# decksh

## a little language for decks

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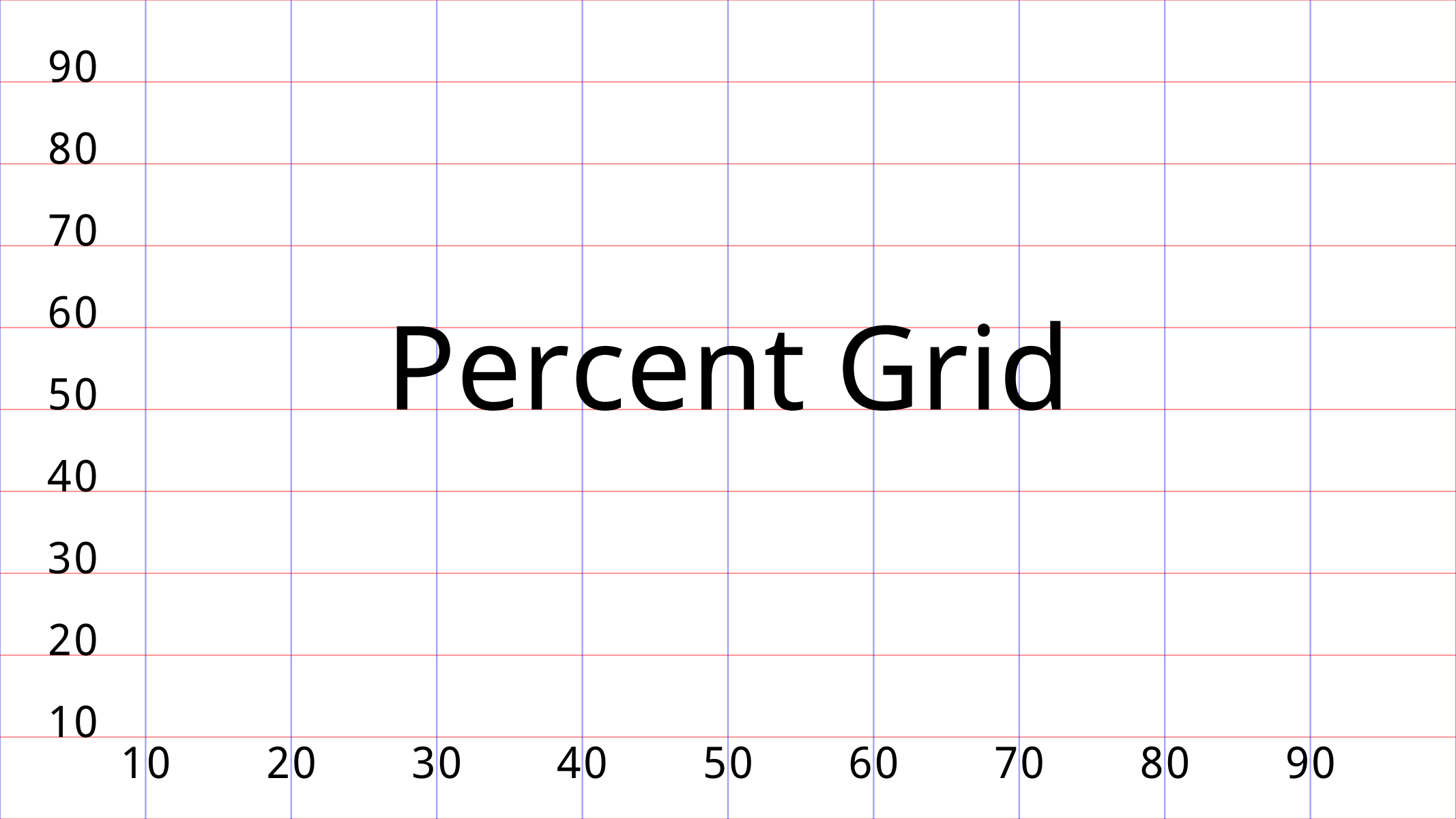
*When you say “language,” most programmers think of the big ones, like FORTRAN or COBOL or Pascal. In fact, a language is any mechanism to express intent, and the input to many programs can be viewed profitably as statements in a language. This column is about those “little languages.”*

