

Prof. Alex Rogers
Department of Computer Science
University of Oxford
6th May 2023

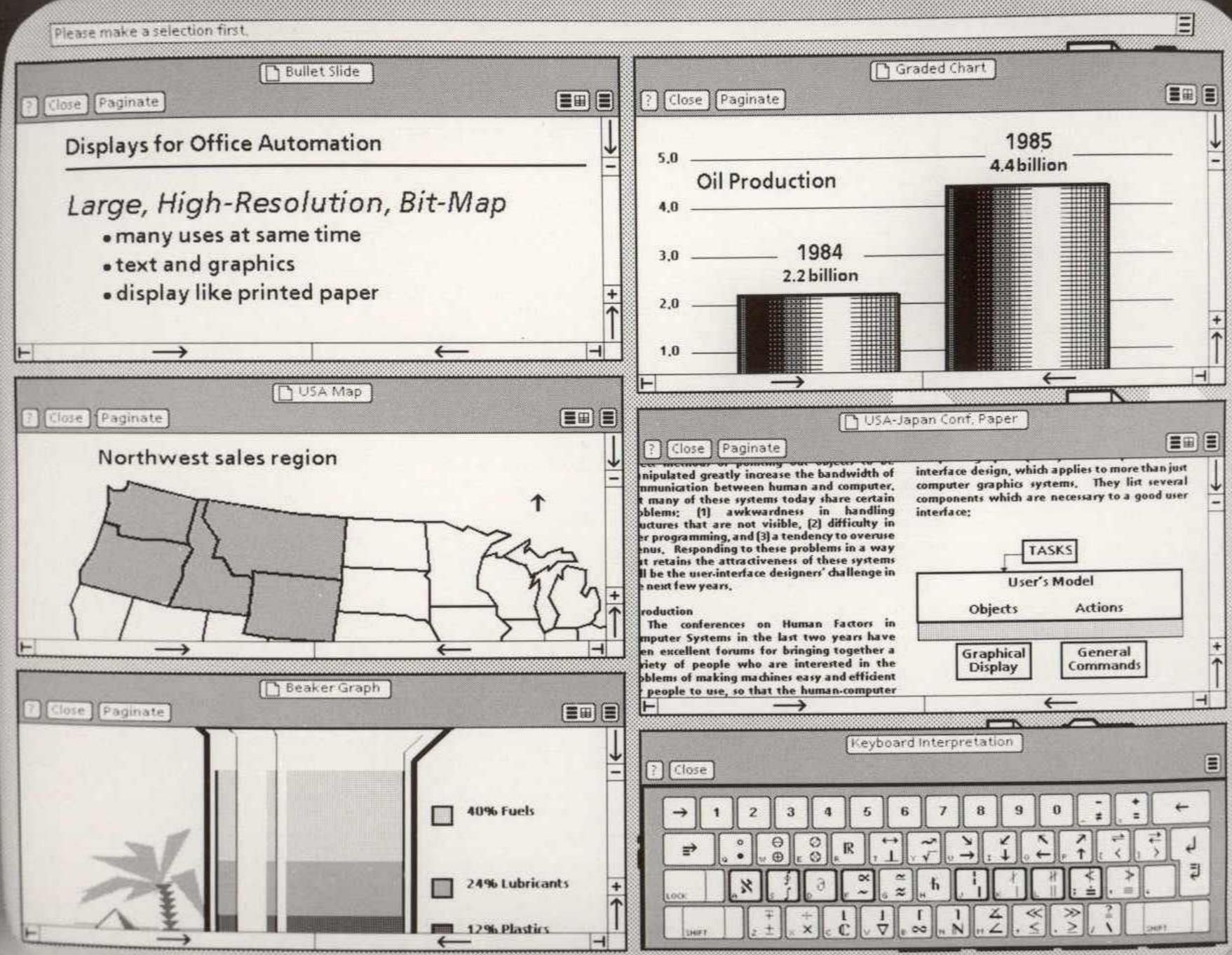
Scientific Report Writing

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XEROX

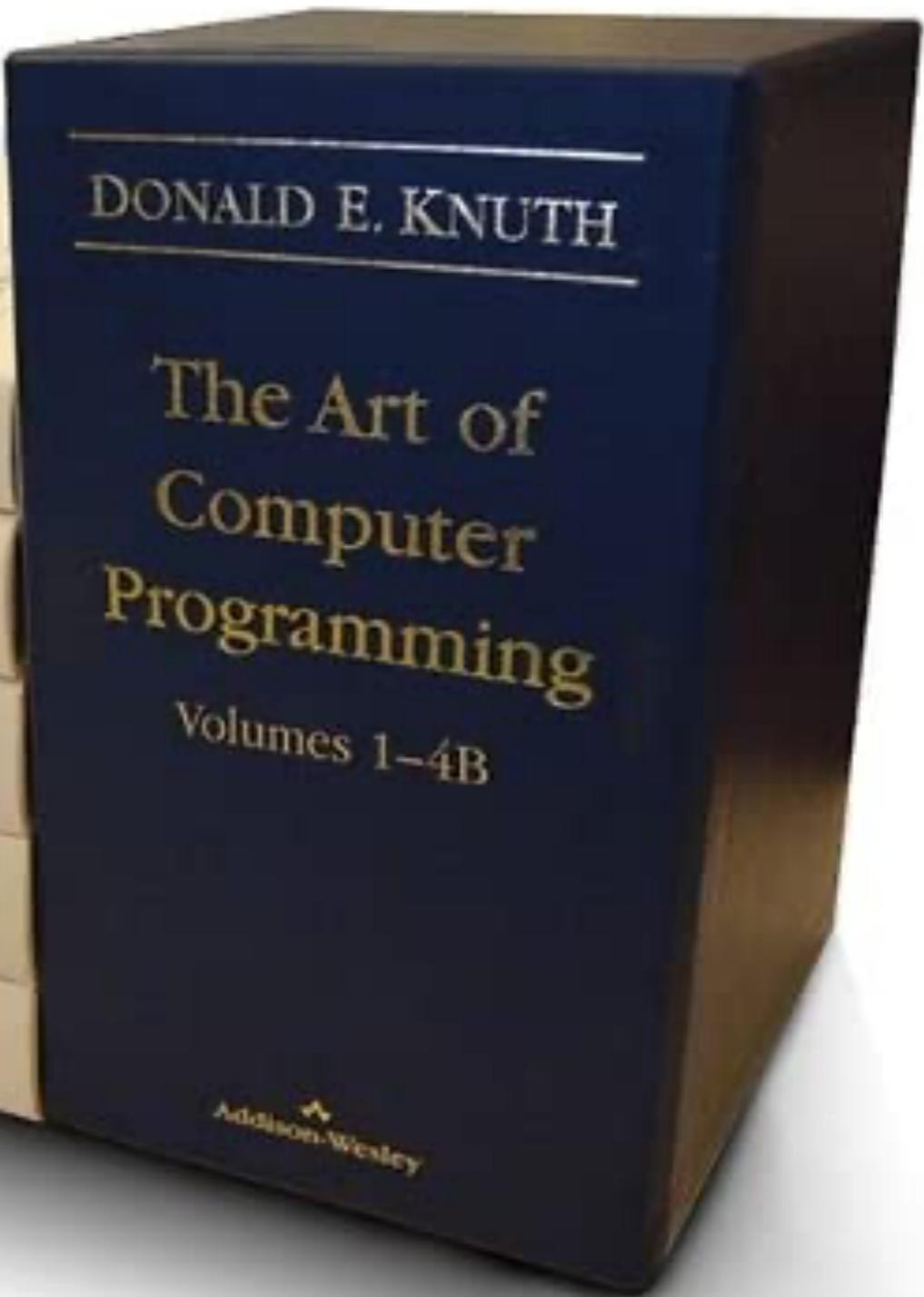


XEROX









Each element $x \neq 0$ of a given quantity structure S is on a biray $[x] = \{ax : a \in R\}$ (Sect. 7), consisting of all elements of the same type as x ; the positive part $[x]^+$ of $[x]$ is a ray. Thus $[\text{in}] = [\text{ft}] = [-100 \text{ ft}]$, called the “dimension” of length. Considering each $[x]$ as an element of a new system gives us in a natural manner a vector space $[S]$ (Sect. 8) written multiplicatively; this is the space of possible “physical dimensions.” If $[x_1], \dots, [x_n]$ forms a base for $[S]$, then each element of S may be written in the form

$$(3.1) \quad x = ax_1^{\alpha_1} \cdots x_n^{\alpha_n};$$

the representation is unique if $x \neq 0$ (see Sect. 9).

An isomorphism ϕ of S onto itself is a “similarity” if it preserves type: $[\phi(x)] = [x]$ (and preserves positiveness). With a base as above, the general similarity is defined by $\phi(x_i) = \lambda_i x_i$ for some positive numbers $\lambda_1, \dots, \lambda_n$ (Sect. 11).

CTAN: Package Metafont

ctan.org/pkg/metafont?lang=en

CTAN Comprehensive TeX Archive Network

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METAFONT – A system for specifying fonts

The program takes a programmatic specification of a font, and produces a bitmap font (whose properties are defined by a set of parameters of the target device), and metrics for use by *TeX*. The bitmap output may be converted into a format directly usable by a device driver, etc., by the tools provided in the parallel [mfware](#) distribution. Third parties have developed tools to convert the bitmap output to outline fonts. The distribution includes the source of Knuth's *METAFONT book*; this source is there to read, as an example of writing *TeX* — it should not be processed without Knuth's direct permission. The mailing list tex-fonts@math.utah.edu is the best for general discussion of METAFONT usage; the tex-k@tug.org list is best for bug reports about building the software, etc.

Sources [/systems/knuth/dist/mf](#)
Support <https://lists.tug.org/tex-k>
Bug tracker <https://lists.tug.org/tex-k>
Repository <https://tug.org/svn/texlive/trunk/Build/source/texk/web2c/>
Version 2.71828182 2021-02-05
Licenses [Knuth License](#)
Copyright D. E. Knuth
Maintainer [Donald E. Knuth](#)
Contained in [TeX Live](#) as metafont
[MiKTeX](#) as miktex-metafont-bin-2.9



Suggestions

Maybe you are interested in the following packages as well.

