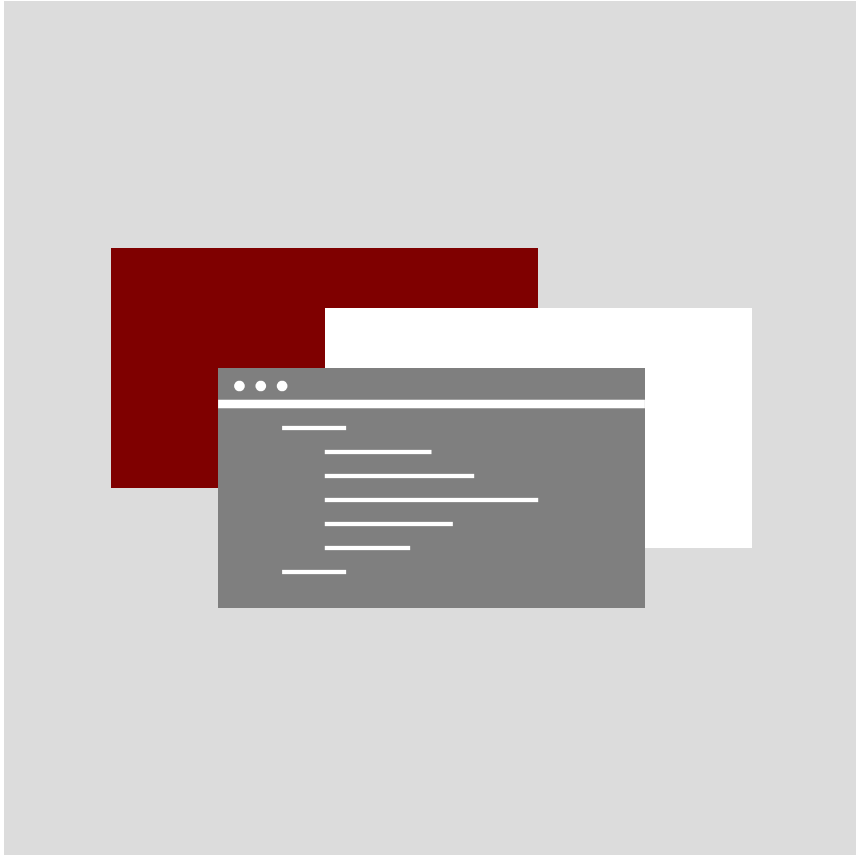
decksh

a little language for decks



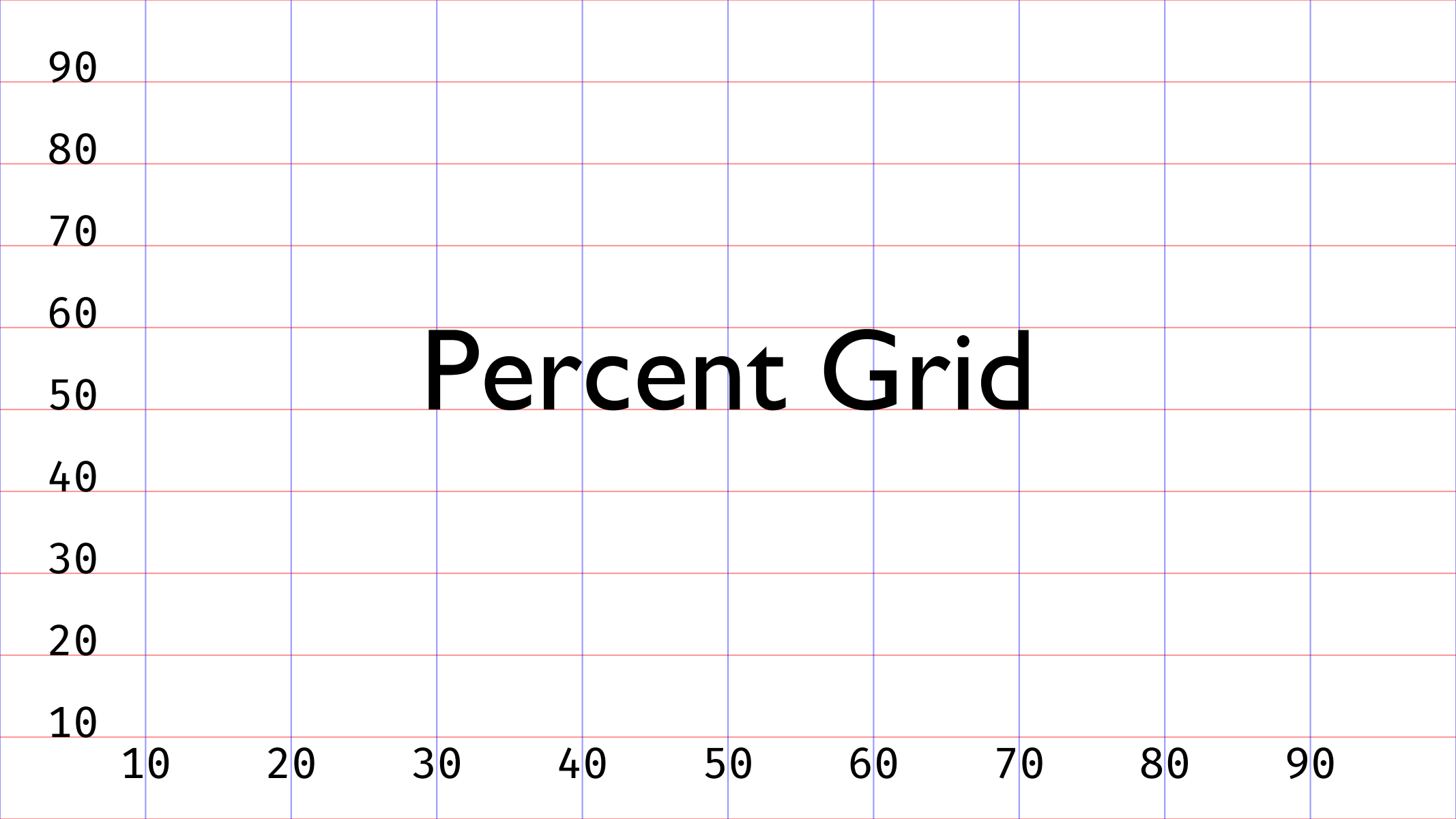
Anthony Starks
@ajstarks

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, Little Languages, Communications of the ACM, August 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 →

