decksh

a little language for decks

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@ajstarks

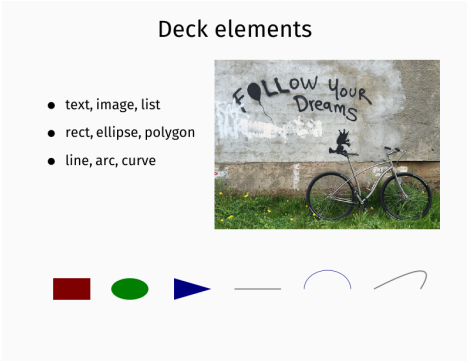
When you say “language,” most programmers think of the big ones, like FORTRAN or COBOL or Pascal. In fact, a language is any mechanism to express intent, and the input to many programs can be viewed profitably as statements in a language. This column is about those “little languages.”

Jon Bentley, ACM Programming Pearls, Little Languages, 1986

decksh → deck markup → SVG
PDF
PNG

```
deck
    slide "rgb(250,250,250)" "black"
        ctext   "Deck elements" 50 90 5
        image   "follow.jpg"    70 60 640 480 60
        blist   10 70 3
            li "text, image, list"
            li "rect, ellipse, polygon"
            li "line, arc, curve"
        elist
        rect    15 20 8 6              "rgb(127,0,0)"
        ellipse 27.5 20 8 6            "rgb(0,127,0)"
        line    50 20 60 20
        curve   80 20 95 30 90 20
        arc     70 20 10 8 0 180 0.1  "rgb(0,0,127)"
        polygon "37 37 45" "17 23 20" "rgb(0,0,127)"
    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="60" width="640" height="480" scale="60"/>
<list type="bullet" xp="10" yp="70" sp="3" >
<li>text, image, list</li>
<li>rect, ellipse, polygon</li>
<li>line, arc, curve</li>
</list>
<rect xp="15" yp="20" wp="8" hp="6" color="rgb(127,0,0)"/>
<ellipse xp="27.5" yp="20" wp="8" hp="6" color="rgb(0,127,0)"/>
<line xp1="50" yp1="20" xp2="60" yp2="20"/>
<curve xp1="80" yp1="20" xp2="95" yp2="30" xp3="90" yp3="20"/>
<arc xp="70" yp="20" wp="10" hp="8" a1="0" a2="180" sp="0.1" color="rgb(0,0,127)"/>
<polygon xc="37 37 45" yc="17 23 20" color="rgb(0,0,127)"/>
</slide>
</deck>
```



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
```

keyword args [optionals]

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

This is the contents
of a file

```
package main

import "fmt"

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

`textblock`

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

`textfile`

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

`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

Up in the clouds

`image`

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

`cimage`

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

Lists

One

Two

Three

Four

Five

`list`

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

- One
- Two
- Three
- Four
- Five

`blist`

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

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

`nlist`

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

Arrows

`larrow`

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

`rarrow`

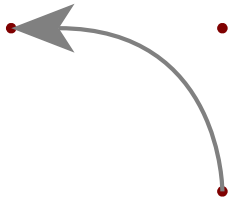
...

`uarrow`

...

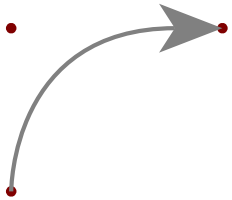
`darrow`

...



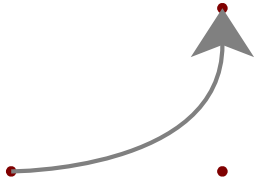
`lcarrow`

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



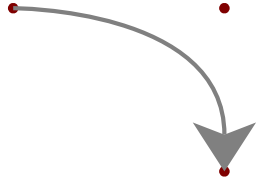
`rcarrow`

...



