The update of nostarch class

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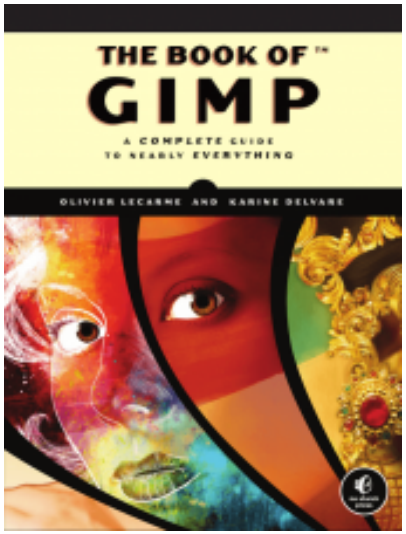
No Starch Press

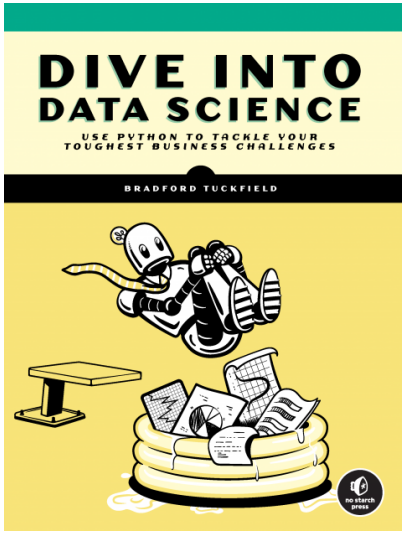
Founded in 1994 by Bill Pollock 

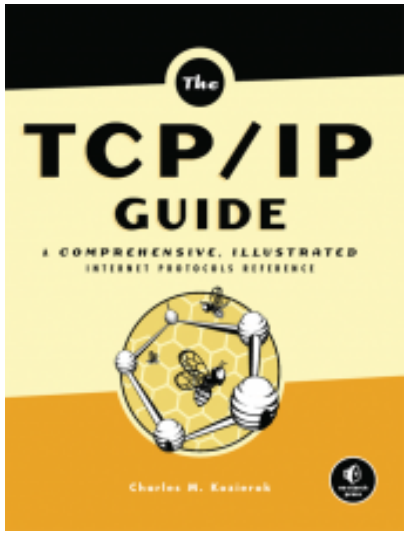
> *No Starch Press publishes the finest in geek entertainment—bestsellers like* Python Crash Course, Python for Kids, How Linux Works, *and* Hacking: The Art of Exploitation. *We focus on computer programming, security, hacking, alternative operating systems, STEM, and LEGO. Our titles have personality, our authors are passionate, and we read and edit everything we publish.*