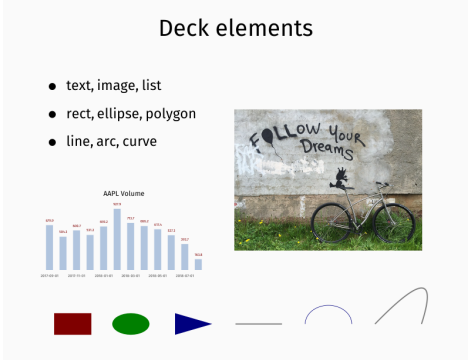
SVG

PDF

PNG

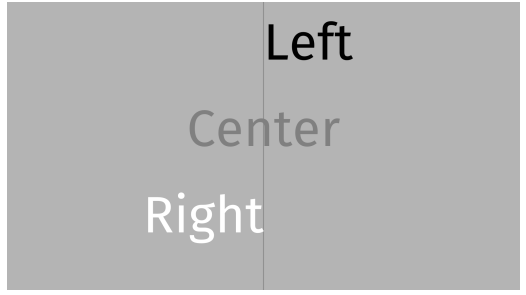
```
deck
    slide "rgb(250,250,250)" "black"
        ctext   "Deck elements" 50 90 5
        image   "follow.jpg"    70 50 640 480 50
        blist   10 75 3
            li "text, image, list"
            li "rect, ellipse, polygon"
            li "line, arc, curve"
        elist

        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
```

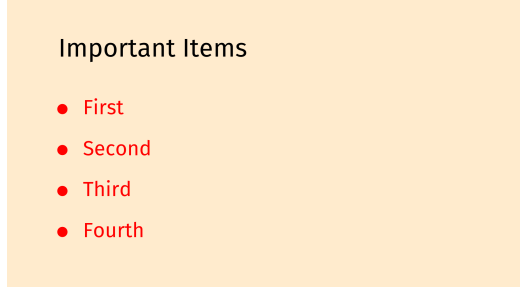
```
<deck>
<slide bg="rgb(250,250,250)" fg="black">
<text align="c" xp="50" yp="90" sp="5">Deck elements</text>
<image name="follow.jpg" xp="70" yp="50" width="640" height="480" scale="50" />
<list type="bullet" xp="10" yp="75" sp="3">
<li>text, image, list</li>
<li>rect, ellipse, polygon</li>
<li>line, 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
```

```
deck

    // text alignment
    slide "rgb(180,180,180)"
        text  "Left"   50 80 10 "sans" "black"
        ctext "Center" 50 50 10 "sans" "gray"
        etext "Right"  50 20 10 "sans" "white"
        vline 50 0 100 0.2 "black" 20
    eslide

    // list
    slide "blanchedalmond" "black"
        text "Important Items" 10 80 5
        blist 10 60 4 "sans" "red"
            li "First"
            li "Second"
            li "Third"
            li "Fourth"
        elist
    eslide

    // picture with text annotation
    slide
        quote="Tony Stark was able to build this in a cave. With a box of scraps!"
        image "cave.jpg" 50 50 1920 1080 100 "https://youtu.be/MtntTvuv8Aw"
        rect 70 60 40 40 "black" 40
        textblock quote 45 70 45 5 "sans" "white"
    eslide

edeck
```