`ucarrow`

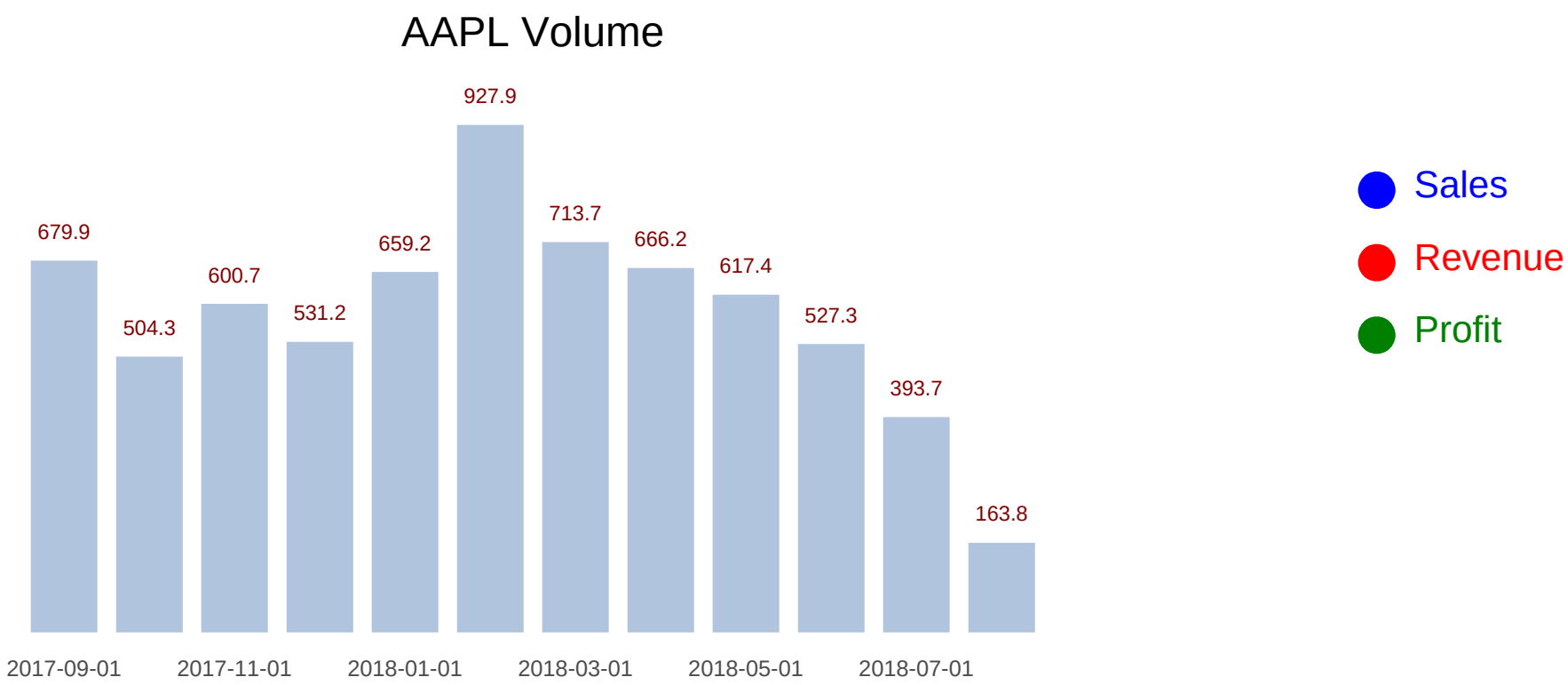
...



`dcarrow`

...

Charts



dchart

[args]

