y3 [lw] [aw] [ah] [color] [op]



rcarrow

...

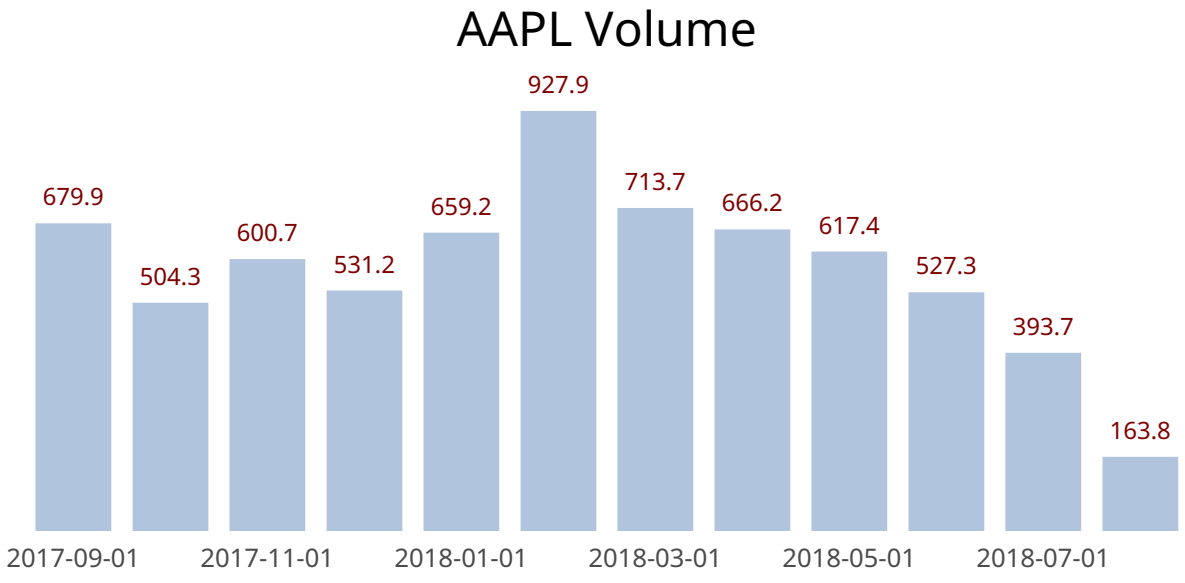
ucarrow

...

dcarrow

...

Charts



`dchart`

[args]

`legend`

x y size [font] [color]

```
deck
    slide "rgb(250,250,250)" "black"
        ctext   "Deck elements" 50 90 5
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        blist   10 75 3
            li "text, image, list"
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        line    50 gy 60 gy
        curve   80 gy 95 30 90 gy
        arc     70 gy 10 8 0 180 0.1  "rgb(0,0,127)"
        polygon "37 37 45" "13 7 10"  "rgb(0,0,127)"

        opts="-fulldeck=f -textsize 1  -xlabel=2  -barwidth 1.5"
        dchart -left 10 -right 42 -top 42 -bottom 25 opts AAPL.d
    eslide
edeck
```
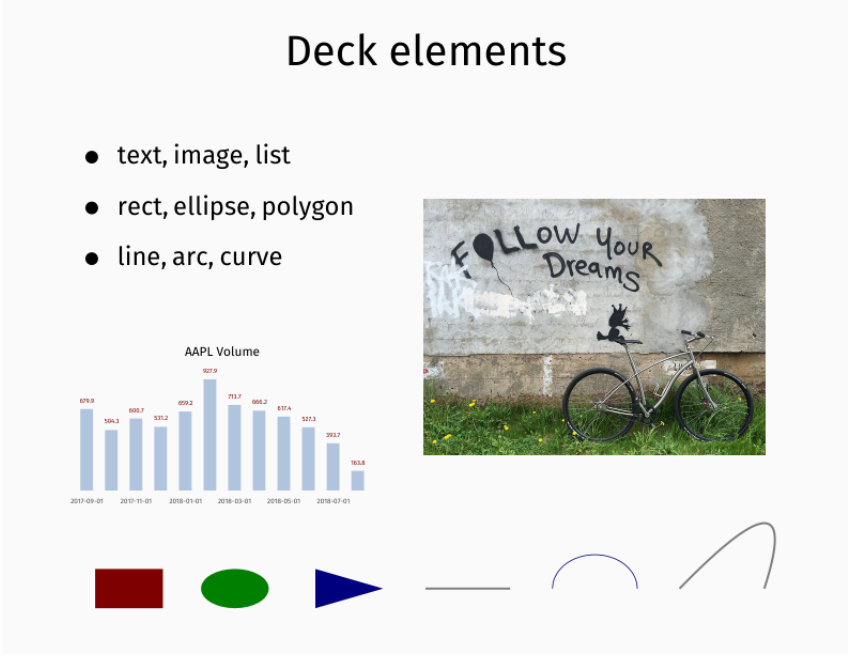
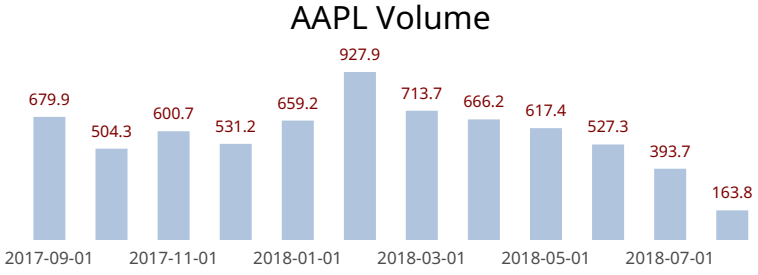