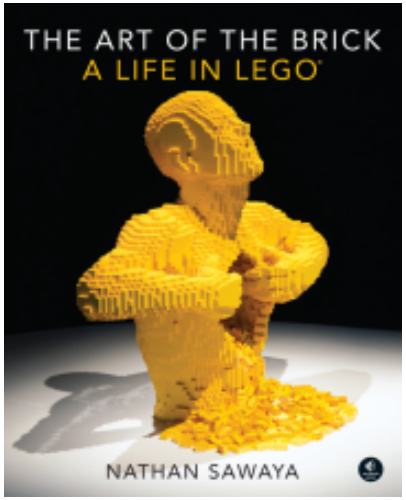
Some titles

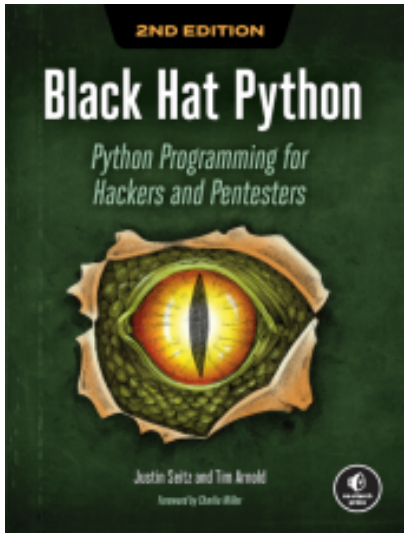
`https://nostarch.com/catalog.htm`

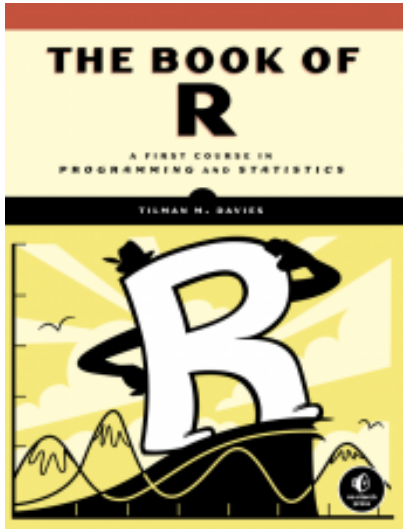












History:

1. Many distinctive typographic features $\rightarrow$ must accommodate them.
2. The previous version was released in 2008. A lot of in house changes by *No Starch* team. Proliferation of small hacks.
3. 2023: the need to create a new unified class.

Design principles:

1. Automate as much a possible.
2. Leave the last 5% for manual tweaking.

This talk: TEXnical problems and their solutions.

URL splitting

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The rules: No Starch house style

1. Split *after* `# > ] ) }` :
2. Split *before* `. _ = & - ! ? | , ; @ ' " +`
3. *Never* split before / (including `https://`)

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Note: In URLs the symbols `? ! &` often *start* a group, as in `https://www.google.com/search?q=tex`

URL splitting implementation

Using *url.sty* by Donald Arseneau. An URL is internally a *math* expression.
Splits after a symbol: declare the symbol a mathrel or mathbin!
How can we make a split *before* a symbol?
Solution: `UrlSpecials`. Here we can do what we want!
Example 1: Break before dot:

```
\g@addto@macro{\UrlSpecials}{%
   \do\.{\penalty\UrlBreakPenalty
         \mathchar46\relax}}
```

Example 2: No break before slash (but can break after, unless followed by slash):

```
\g@addto@macro{\UrlSpecials}{%
   \do\/{\unpenalty\penalty\@M
         \mathchar47\penalty\UrlBreakPenalty}}
```