legend

x y size [font] [color]

```
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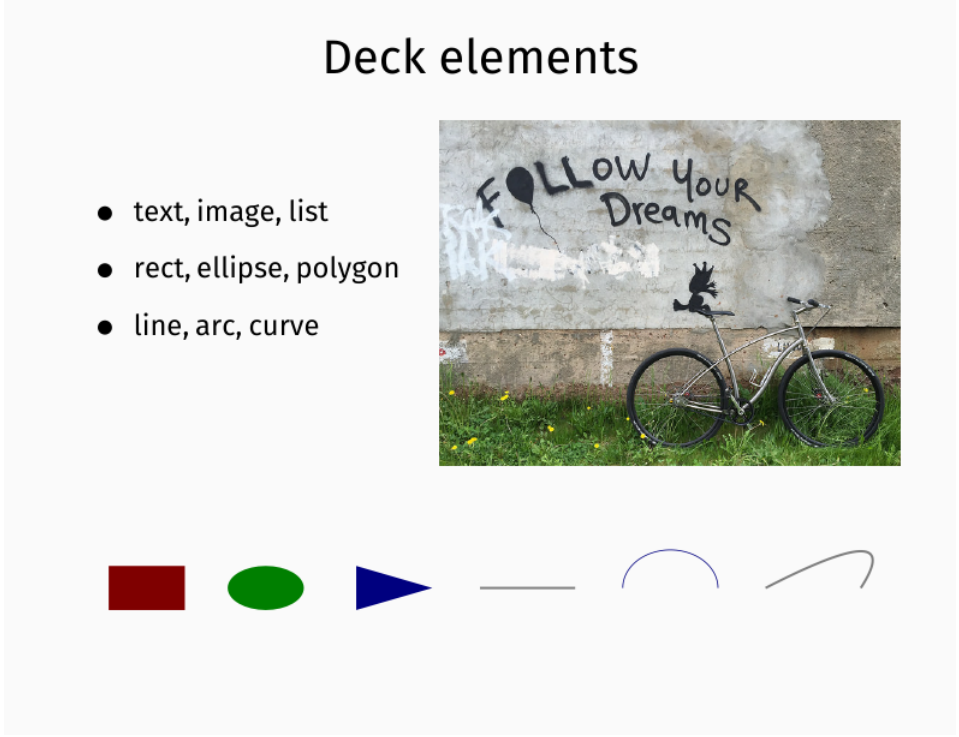
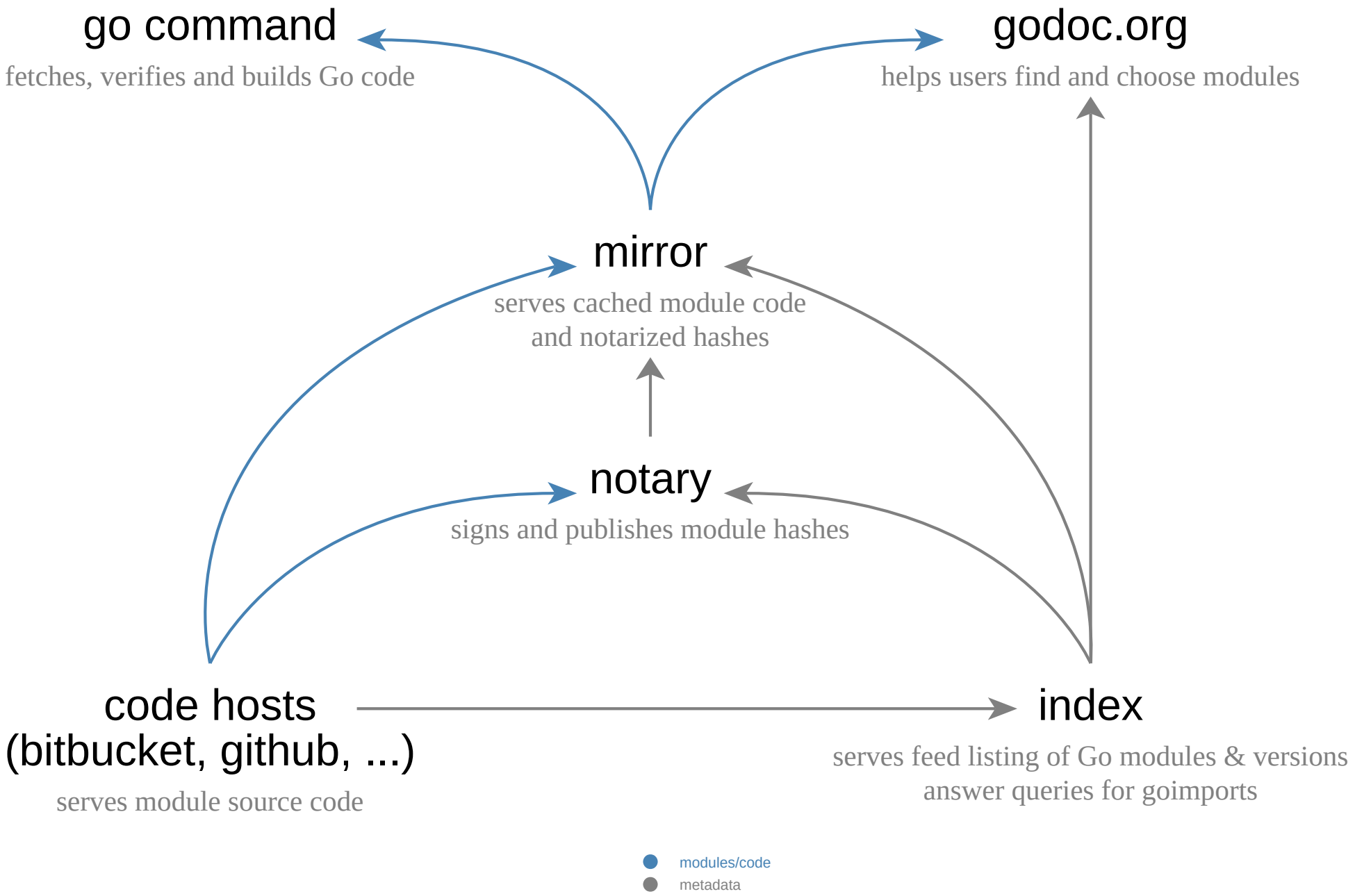


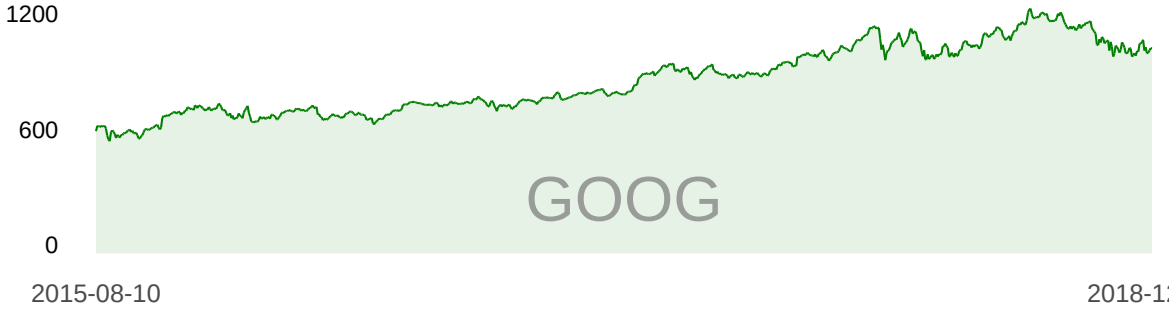