Running decksh

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

```
arrow
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]

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]

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]

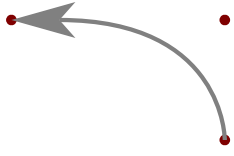
vline

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

Arrows

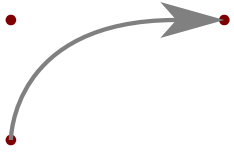
arrow

x1 y1 x2 y2 [linewidth] [aw] [ah] [color] [op]



lcarrow

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



rcarrow

...

ucarrow

...

dcarrow

...

Images

`image`

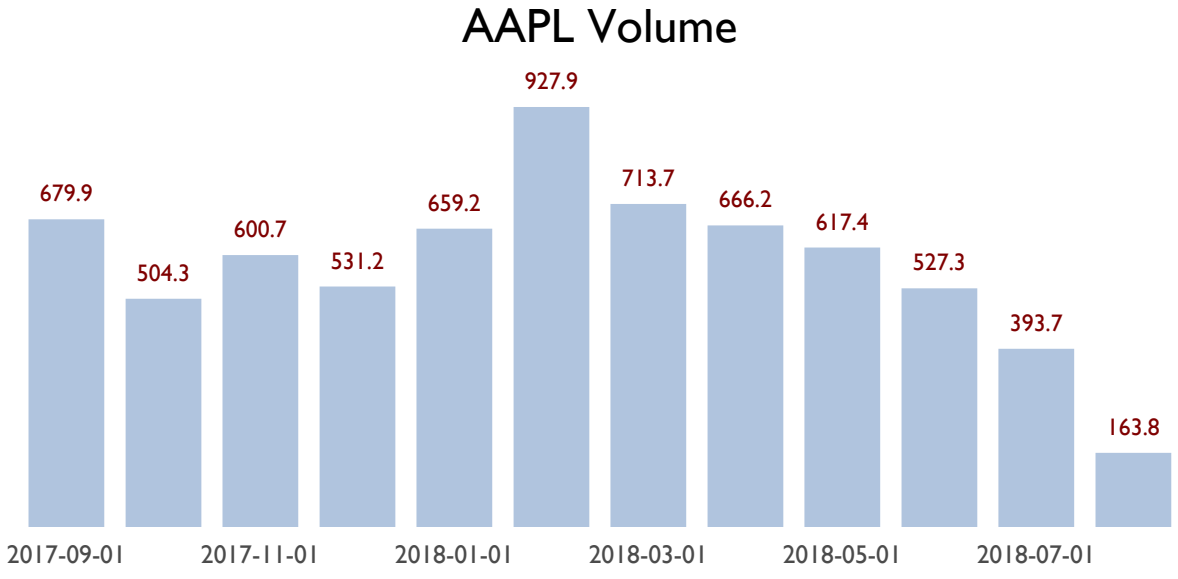
"file" x y w h [scale] [link]

Up in the clouds

`cimage`

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

Charts



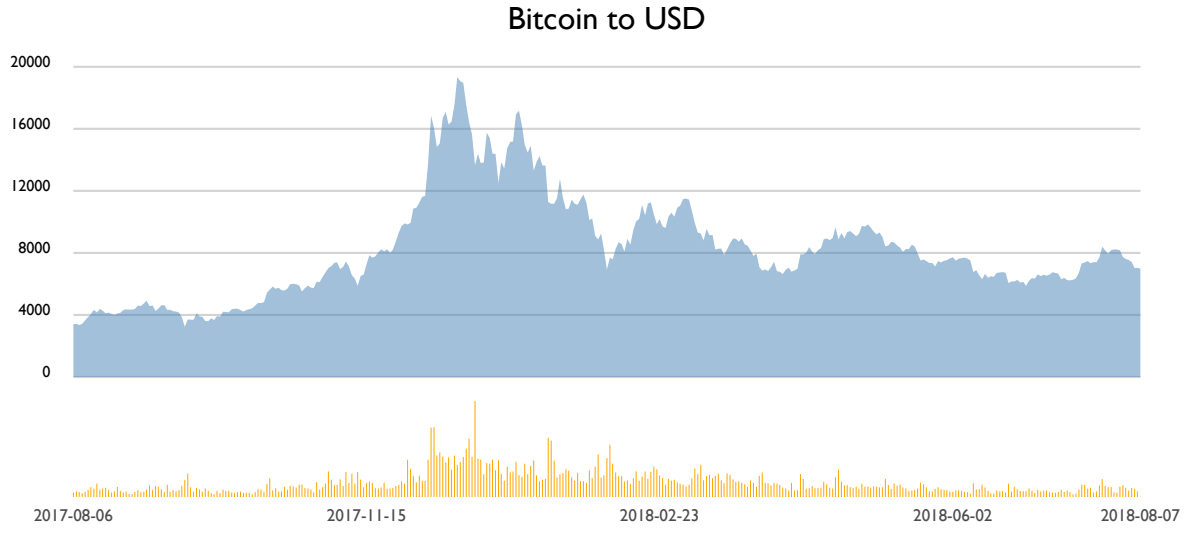
`dchart`

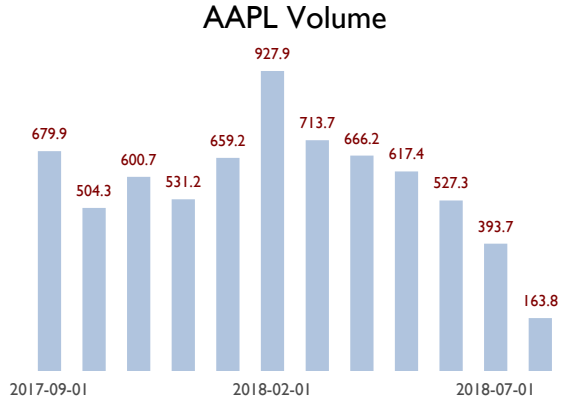
[args]

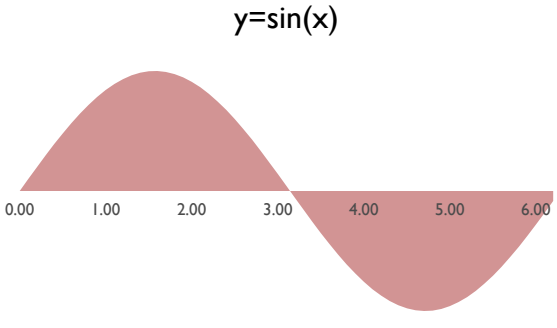
`legend`

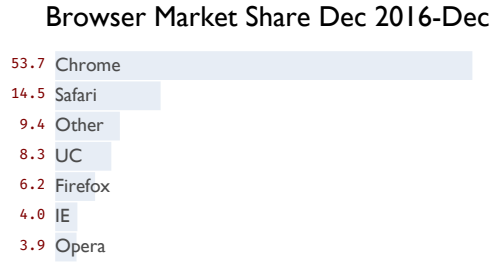
x y size [font] [color]

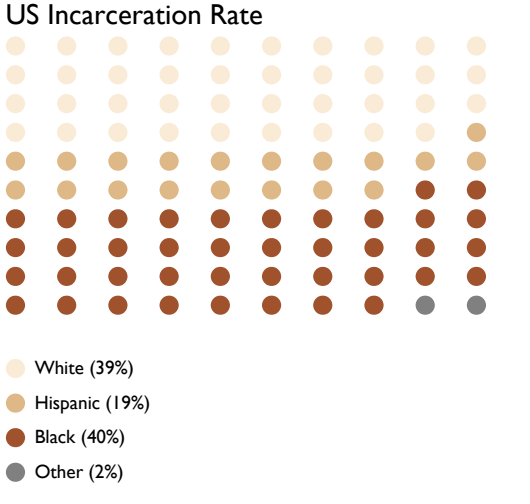
dchart: charts for deck



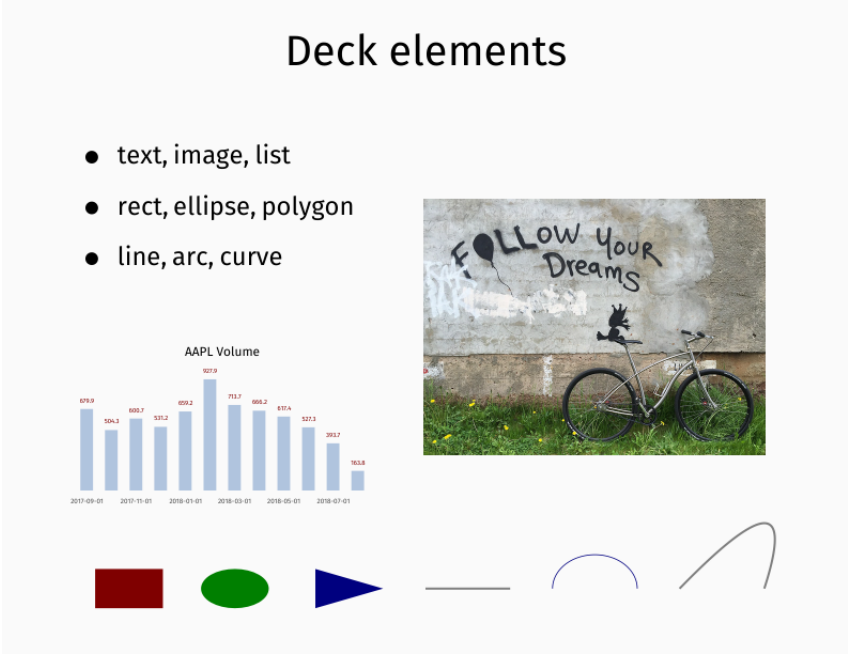








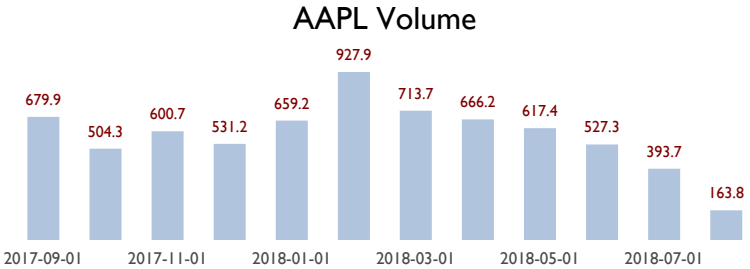
```
deck
    slide "rgb(250,250,250)" "black"
        ctext   "Deck elements" 50 90 5
        image   "follow.jpg"    70 50 640 480 50
        blist   10 75 3
            li "text, image, list"
            li "rect, ellipse, polygon"
            li "line, arc, curve"
        elist