Jon Bentley, ACM Programming Pearls, Little Languages, 1986

# Deck

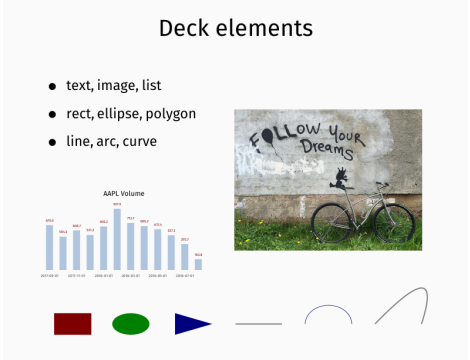
a Go package for presentations


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

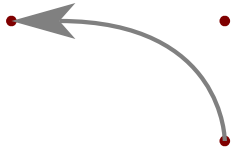
...

## uarrow

...

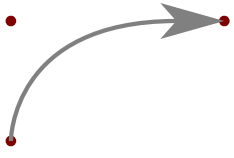
## darrow

...



## lcarrow

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



## rcarrow

...

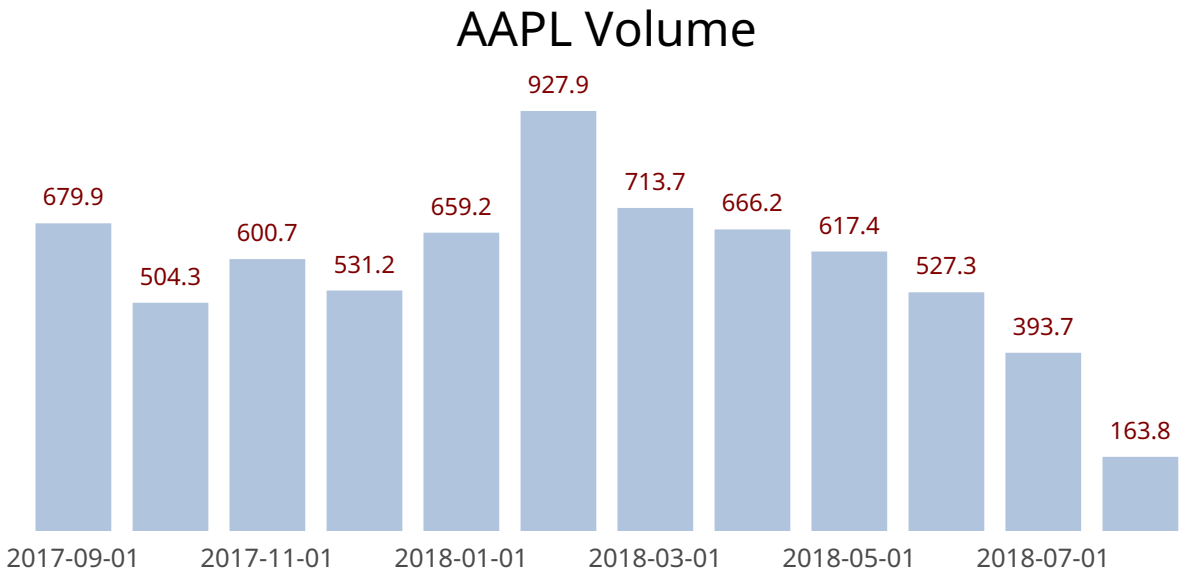
## ucarrow

...

## dcarrow

...