```
decksh example.dsh | pdf
```

Examples

Go Module Information Flows



Pichai

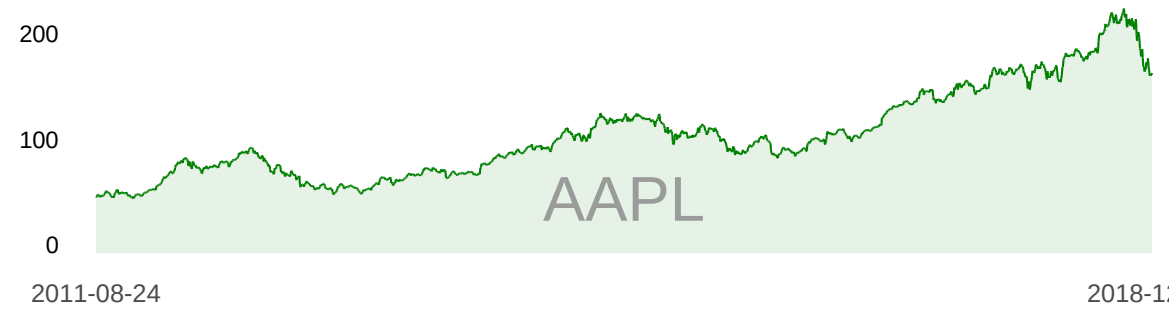


+38.19%

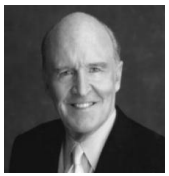
Nadella

+66.79%

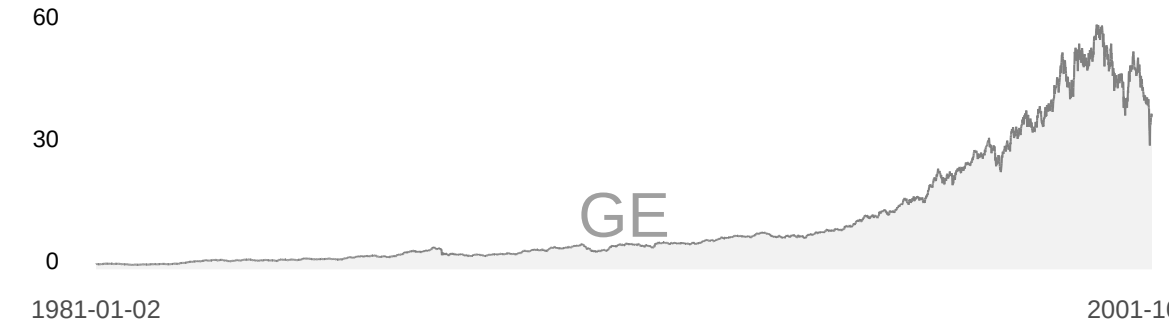