- [web: The original literate programming system](#)
- [dvitype: Type out the content of a DVI file](#)
- [knuth-errata: Knuth's published errata](#)
- [texware: Utility programs for use with TeX](#)

[more ➔](#)

Rating Summary

★★★★★

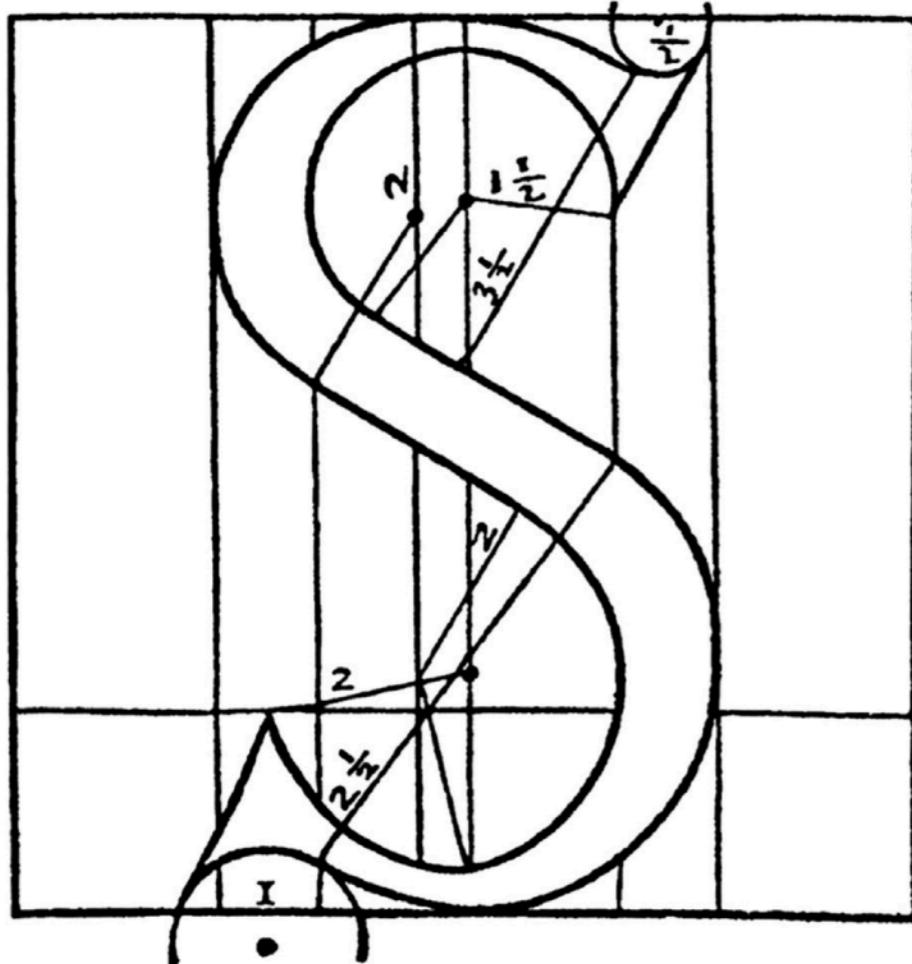


FIGURE 1. Francesco Torniello's method of "squaring the S" in 1517.