URL splitting: unsolved problem

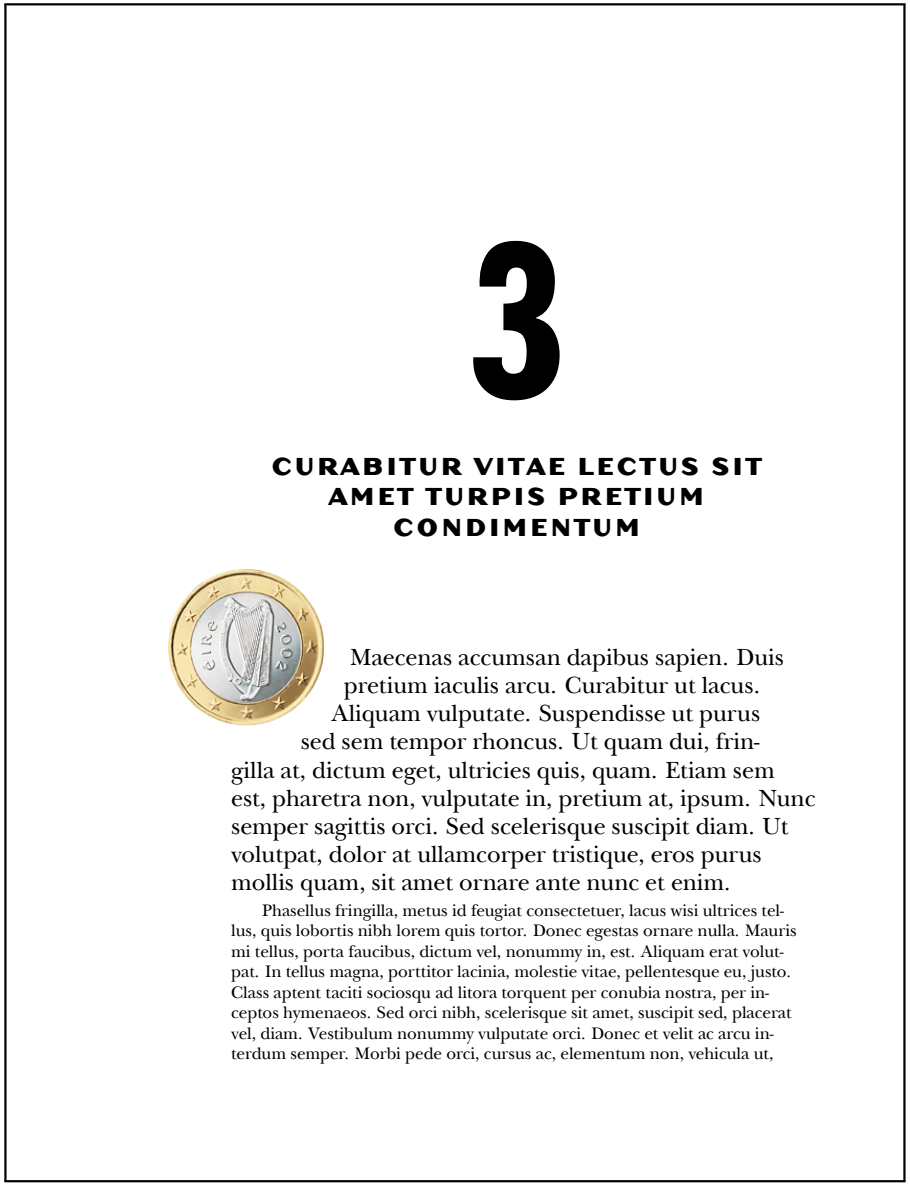
amsmath redefines open delimiters in math mode ⇒ a strange error message

```
\g@addto@macro{\UrlSpecials}{%
  \do\({\penalty\UrlBreakPenalty\mathchar40\relax}}
```

is fine without *amsmath*. With *amsmath*:

```
Bad mathchar (32768)
```

Chapter start



Special treatment of the first paragraph:

1. Larger font.
2. Special shape.
3. Circular art.

Chapter start implementation

Redefenition of `\@afterheading`:

1. Add the parshape and larger font to `\everypar`.
2. At the end of `\everypar` redefine `everypar`.

Manual override: `\turnoffbigpara` disables this behavior.

Captions

Figures and tables are *not centered*, and the width of the caption is the same as the width of the figure or table.