Cook



+68.56%



Welch



+96.56%

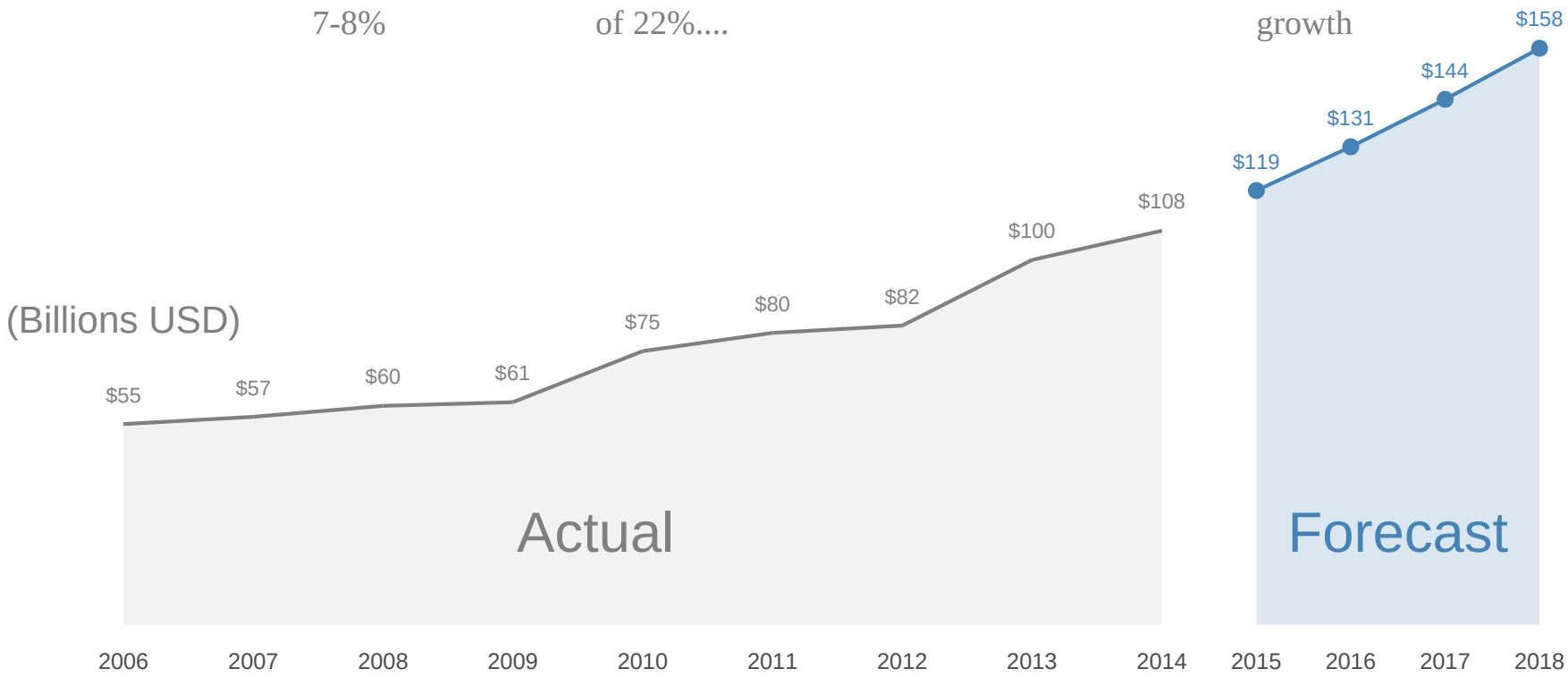
Sales over time

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



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