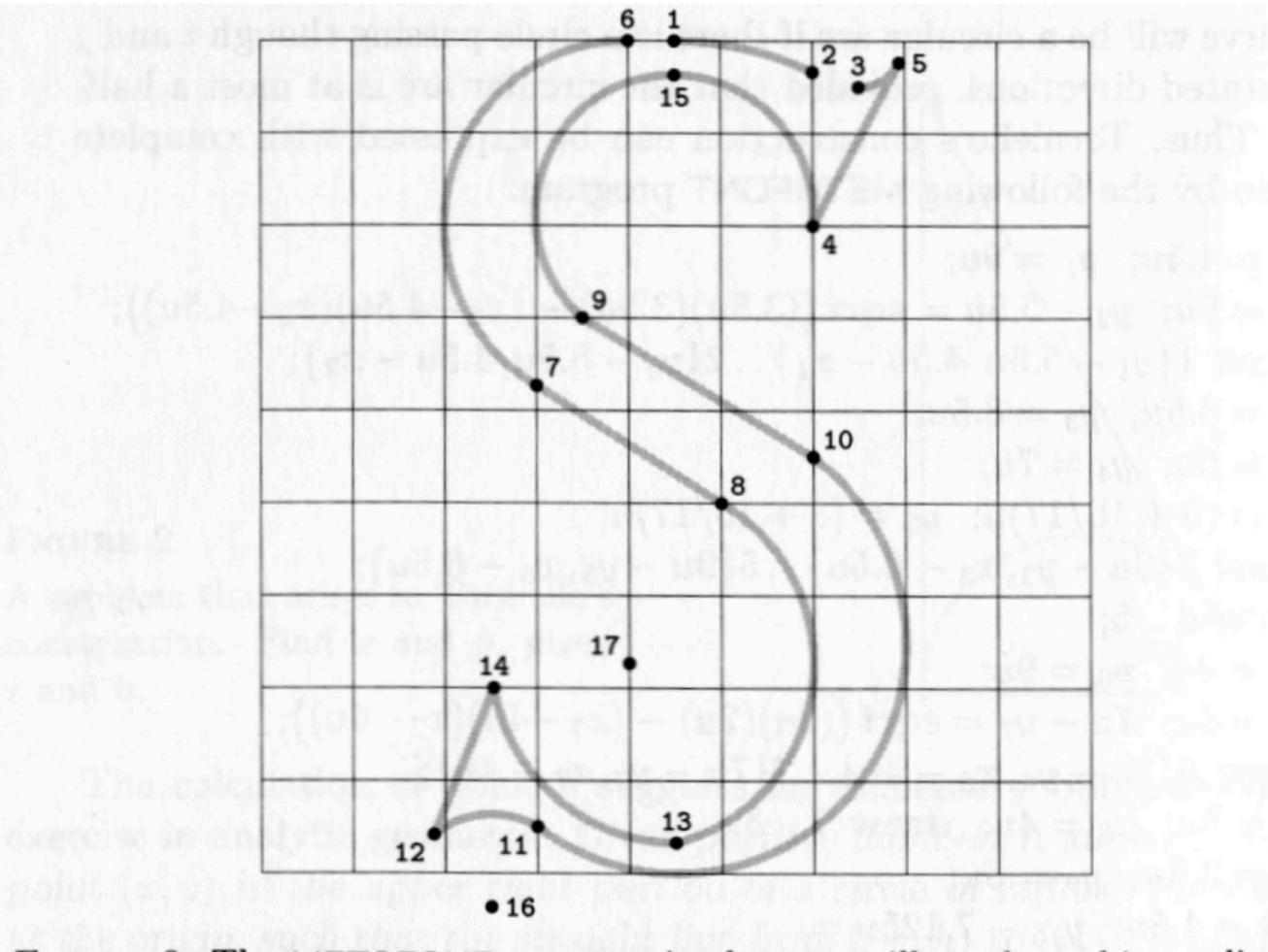


FIGURE 3. The METAFONT program in the text will produce this rendition of Torniello's S.

CTAN: Comprehensive TeX Arc x +

ctan.org/?lang=en

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The Comprehensive TeX Archive Network (CTAN) is the central place for all kinds of material around TeX. CTAN has currently 6332 packages. 2894 contributors have contributed to it. Most of the packages are free and can be downloaded and used immediately.

Announcements on CTAN-announce

You can see what's new and even get informed about new or updated packages on CTAN.

- 2022-11-10 New on CTAN: cvss
- 2022-11-10 CTAN update: fancyhdr
- 2022-11-10 CTAN update: glossaries-extra
- 2022-11-10 CTAN update: piton

more ↗

Activity on CTAN

An active TeX community takes care that CTAN is updated and extended regularly. CTAN receives usually more than 100 uploads per month.

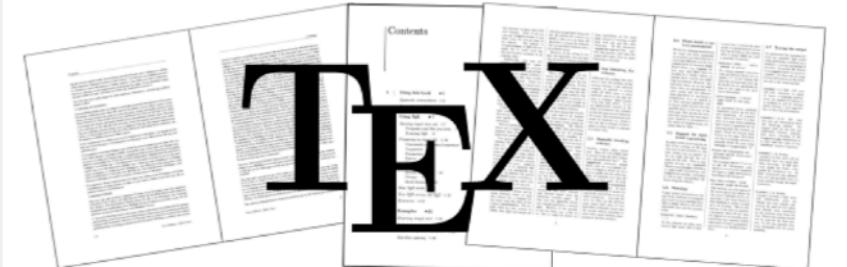


Did you know?

The topic [Font processor](#) in the TeX Catalogue has 49 packages for process fonts for use with TeX (includes installation).

more ↗

TeX



TeX is a typesetting program designed for high-quality composition of material that contains a lot of mathematical and technical expressions. It has been adopted by many authors and

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The **LATEX** Project

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LaTeX – A document preparation system

LaTeX is a high-quality typesetting system; it includes features designed for the production of technical and scientific documentation. LaTeX is the de facto standard for the communication and publication of scientific documents. LaTeX is available as [free software](#).

You don't have to pay for using LaTeX, i.e., there are no license fees, etc. But you are, of course, invited to support the maintenance and development efforts through a [donation to the TeX Users Group \(choose LaTeX Project contribution\)](#) if you are satisfied with LaTeX.

You can also sponsor the work of LaTeX team members through the [GitHub sponsor program](#) at the moment for [Frank](#), [David](#) and [Joseph](#). Your contribution will be matched by GitHub in the first year and goes 100% to the developers.

The volunteer efforts that provide you with LaTeX need financial support, so thanks for any contribution you are willing to make.

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figures universe.jpg sections main.tex references.bib

```
1 \documentclass{article}
2 \usepackage[utf8]{inputenc}
3
4 \title{The Universe}
5 \author{}
6 \date{May 2019}
7
8 \usepackage{natbib}
9 \usepackage{graphicx}
10
11 \begin{document}
12
13 \maketitle
14
15 \section{Introduction}
16 There is a theory which states that if ever anyone discovers exactly what the Universe is for and why it is here, it will instantly disappear and be replaced by something even more bizarre and inexplicable.
17 There is another theory which states that this has already happened.
18
19 \begin{figure}[h!]
20 \centering
21 \includegraphics[alt="A spiral galaxy with a bright central nucleus and a distinct ring of stars."]{universe.jpg}
22 \caption{The Universe}
23 \label{fig:universe}
24 \end{figure}
25
26 \section{Conclusion}
27 ``I always thought something was fundamentally wrong with the universe'' \citet{adams1995hitchhiker}
```

Recompile

The Universe
May 2019

1 Introduction

There is a theory which states that if ever anyone discovers exactly what the Universe is for and why it is here, it will instantly disappear and be replaced by something even more bizarre and inexplicable. There is another theory which states that this has already happened.

Figure 1: The Universe

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J. D. Adams, *The Hitchhiker's Guide to the Galaxy*, San Val, 1995.