        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



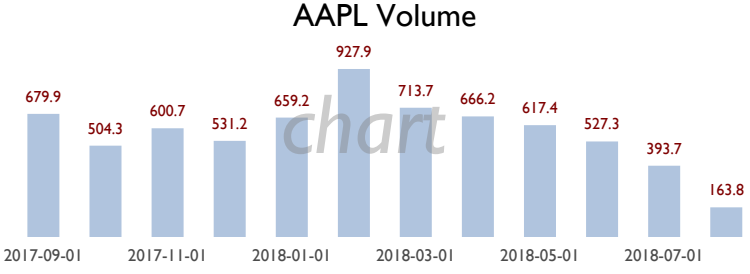
text

Deck elements

list

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

image



Examples

Anthony J. Starks

Art + Code

+1 908.548.3403

ajstarks@gmail.com

@ajstarks

github.com/ajstarks

speakerdeck.com/ajstarks

```
deck
    mx=50         // midpoint
    tx=30         // text left
    ix=20         // image left
    ts=10         // base text size
    ss=ts*0.85    // sub-head text size
    cs=ts*0.55    // contact info text size
    ly=58         // line y

    slide "white" "rgb(100,100,100)"
        image "starx.png"               mx 87 512 512 7.5
        ctext "Anthony J. Starks"       mx 70 ts "sans" "black"
        ctext "Art + Code"              mx 62 ss "sans" "maroon"
        line  ix ly 80 ly 0.3 "maroon"

        image "phone.png"               ix 50 1200 1200 1.2
        image "email.png"               ix 40 1200 1200 1.2
        image "twitter.png"             ix 30 1200 1200 1.2
        image "github.png"              ix 20 120 120 10
        image "sd.png"                  ix 10 512 512 2.5

        text "+1 908.548.3403"          tx 49 cs
        text "ajstarks@gmail.com"       tx 39 cs
        text "@ajstarks"                tx 29 cs
        text "github.com/ajstarks"      tx 19 cs
        text "speakerdeck.com/ajstarks" tx 9  cs
    eslide
edeck
```