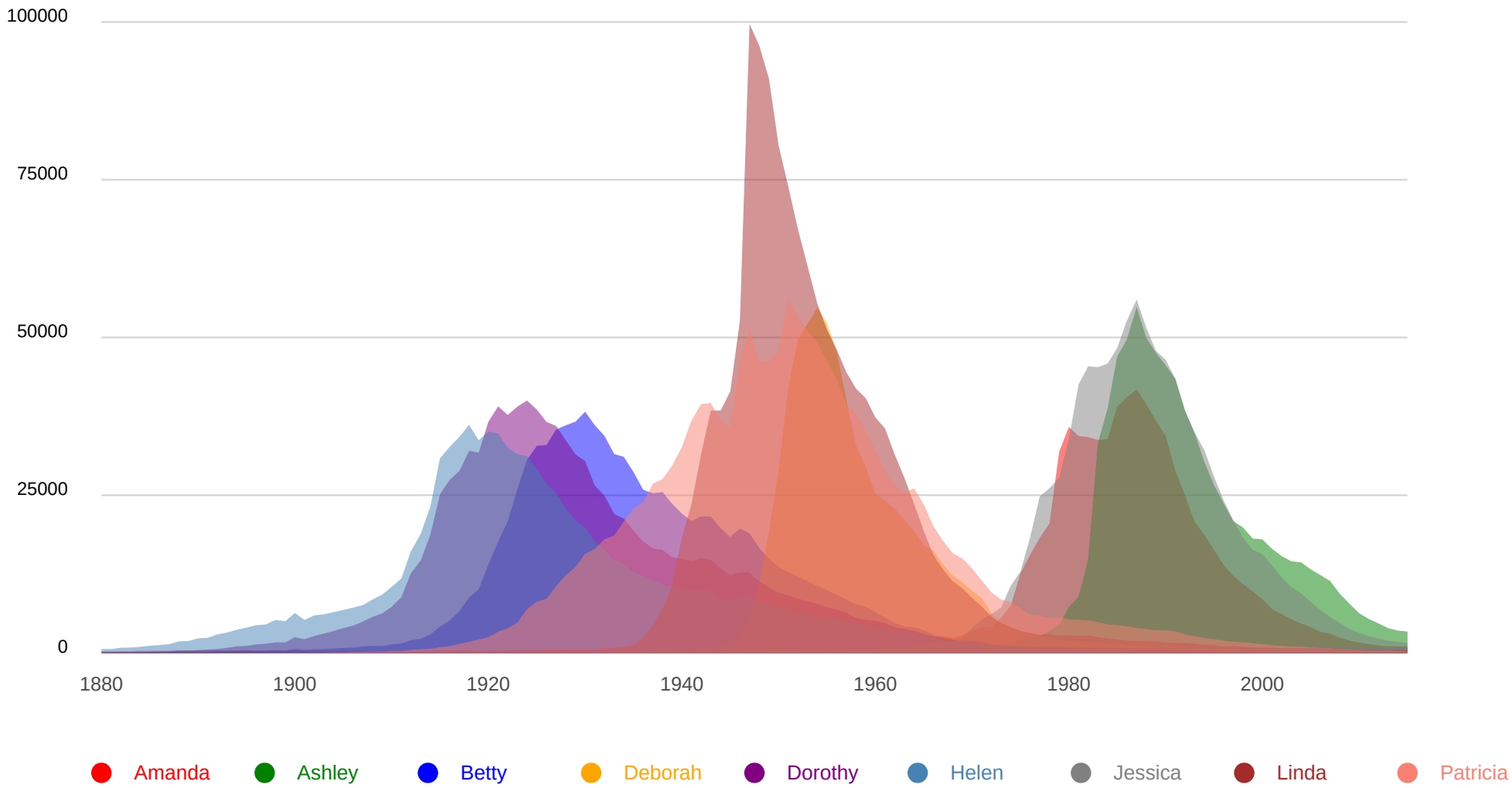
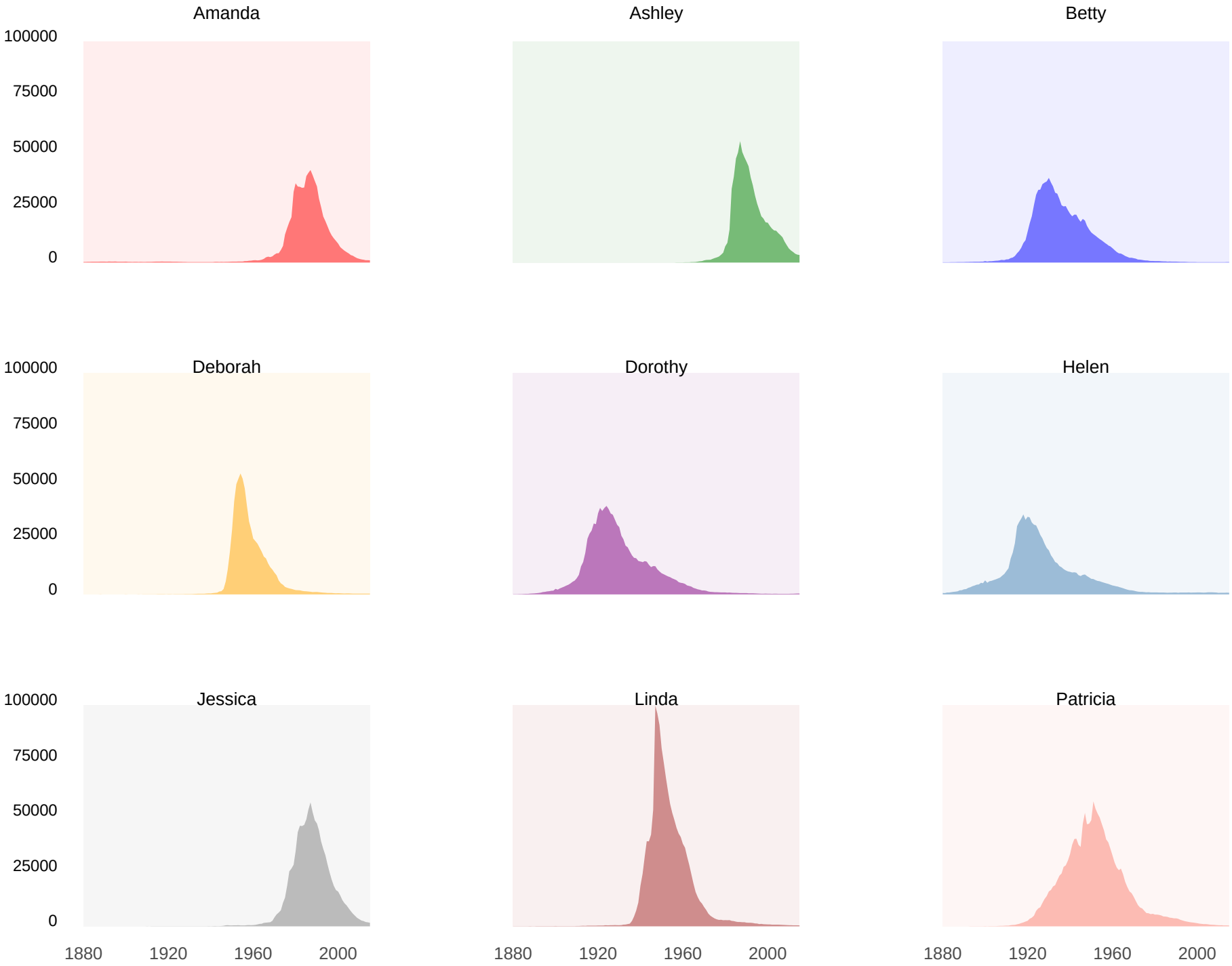
Evolution of Baby Names in the US: 1880-2015



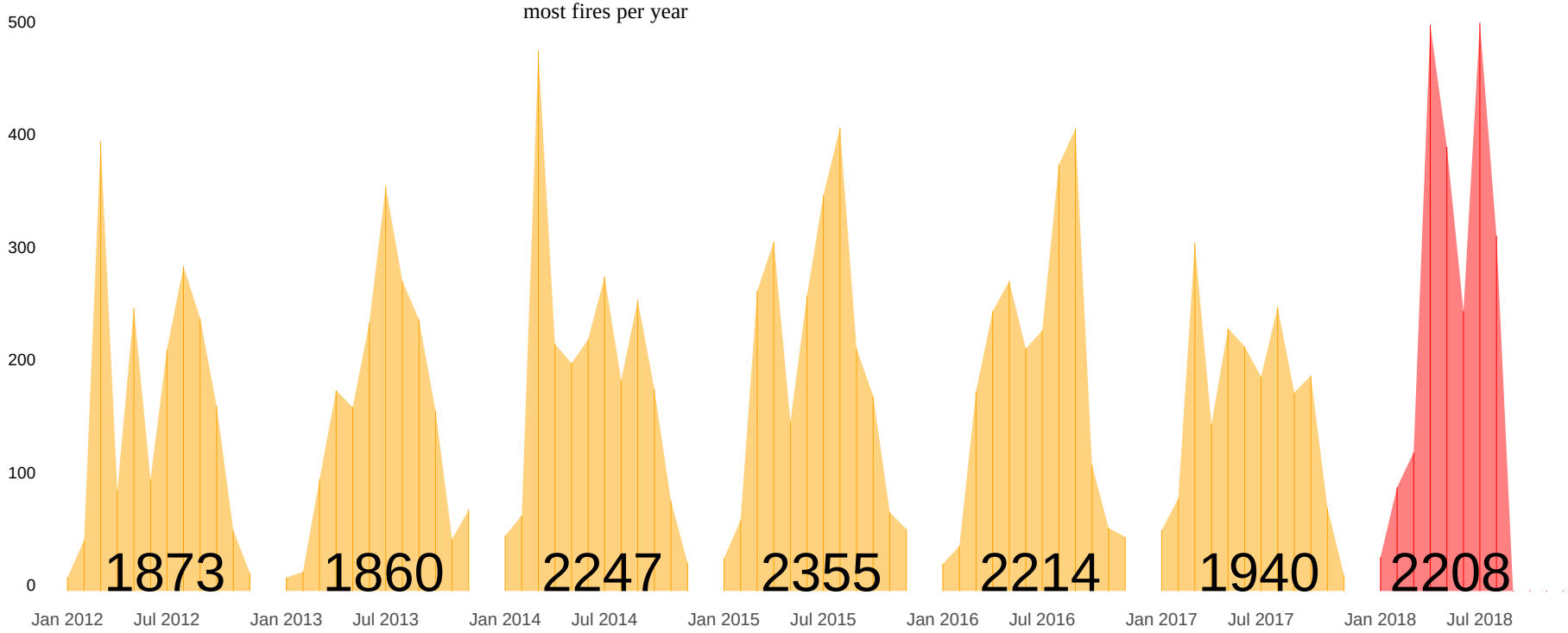
Evolution of Baby Names in the US: 1880-2015



German Wildfires 2012-2018

2014 saw a record number of fires in March, although 2015 had the most fires per year

The record was broken in April 2018 (502 fires)



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`