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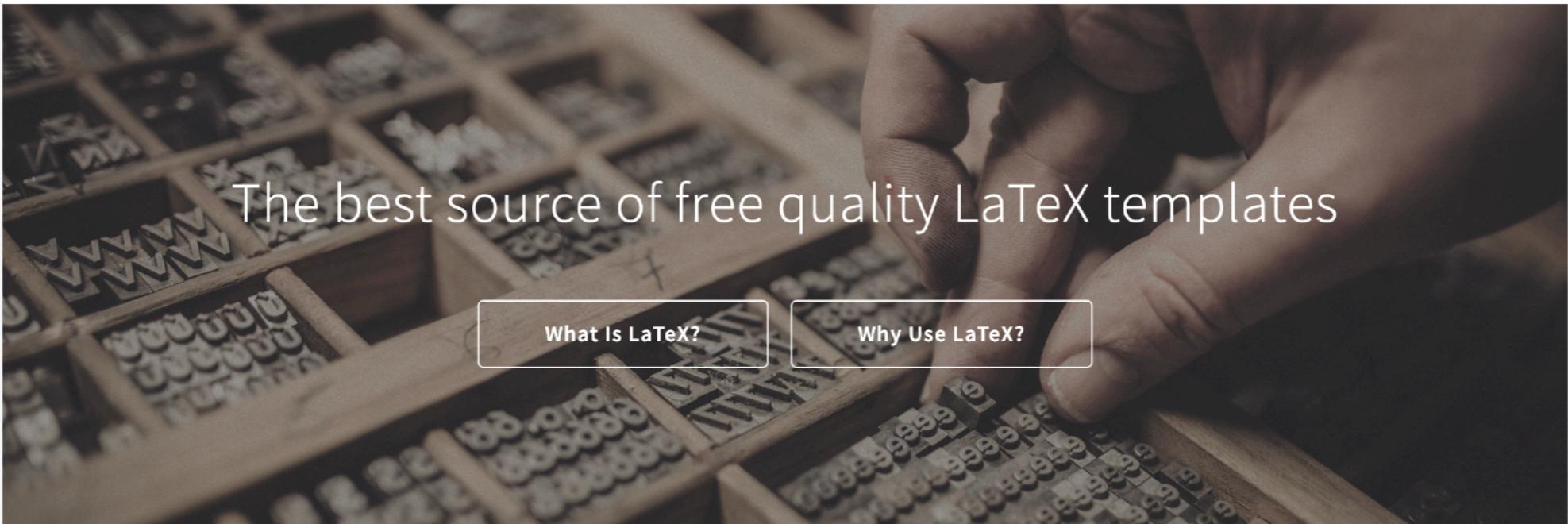
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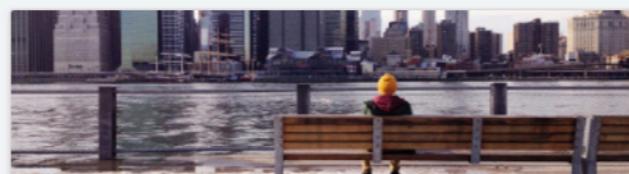
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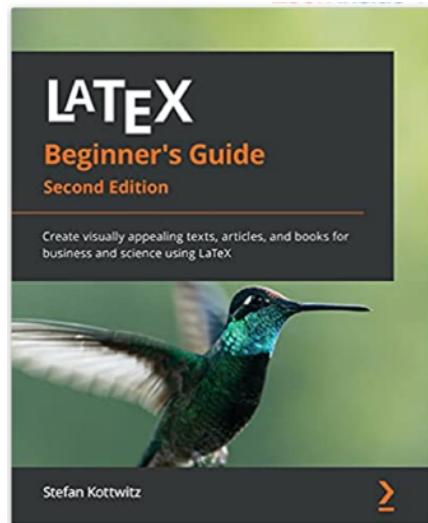
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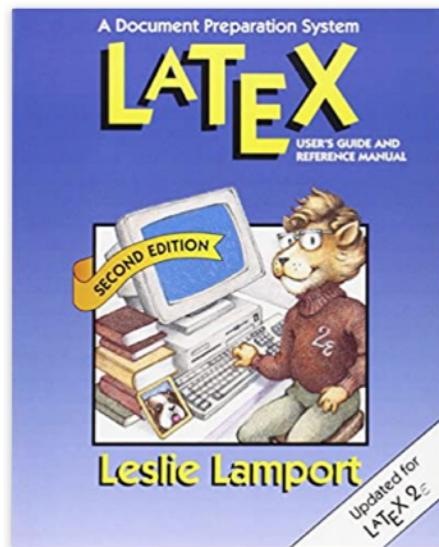


Poster



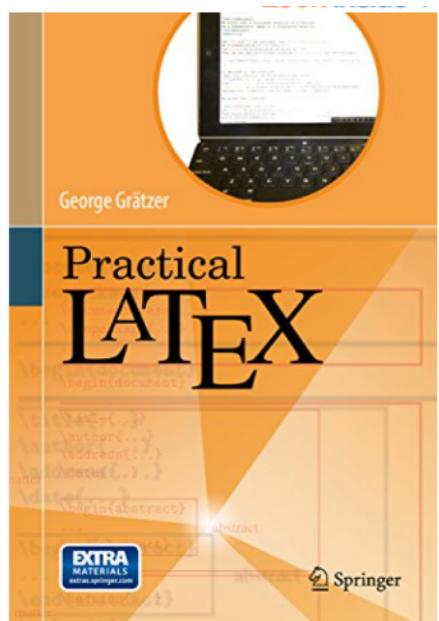
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Writing Up Scientific Work

Content:

- Abstract: Short summary statement of the content of the document.
- Introduction: Tells the whole story: what problem you are solving, why it is interesting, and what you actually did.
- Experiments: Separate out the description of what you actually did from the results.
- Future Work: Describe what is possible now given the work that you have done.