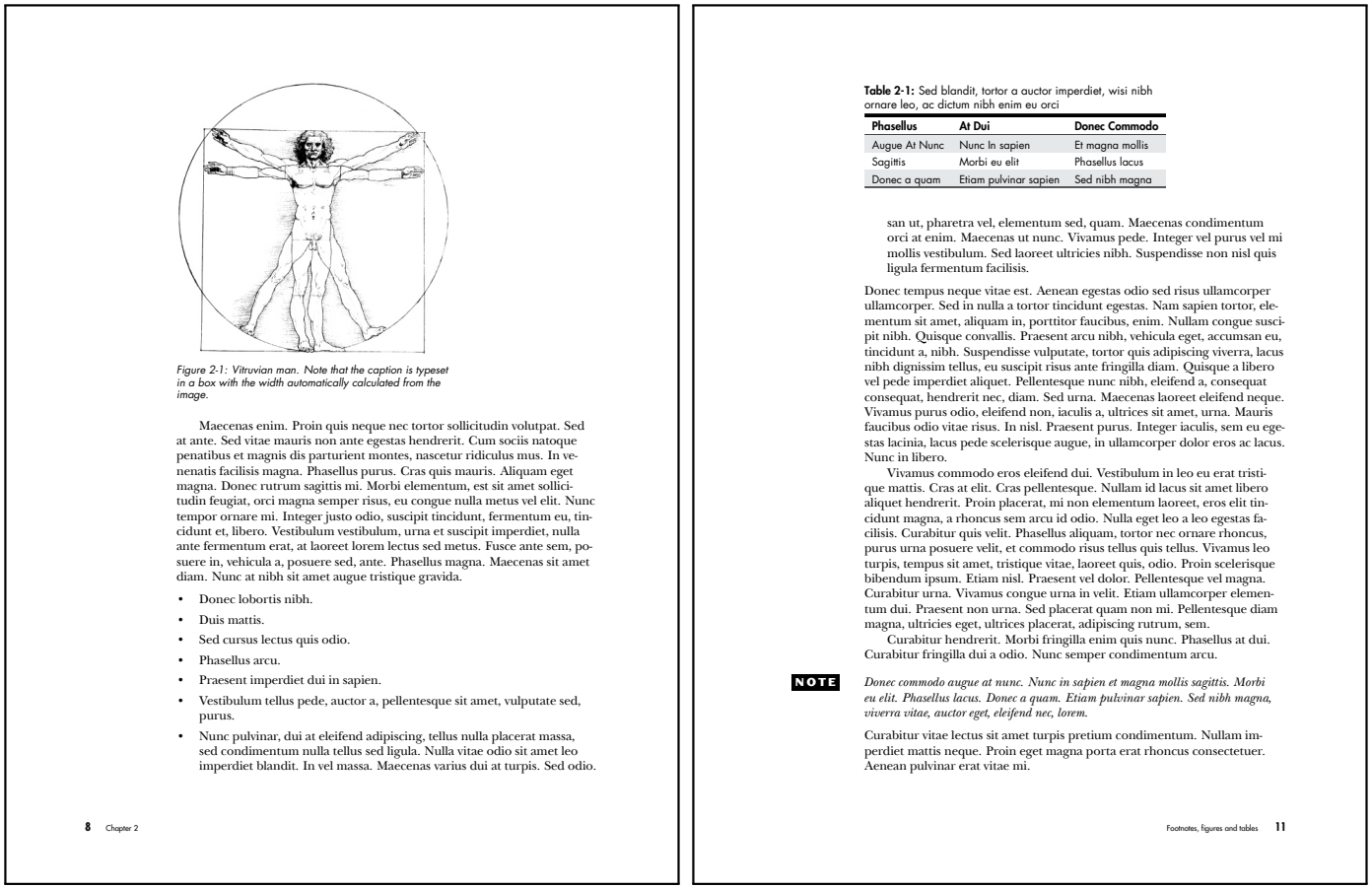


Figure 2-1: Vitruvian man. Note that the caption is typeset in a box with the width automatically calculated from the image.

Maecenas enim. Proin quis neque nec tortor sollicitudin volutpat. Sed at ante. Sed vitae mauris non ante egestas hendrerit. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. In venenatis facilisis magna. Phasellus purus. Cras quis mauris. Aliquam eget magna. Donec rutrum sagittis mi. Morbi elementum, est sit amet sollicitudin feugiat, orci magna semper risus, eu congue nulla metus vel elit. Nunc tempor ornare mi. Integer justo odio, suscipit tincidunt, fermentum eu, tincidunt et, libero. Vestibulum vestibulum, urna et suscipit imperdiet, nulla ante fermentum erat, at laoreet lorem lectus sed metus. Fusce ante sem, posuere in, vehicula a, posuere sed, ante. Phasellus magna. Maecenas sit amet diam. Nunc at nibh sit amet augue tristique gravida.