decksh example.dsh | pdf

Deck elements

- text, image, list
- rect, ellipse, polygon
- line, arc, curve



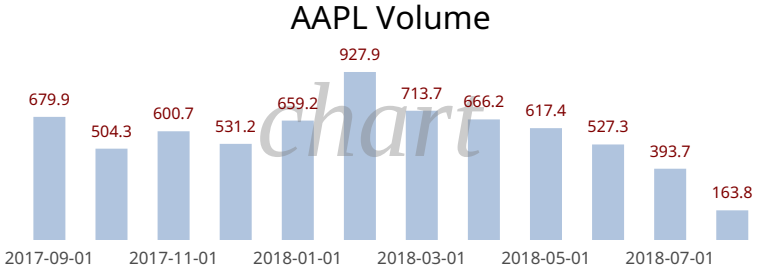
text

Deck elements

list

image

- text, image, list
- rect, ellipse, polygon
- line, arc, curve



chart

rect

ellipse

polygon

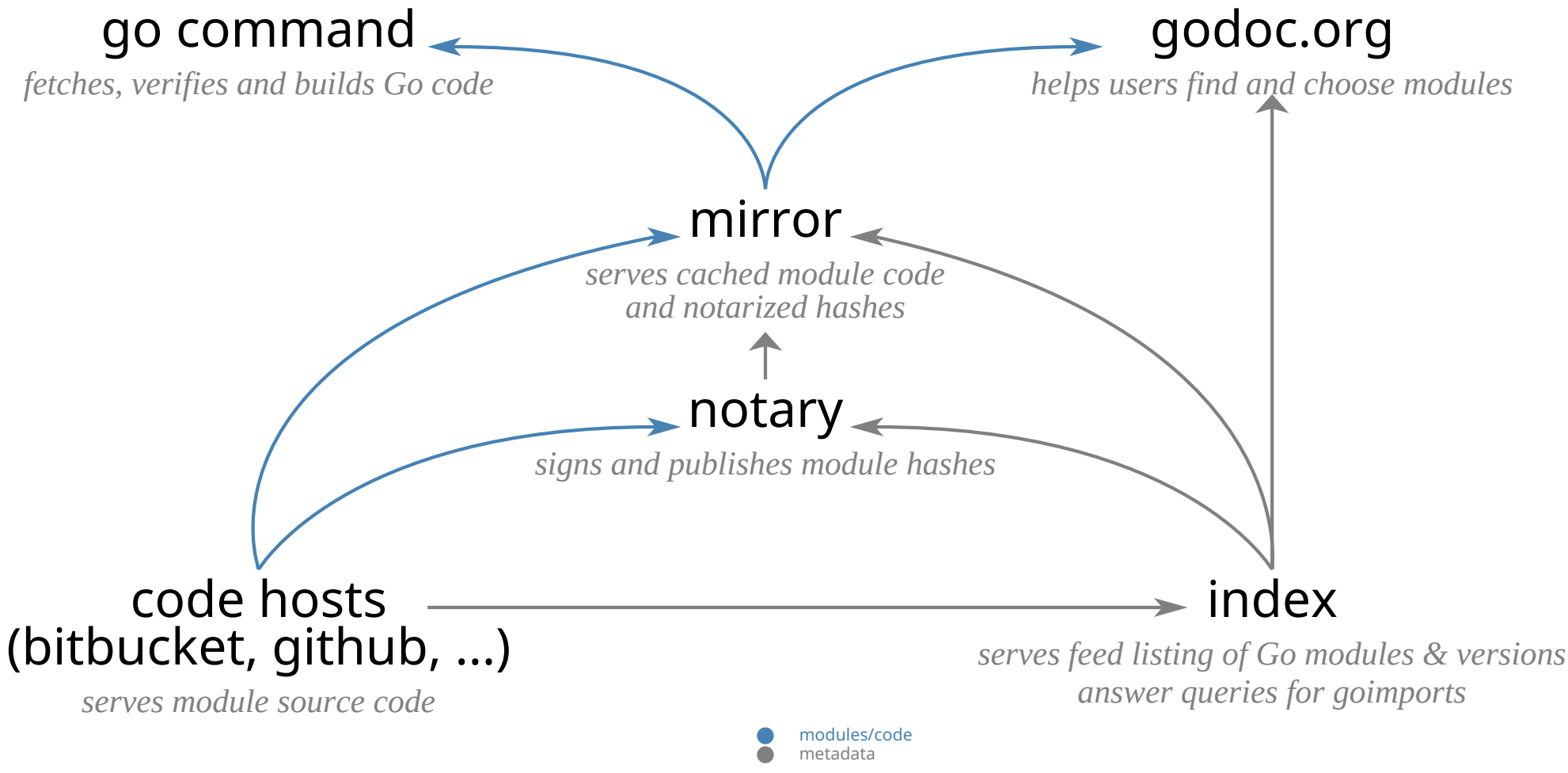
line

arc

curve

Examples

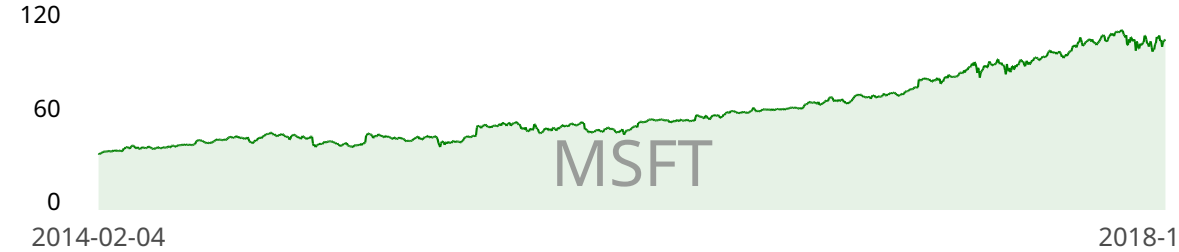
Go Module Information Flows



Pichai

+38.19%

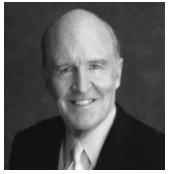
Nadella



+66.79%

Cook

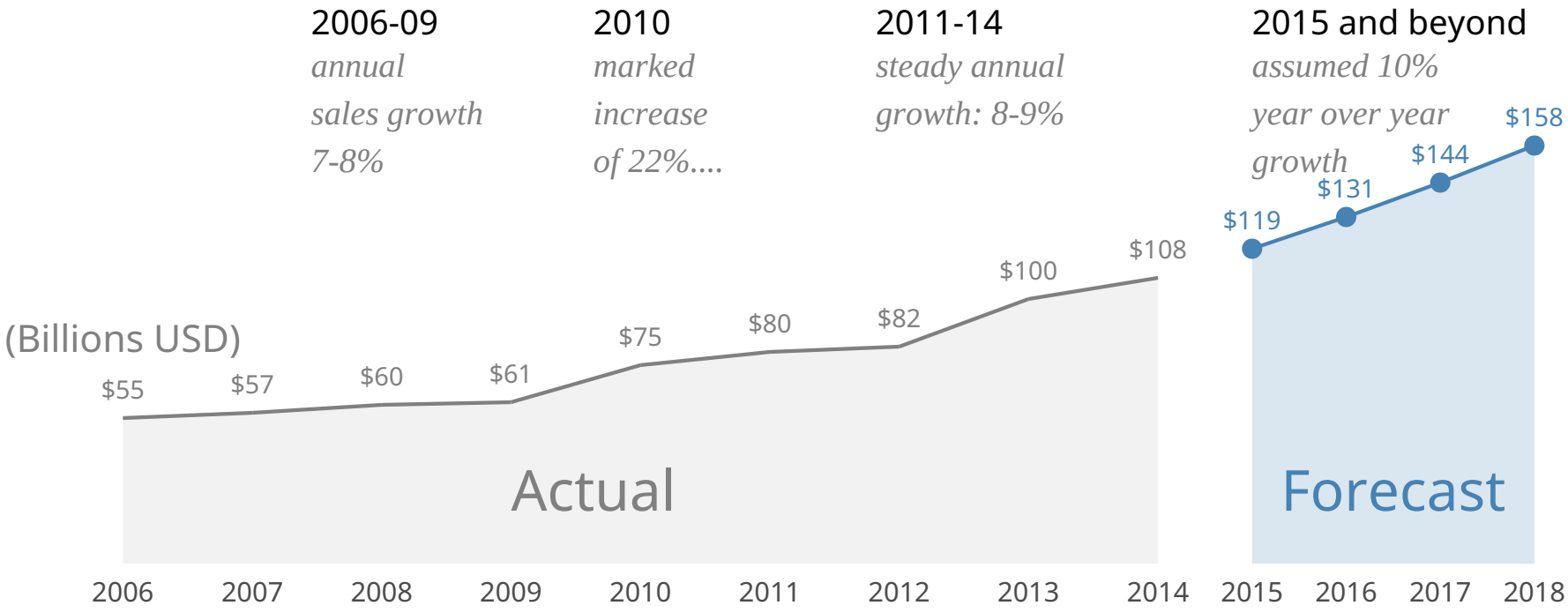