Writing Up Scientific Work

References:

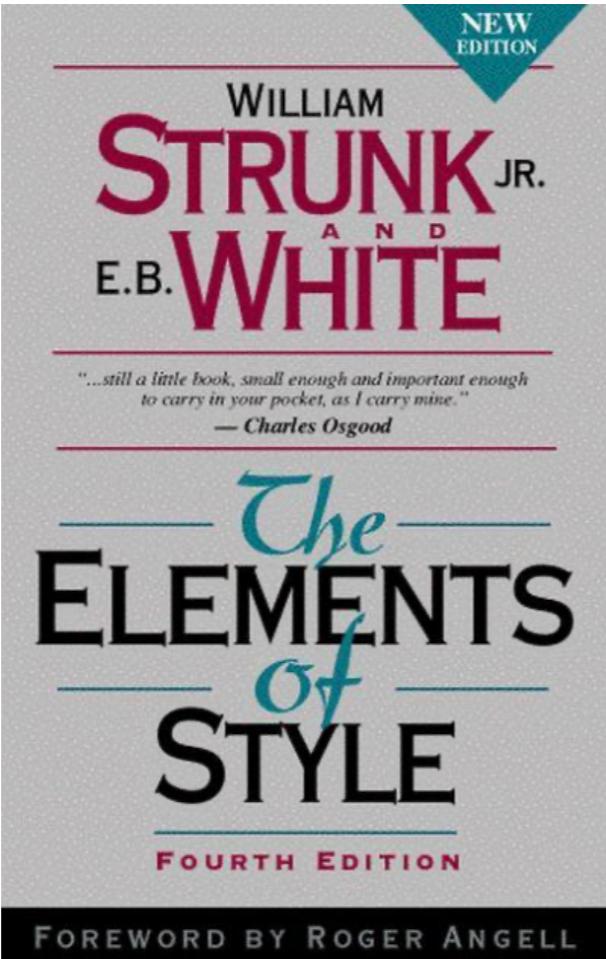
- Rogers (2020) describes the how hidden Markov models can be used for acoustic detection of gunshots in tropical forests and shows they typically have high false positive rates.
- Hidden Markov models have been used for acoustic detection of gunshots in tropical forests and shown to have high false positive rates (Rogers, 2020).
- Hidden Markov models have been used for acoustic detection of gunshots in tropical forests and shown to have high false positive rates [1].
- [1] describes the how hidden Markov models can be used for acoustic detection of gunshots in tropical forests and shows they typically have high false positive rates.

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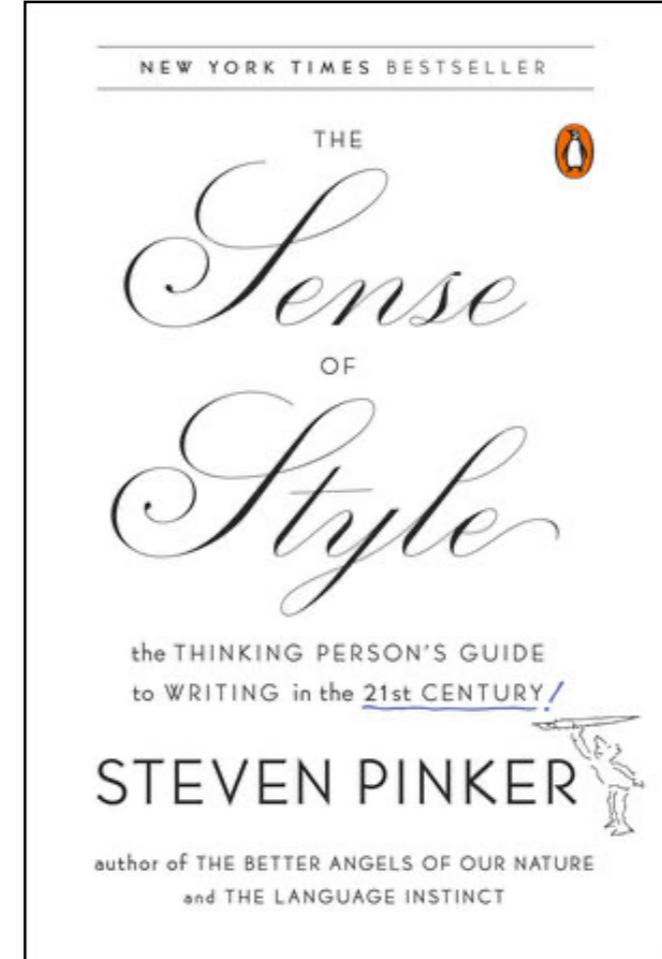
Style:

- Write short concise sentences.
- Write for you former smart but ignorant self.
- Tell the reader what is coming next (road map).
- The reader will think you are smart if you enable them to understand complex topics