# *Charts*



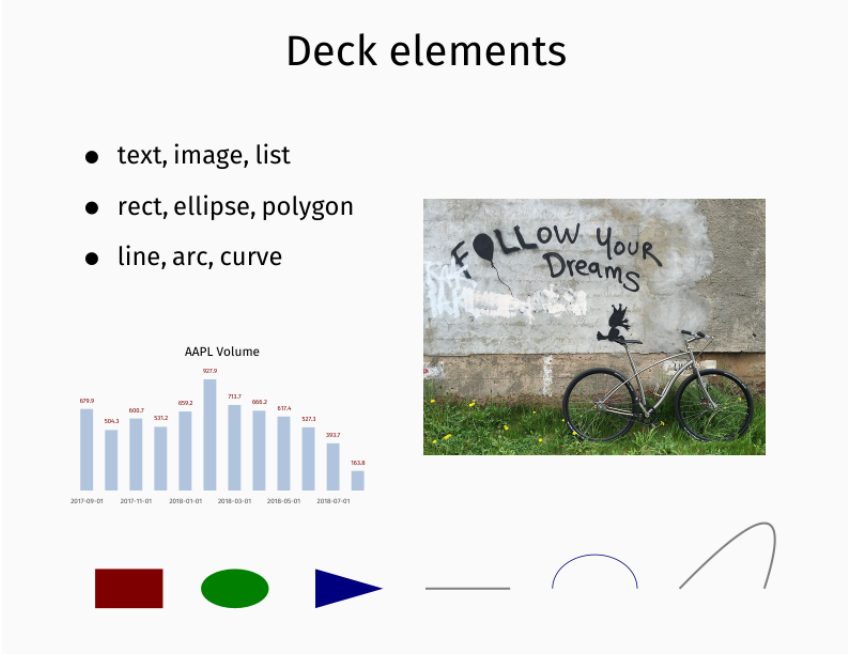

`dchart`

*[args]*


`legend`

*x y size [font] [color]*

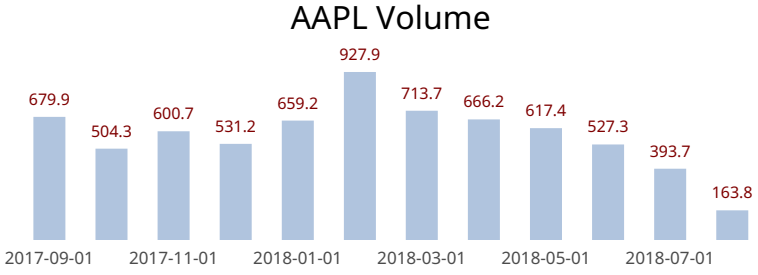
```
deck
    slide "rgb(250,250,250)" "black"
        ctext   "Deck elements" 50 90 5
        image   "follow.jpg"    70 50 640 480 50
        blist   10 75 3
            li "text, image, list"
            li "rect, ellipse, polygon"
            li "line, arc, curve"
        elist

        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
```