Anthony J. Starks

Art + Code

+1 908.548.3403

ajstarks@gmail.com

@ajstarks

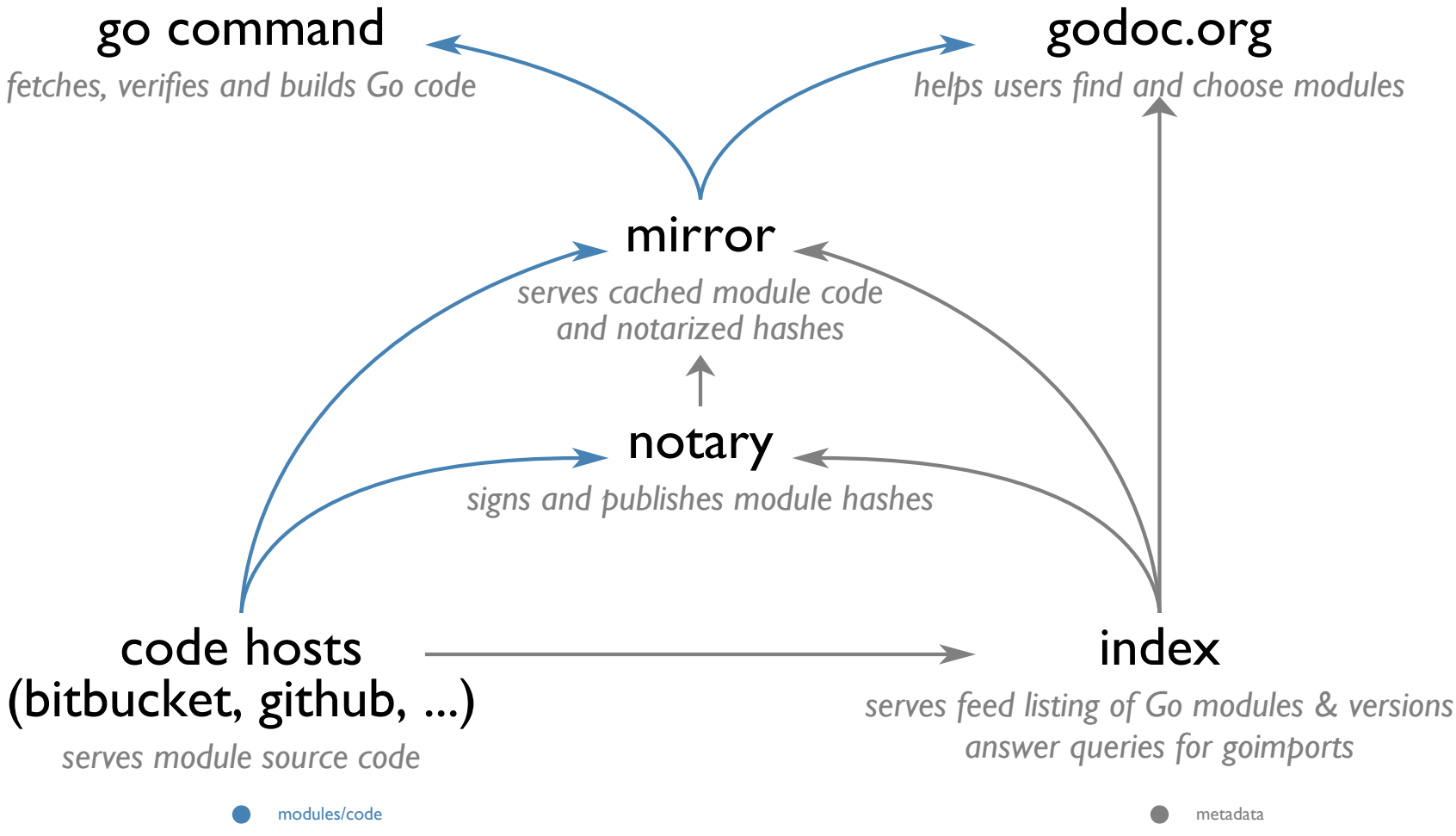
github.com/ajstarks

speakerdeck.com/ajstarks

```
deck
    mx=50          // midpoint
    tx=30          // text left
    ix=20          // image left
    ts=10          // base text size
    ss=ts*0.85     // sub-head text size
    cs=ts*0.55     // contact info text size
    ly=58          // line y

    slide "white" "rgb(100,100,100)"
        image "starx.png"                mx 87 512 512 7.5
        ctext "Anthony J. Starks"        mx 70 ts "sans" "black"
        ctext "Art + Code"               mx 62 ss "sans" "maroon"
        line  ix ly 80 ly 0.3 "maroon"

        image "phone.png"                ix 50 1200 1200 1.2
        image "email.png"                ix 40 1200 1200 1.2
        image "twitter.png"              ix 30 1200 1200 1.2
        image "github.png"               ix 20 120 120 10
        image "sd.png"                   ix 10 512 512 2.5

        text "+1 908.548.3403"           tx 49 cs
        text "ajstarks@gmail.com"        tx 39 cs
        text "@ajstarks"                 tx 29 cs
        text "github.com/ajstarks"       tx 19 cs
        text "speakerdeck.com/ajstarks" tx 9  cs
    eslide
edeck
```

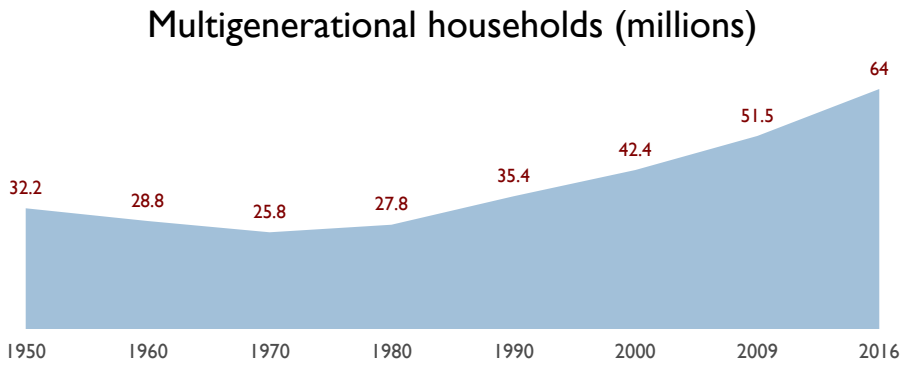
```
deck
    mx=25         // midpoint
    tx=62         // text left
    ix=57         // image left
    ts=6          // base text size
    ss=ts*0.85    // sub-head text size
    cs=ts*0.50    // contact info text size
    lx=50         // line x

    slide "white" "rgb(100,100,100)"
        image "starx.png"               mx 75 512 512 7.5
        ctext "Anthony J. Starks"       mx 35 ts "sans" "black"
        ctext "Art + Code"              mx 22 ss "sans" "maroon"
        line  lx 90 lx 10 0.3 "maroon"

        image "phone.png"               ix 80 1200 1200 1.2
        image "email.png"               ix 65 1200 1200 1.2
        image "twitter.png"             ix 50 1200 1200 1.2
        image "github.png"              ix 35 120 120 10
        image "sd.png"                  ix 20 512 512 2.5

        text "+1 908.548.3403"          tx 79 cs
        text "ajstarks@gmail.com"       tx 64 cs
        text "@ajstarks"                tx 49 cs
        text "github.com/ajstarks"      tx 34 cs
        text "speakerdeck.com/ajstarks" tx 19 cs
    eslide
edeck
```