Writing Up Scientific Work



The Elements of Style
William Strunk, E. B. White



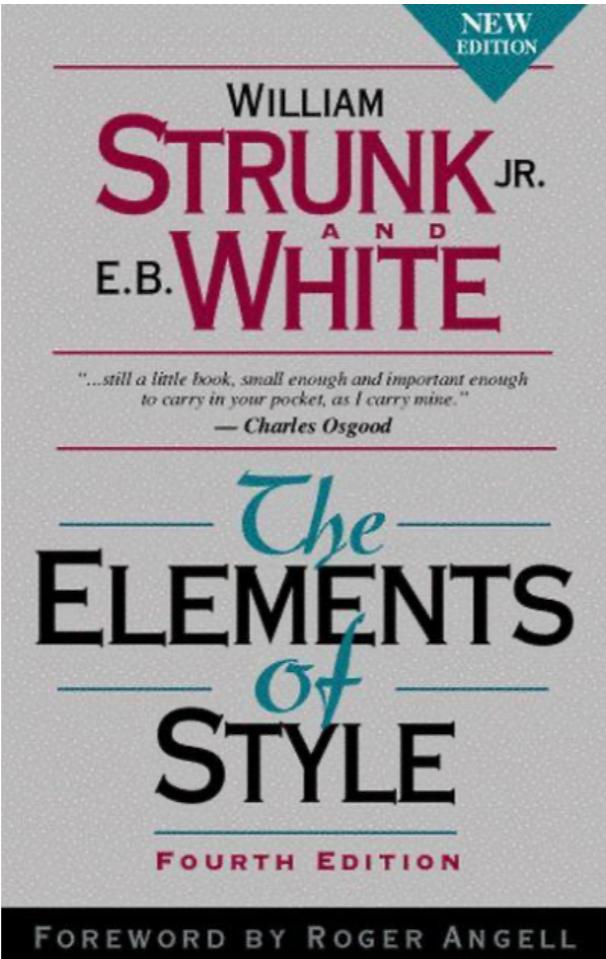
The Sense of Style
Steven Pinker

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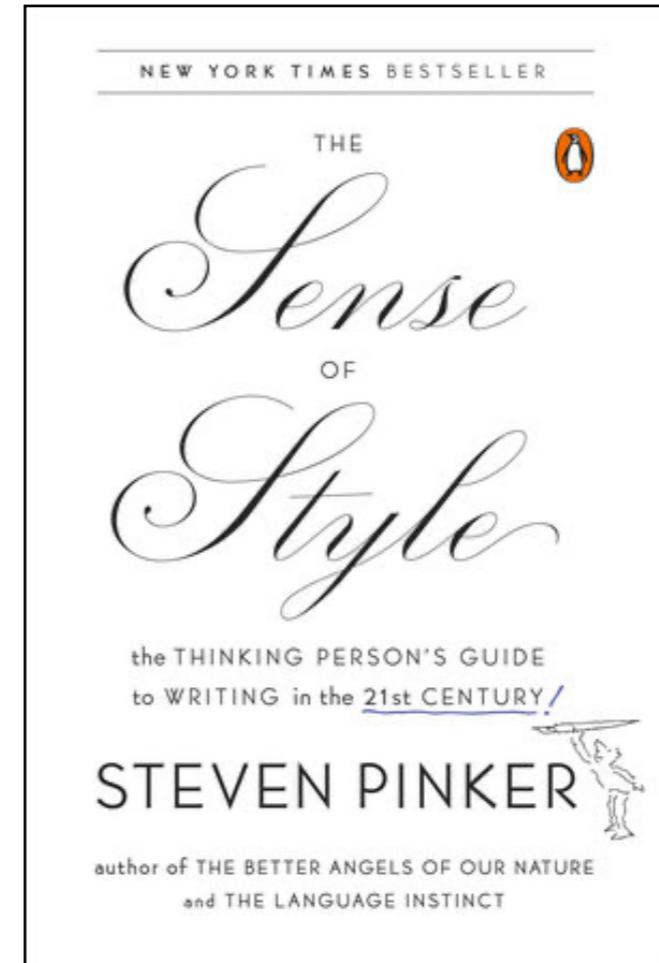
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1. Choose a suitable design and stick to it.
2. Make the paragraph the unit of composition.
3. Use the active voice.
4. Put statements in positive form.
5. Use definite, specific, concrete language.
6. Omit needless words.
7. Avoid a succession of loose sentences.
8. Express coordinate ideas in similar form.
9. Keep related words together.
10. In summaries, keep to one tense.
11. Place the emphatic words of a sentence at the end.