- Donec lobortis nibh.
- Duis mattis.
- Sed cursus lectus quis odio.
- Phasellus arcu.
- Praesent imperdiet dui in sapien.
- Vestibulum tellus pede, auctor a, pellentesque sit amet, vulputate sed, purus.
- Nunc pulvinar, dui at eleifend adipiscing, tellus nulla placerat massa, sed condimentum nulla tellus sed ligula. Nulla vitae odio sit amet leo imperdiet blandit. In vel massa. Maecenas varius dui at turpis. Sed odio.

Table 2-1: Sed blandit, tortor a auctor imperdiet, wisi nibh ornare leo, ac dictum nibh enim eu orci

Phasellus	At Dui	Donec Commodo
Augue At Nunc	Nunc In sapien	Et magna mollis
Sagittis	Morbi eu elit	Phasellus lacus
Donec a quam	Etiam pulvinar sapien	Sed nibh magna

san ut, pharetra vel, elementum sed, quam. Maecenas condimentum orci at enim. Maecenas ut nunc. Vivamus pede. Integer vel purus vel mi mollis vestibulum. Sed laoreet ultricies nibh. Suspendisse non nisl quis ligula fermentum facilisis.

Donec tempus neque vitae est. Aenean egestas odio sed risus ullamcorper ullamcorper. Sed in nulla a tortor tincidunt egestas. Nam sapien tortor, elementum sit amet, aliquam in, porttitor faucibus, enim. Nullam congue suscipit nibh. Quisque convallis. Praesent arcu nibh, vehicula eget, accumsan eu, tincidunt a, nibh. Suspendisse vulputate, tortor quis adipiscing viverra, lacus nibh dignissim tellus, eu suscipit risus ante fringilla diam. Quisque a libero vel pede imperdiet aliquet. Pellentesque nunc nibh, eleifend a, consequat consequat, hendrerit nec, diam. Sed urna. Maecenas laoreet eleifend neque. Vivamus purus odio, eleifend non, iaculis a, ultrices sit amet, urna. Mauris faucibus odio vitae risus. In nisl. Praesent purus. Integer iaculis, sem eu egestas lacinia, lacus pede scelerisque augue, in ullamcorper dolor eros ac lacus. Nunc in libero.

Vivamus commodo eros eleifend dui. Vestibulum in leo eu erat tristique mattis. Cras at elit. Cras pellentesque. Nullam id lacus sit amet libero aliquet hendrerit. Proin placerat, mi non elementum laoreet, eros elit tincidunt magna, a rhoncus sem arcu id odio. Nulla eget leo a leo egestas facilisis. Curabitur quis velit. Phasellus aliquam, tortor nec ornare rhoncus, purus urna posuere velit, et commodo risus tellus quis tellus. Vivamus leo turpis, tempus sit amet, tristique vitae, laoreet quis, odio. Proin scelerisque bibendum ipsum. Etiam nisl. Praesent vel dolor. Pellentesque vel magna. Curabitur urna. Vivamus congue urna in velit. Etiam ullamcorper elementum dui. Praesent non urna. Sed placerat quam non mi. Pellentesque diam magna, ultricies eget, ultrices placerat, adipiscing rutrum, sem.

Curabitur hendrerit. Morbi fringilla enim quis nunc. Phasellus at dui. Curabitur fringilla dui a odio. Nunc semper condimentum arcu.

NOTE *Donec commodo augue at nunc. Nunc in sapien et magna mollis sagittis. Morbi eu elit. Phasellus lacus. Donec a quam. Etiam pulvinar sapien. Sed nibh magna, viverra vitae, auctor eget, eleifend nec, lorem.*

Curabitur vitae lectus sit amet turpis pretium condimentum. Nullam imperdiet mattis neque. Proin eget magna porta erat rhoncus consectetuer. Aenean pulvinar erat vitae mi.