# decksh example.dsh | pdf

# Deck elements

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





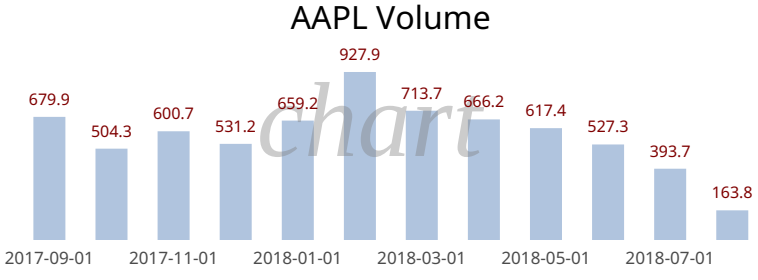
text

# Deck elements

list

image

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




chart


*rect*

*ellipse*

*polygon*

*line*

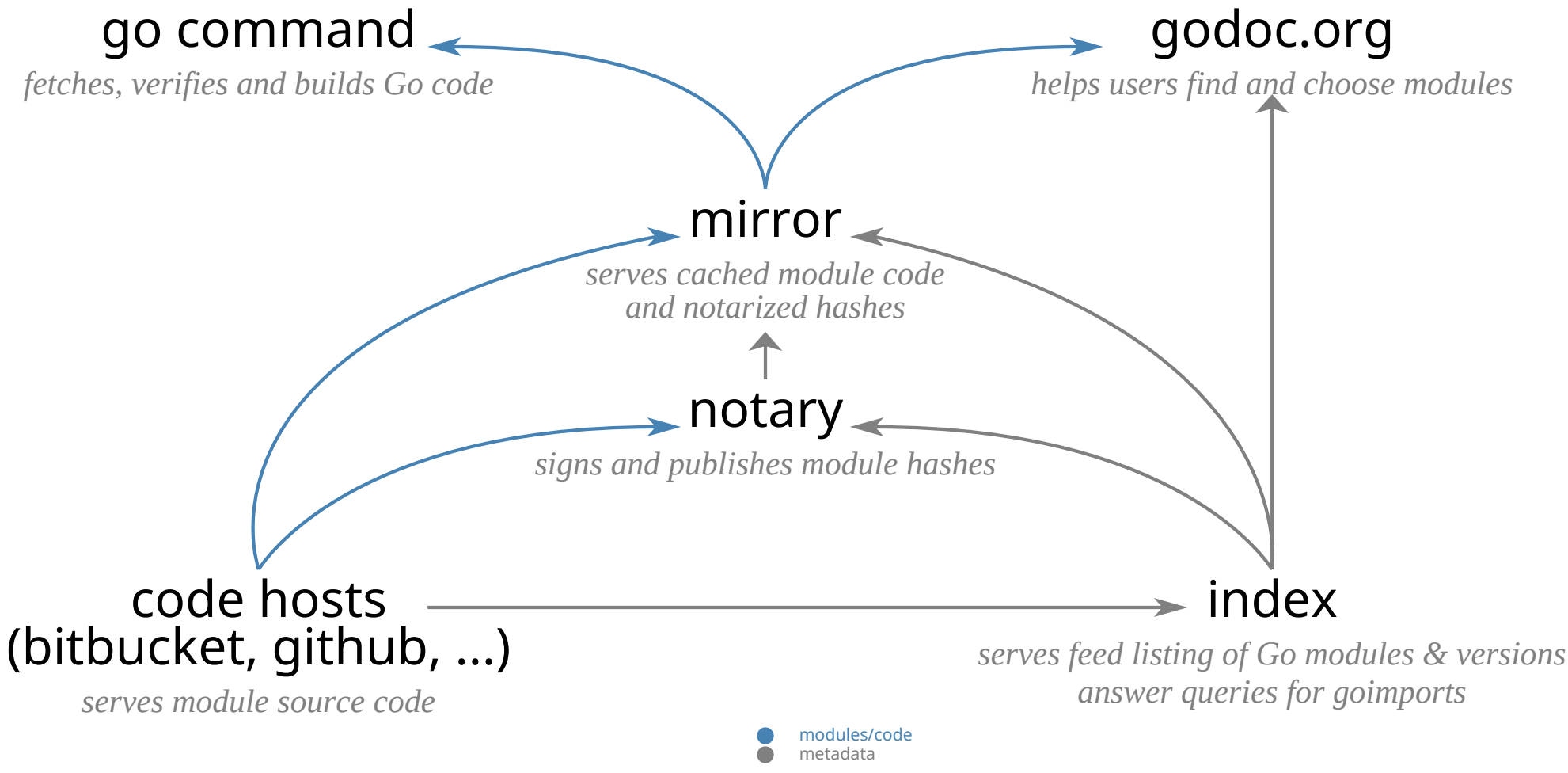


*arc*

*curve*

# Examples

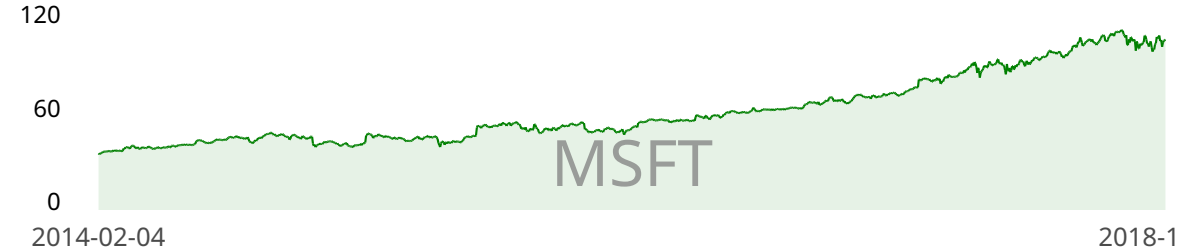
# Go Module Information Flows



Pichai


+38.19%

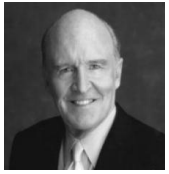
Nadella




+66.79%

Cook