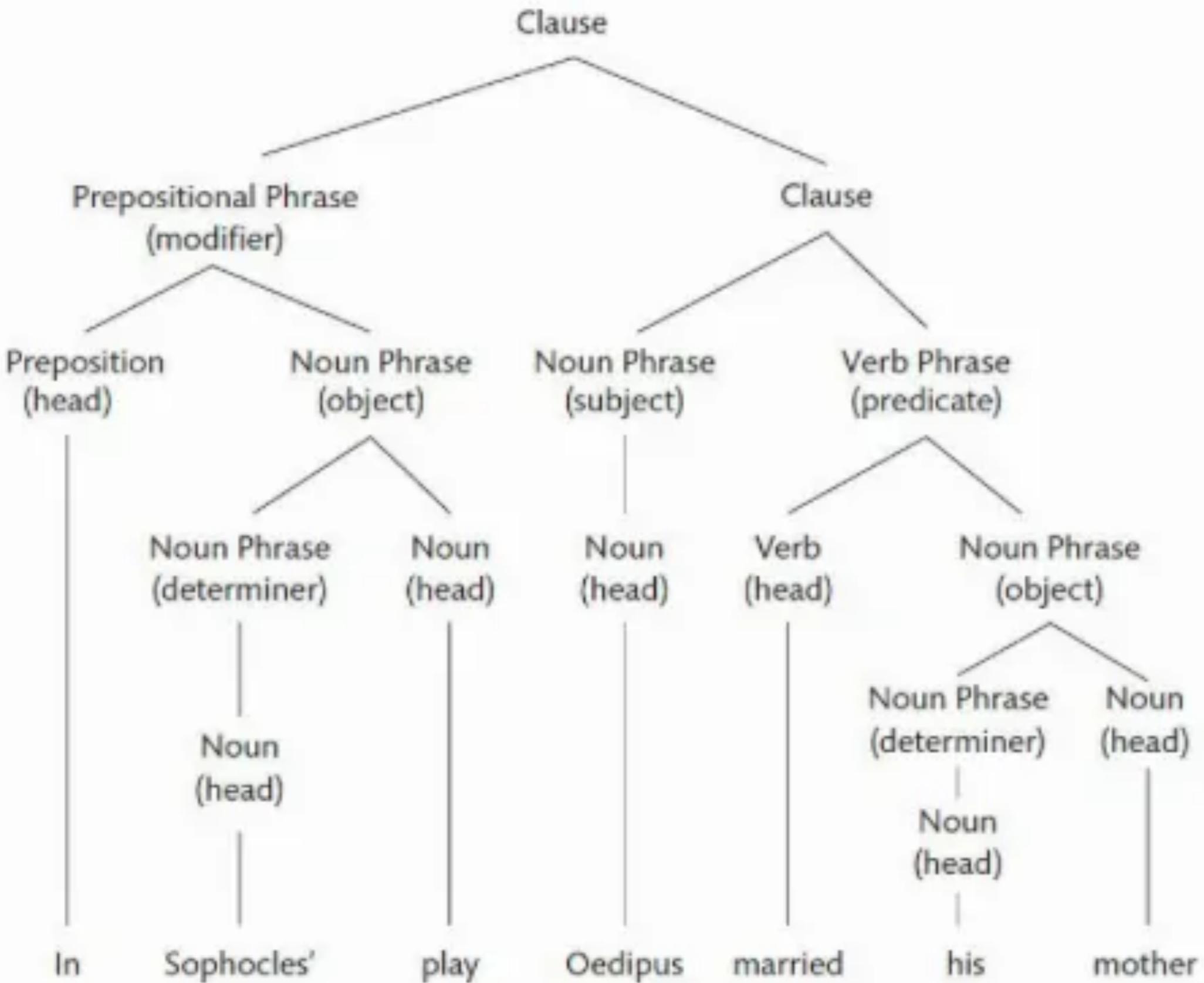
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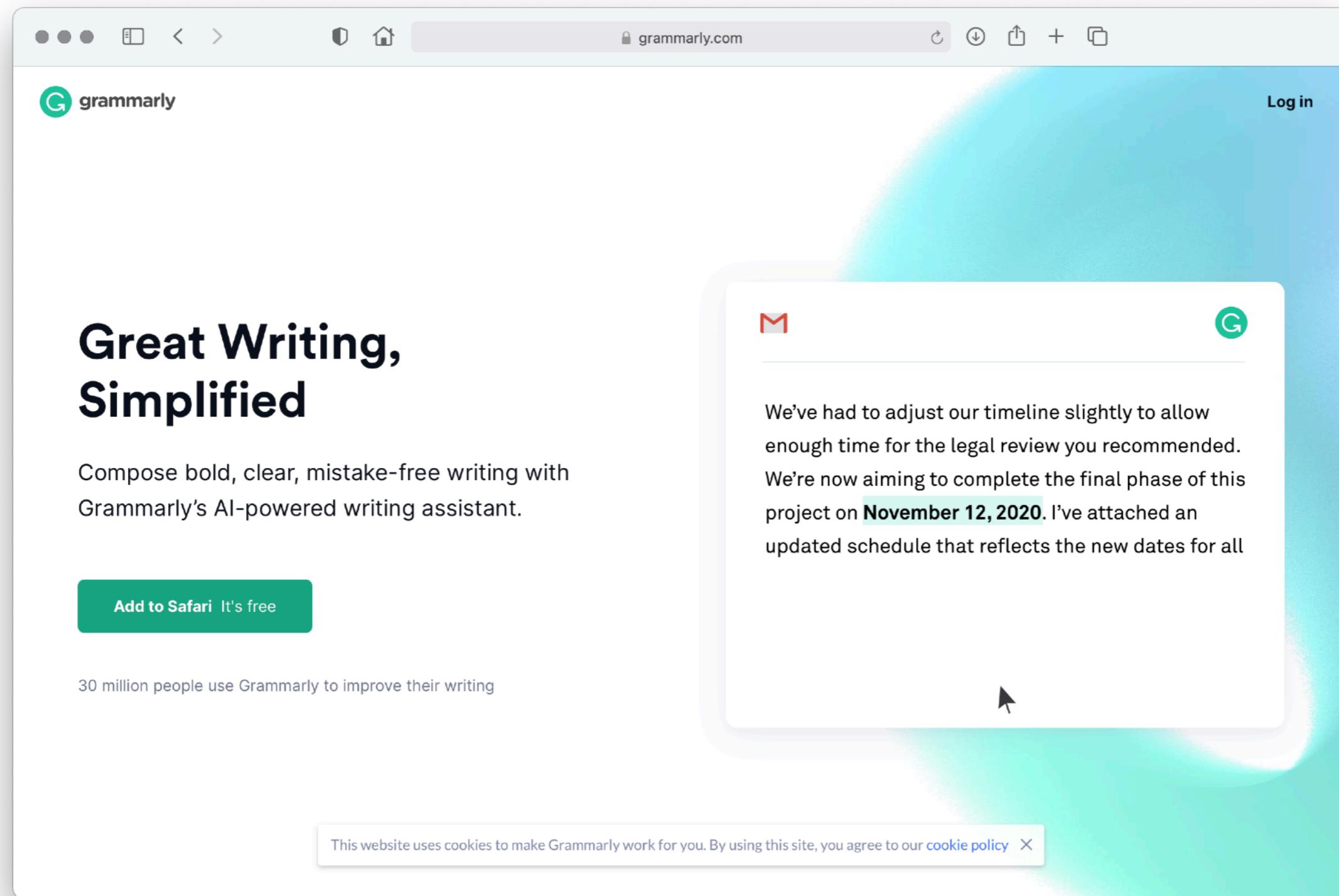
The Elements of Style
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