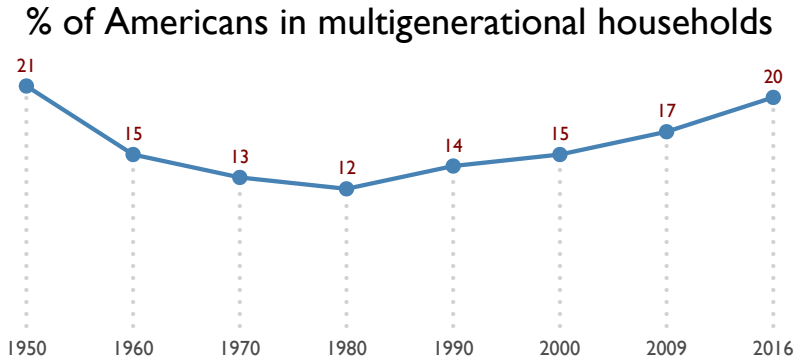
Go Module Information Flows

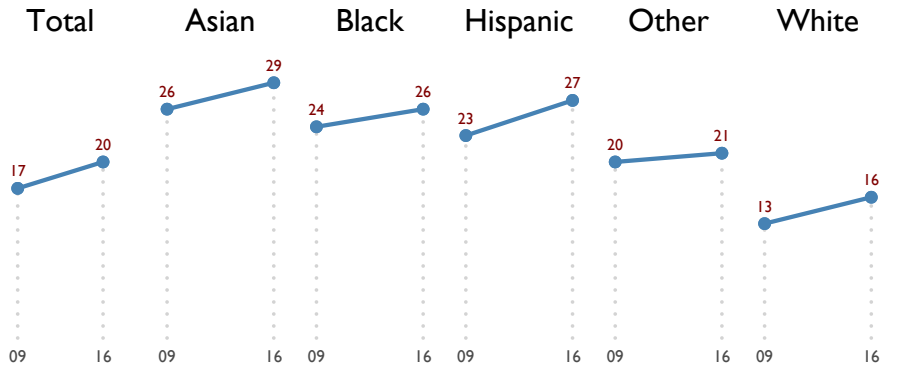


A record 64 million Americans live in multigenerational households

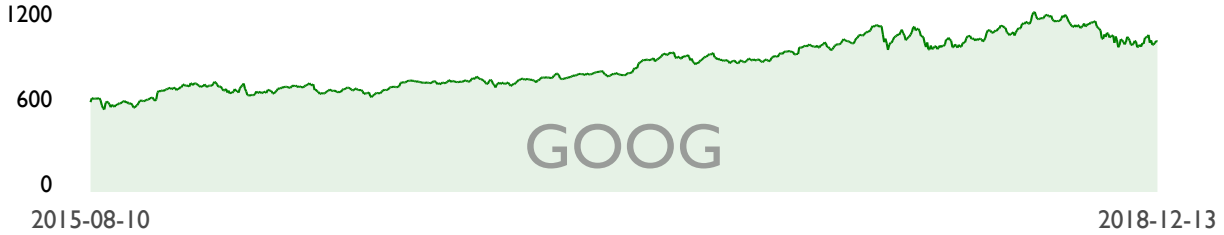
The number and share of Americans living in multi- generational family households have continued to rise, despite improvements in the U.S. economy since the Great Recession. In 2016, a record 64 million people, or 20% of the U.S.population, lived with multiple generations under one roof, according to a new Pew Research Center analysis of census data.