+68.56%



Welch

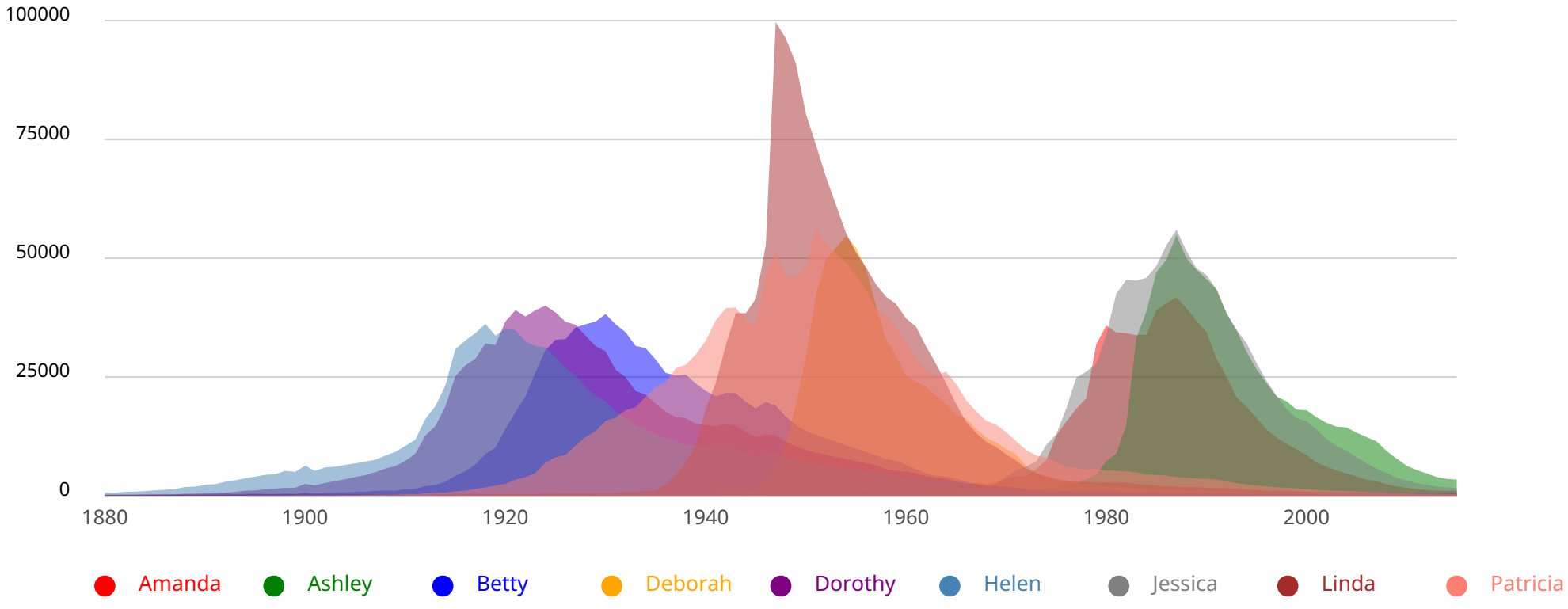
+96.56%

Sales over time



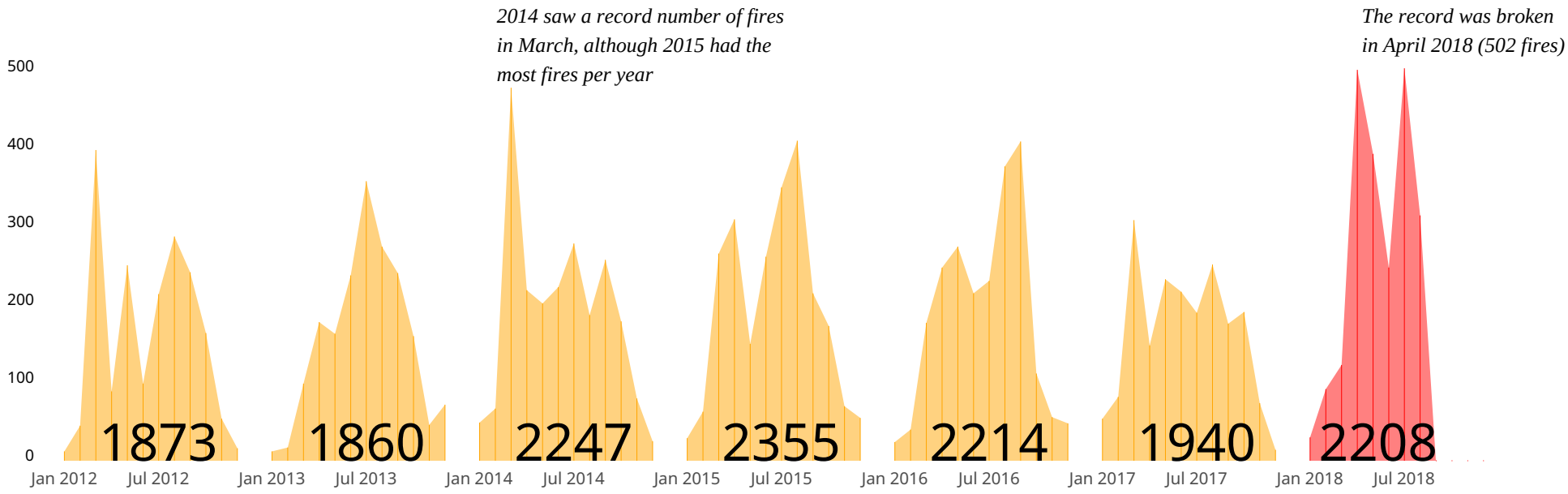
Storytelling with data, pg. 154

Evolution of Baby Names in the US: 1880-2015



Evolution of Baby Names in the US: 1880-2015

German Wildfires 2012-2018



Chartable blog, Weekly Chart, September 6, 2018

go get it

deck	github.com/ajstarks/deck
decksh	github.com/ajstarks/deck/cmd/decksh
pdfdeck	github.com/ajstarks/deck/cmd/pdfdeck
dchart	github.com/ajstarks/deck/cmd/dchart
deck fonts	github.com/ajstarks/deckfonts