Captions implementation: setting in a parbox

```
\DeclareCaptionFormat*{nostarchfigtblformat}{%
  \parbox{\nostarch@captionwidth}{#1#2#3}}
```

We need to calculate `\nostarch@captionwidth`.

Captions implementation: figures

At the start of the caption: look at the width of the last box, and set the caption width to it!
We add to figure caption code (using *etoolbox*) `\nostarch@measurecaptionwidth`:

```
\newcommand\nostarch@measurecaptionwidth{%
 \ifnostarch@overridecaptionwidth\else
 \par
 \setbox\@tempboxa\lastbox
 \setbox\@tempboxa=\hbox{\unhbox\@tempboxa}%
 \global\setlength{\nostarch@captionwidth}{\wd\@tempboxa}%
 \box\@tempboxa\par
 \fi
 \global\nostarch@overridecaptionwidthfalse
}
```

Captions implementation: tables. I. Algorithm

Problem: table captions are *before* tables.

Solution: save the widths to the `.aux` file, and read them.

The ideas are mostly stolen from *longtable* package.

1. For table number *N* define a macro `nostarch@tbl@`*Roman{N}*.
2. At the end of the table write its width to the macro and save to the `.aux` file
3. If the macro exists, check whether the width changed to trigger rerun.
4. At the beginning of table check if the macro exists, and if yes, typeset the caption to this width.

Captions implementation: tables. II. Writing

```
\nostarch@measurecaptionwidth
\if@filesw
   \immediate\write\@auxout{%
   \gdef\expandafter\noexpand\csnamenostarch@tbl@\romannumeral
            \c@nostarch@tbl\endcsname
   {\the\nostarch@captionwidth}}%
\fi
\expandafter\ifx\csname nostarch@tbl@\romannumeral\c@nostarch@tbl
      \endcsname\relax
  \edef\@tempa{\the\textwidth}%
\else
  \edef\@tempa{\csname nostarch@tbl@\romannumeral
       \c@nostarch@tbl\endcsname}%
\fi
\expandafter\ifdim\@tempa=\nostarch@captionwidth\else
  \gdef\nostarch@tbl@warn{\ClassWarningNoLine{nostarch}
  {Table widths have changed.  Rerun LaTeX.}}
\fi
```

Captions implementation: tables. III. Reading

```
\newcommand\nostarch@read@tbl@width{%
  \stepcounter{nostarch@tbl}%
  \expandafter\ifx\csname nostarch@tbl@\romannumeral
    \c@nostarch@tbl\endcsname\relax
     \edef\@tempa{\the\textwidth}%
  \else
     \edef\@tempa{\csname nostarch@tbl@\romannumeral
    \c@nostarch@tbl\endcsname}%
  \fi
  \expandafter\setlength\expandafter\nostarch@captionwidth
    \expandafter{\@tempa}%
}
```

Captions implementation: longtables

Longtables know the width of each column. They are stored in \LT@*Roman*{N_{LT}}. We just add them up.

```
\def\nostarch@read@LT@width{%
 \ifnostarch@overridecaptionwidth\else
    \global\setlength{\nostarch@captionwidth}{\z@}%
    \bgroup
      \def\LT@entry##1##2{%
        \global\addtolength{\nostarch@captionwidth}{##2}}%
      \csname LT@\romannumeral\c@LT@tables\endcsname
    \egroup
 \fi
\global\nostarch@overridecaptionwidthfalse
}
```

Captions implementation: override

The user is able to override the automatic setting:

```
\NextCaptionWidth{2in}
```

Implementation is simple:

```
\newcommand\NextCaptionWidth[1]{%
  \global\nostarch@overridecaptionwidthtrue
  \global\setlength{\nostarch@captionwidth}{#1}%
}
```

Conclusion

1. No Starch Press provides unusual challenges, which can be met with some TEX tricks!
2. Next steps: ebooks!