Pichai



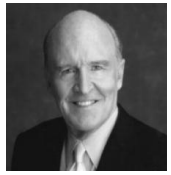
+38.19%

Nadella

+66.79%

Cook

+68.56%



Welch

+96.56%

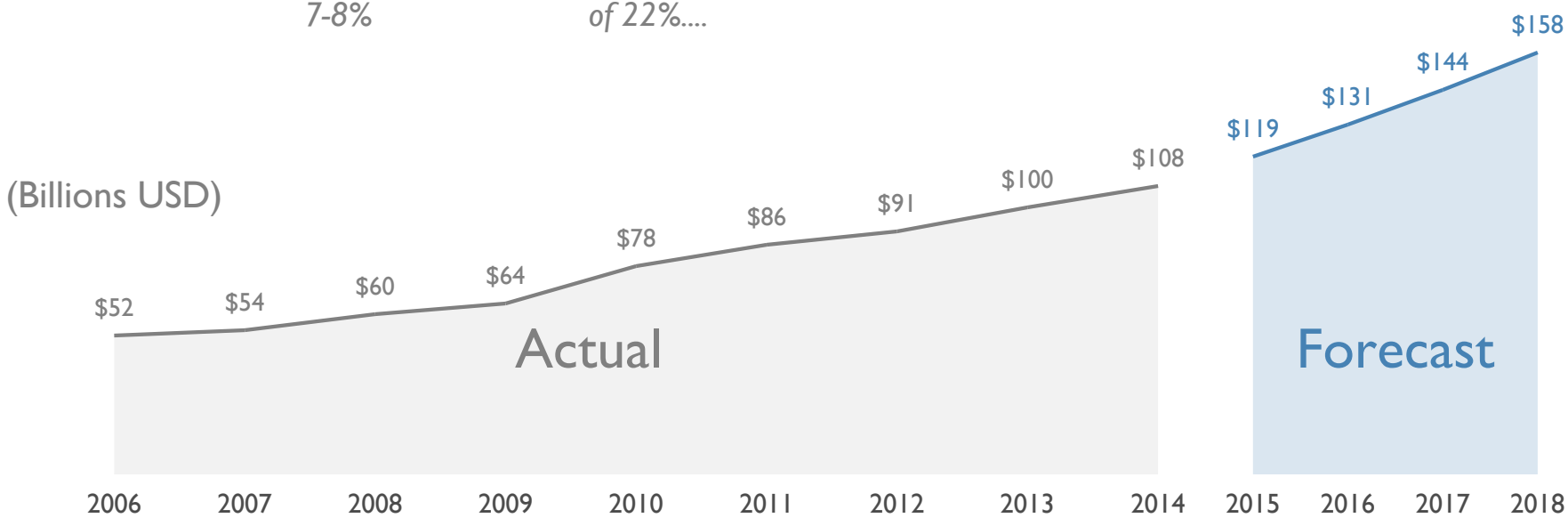
Sales over time

2006-09
annual sales growth 7-8%

2010
marked increase of 22%....