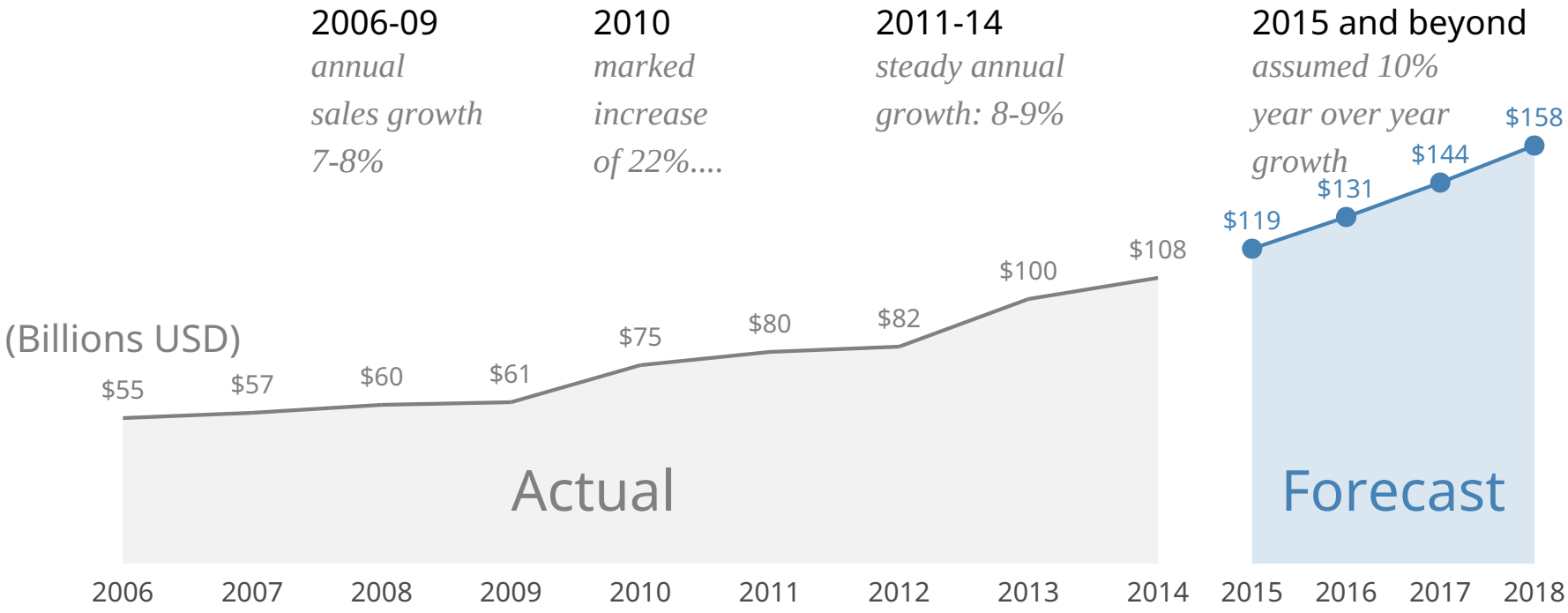

+68.56%



Welch

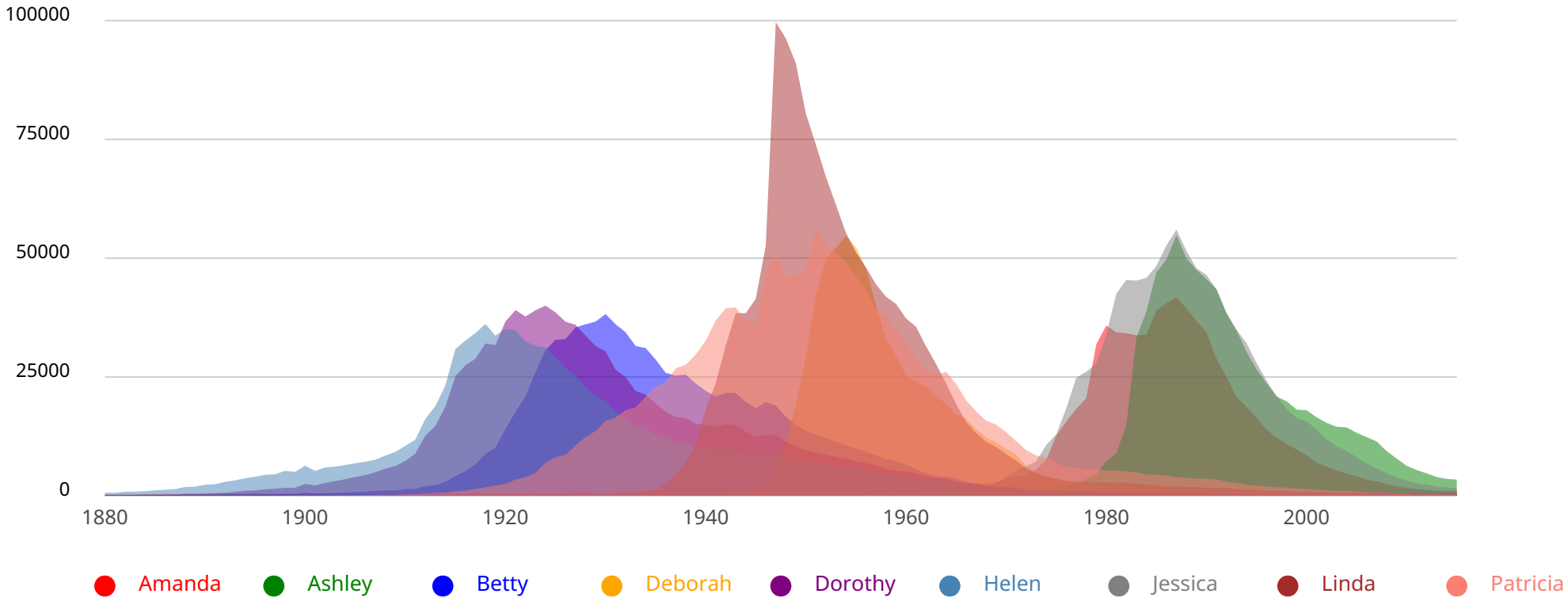

+96.56%

# Sales over time



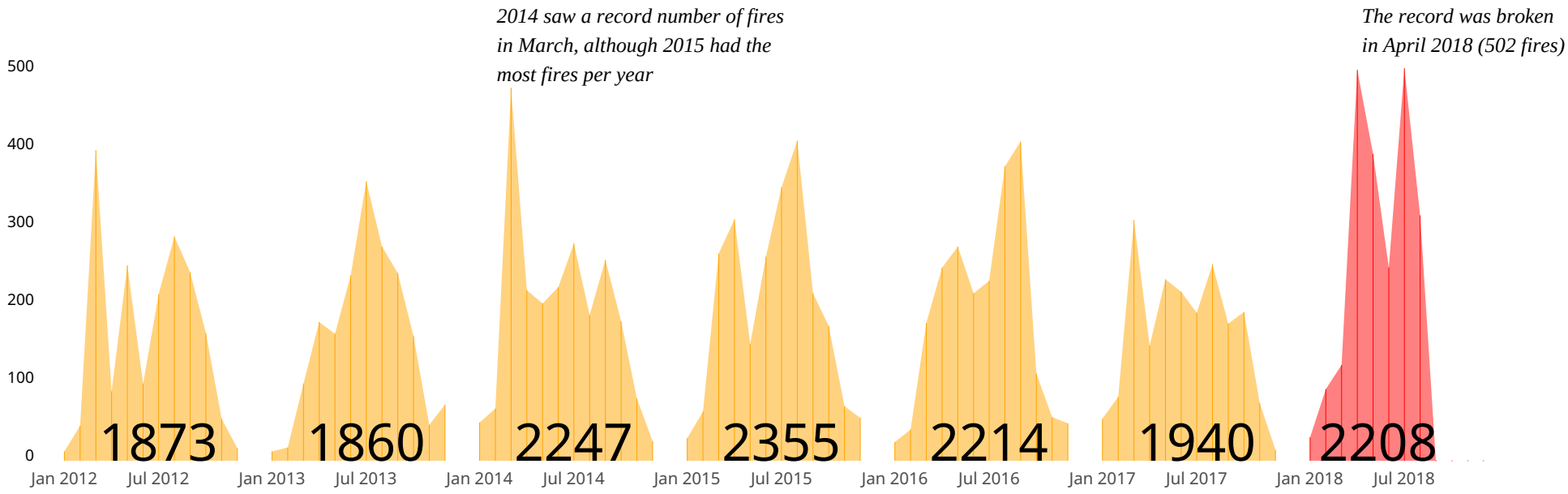

*Storytelling with data, pg. 154*

# 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 |