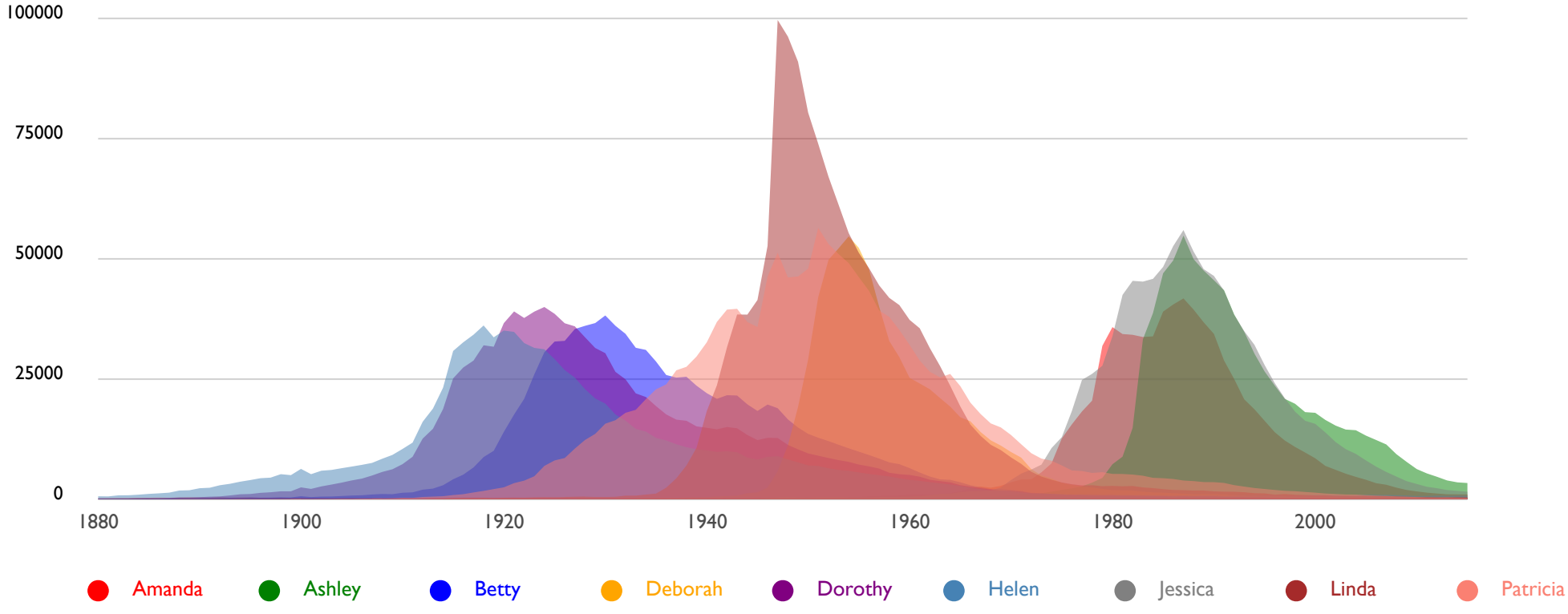
2011-14
steady annual growth: 8-9%

2015 and beyond
assumed 10% year over year growth

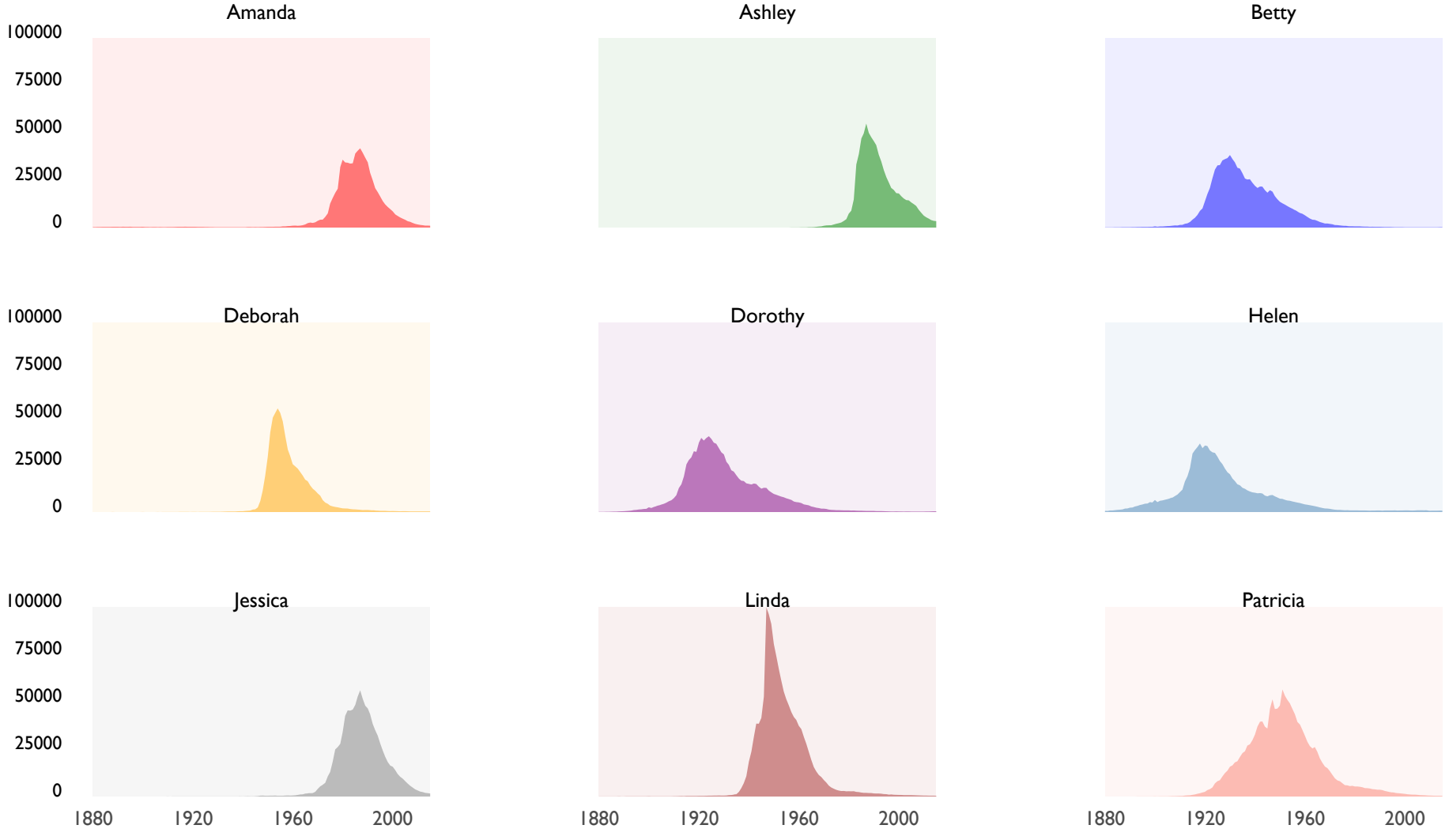


Storytelling with data, pg. 154

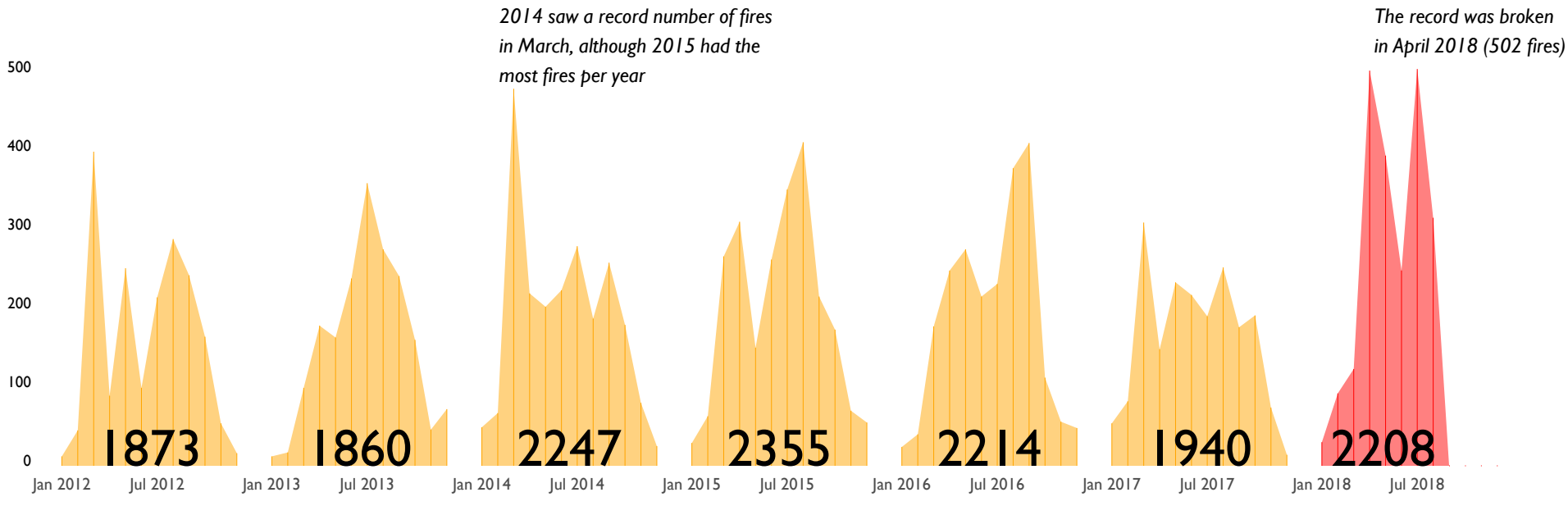
Evolution of Baby Names in the US: 1880-2015



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