Introduction to Scientific Typesetting
Lesson 15: Software to Help with LaTeX

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There are situations you can imagine where some data that you want in a document or presentation is contained in a spreadsheet.

But—in terms of how the text is entered—the `tabular` or `array` environments are much different than spreadsheets!

We need a way to get spreadsheet stuff into LaTeX.

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There are two main options of which I'm aware.

1. **The `Excel2LaTeX` Macro for Microsoft Excel**.

   Highlight a range of cells in an Excel spreadsheet, click a button, and get LaTeX code.

   - Positive: does nice job with text decorations (bold, italics)
   - Negative: some inconsistent behavior with cell borders and cell justifications, can only generate code for `tabular`

   Check out the `spreadsheet example-1.xls` and `example15-1.tex` files.

2. **The LaTable program**.

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LaTable reads **comma separated value** (`.csv`) files.

Convert Excel file to `.csv` format, then open in LaTable.

Let's practice with `spreadsheet example-1.xls`.

Strengths and Weaknesses of LaTable

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Strengths

- Can edit cells so that code comes out cleaner
- Does a great job with cell justification and cell borders
- Merged cells (across columns) also show up well
- Can export to LaTeX code as `tabular`, `array`, or any custom environment

Weaknesses

- Cannot do text decorations
- Cannot merge cells across rows

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Take the `spreadsheet example-2.xls` file and, using LaTable, reproduce the second example file (`.pdf`).

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Why Use Anything Else?

Let's face it—sometimes `pstricks` can be pretty difficult to use.

There are several programs which allow you to draw and generate `pstricks` code which you can paste into LaTeX.

LaTeXDraw is one such program.

Using LaTeXDraw

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Why Use Anything Else?

This is a fairly amazing program, which allows to you draw all types of shapes.

- squares and rectangles
- circles and ellipses
- dots, lines, polygons
- arcs and curves
- grids and axes
- text
- **free-hand drawings!**

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Why Use Anything Else?

Open LaTeXDraw and then open the `drawing.svg` file.

We will take the generated `pstricks` code and build a `.pdf` file from this.

You'll need to add a few lines of code to make a `.tex` file that will build:

- `\documentclass{article}`
- `\begin{document}` and `\end{document}`
- Uncomment the four `\usepackage{...}` lines.

By the nature of the generated code, these drawings are really easy to *scale*. Just change the number in the `\scalebox{#}` line.

Including Drawings as Images

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LaTeXDraw has a really great feature that allows you to use it with the `LaTeX => PDF` build profile. (Remember: `pstricks` requires the `LaTeX => PS => PDF` profile.)

Draw something and click on the Adobe button toward the upper left of the menu bar. You'll get a PDF file which is just as big as the pictures you've drawn.

Now include this in a document using the `graphicx` package and the `\includegraphics` command.

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Why Use Anything Else?

Let's look closely at a few of the many things to customize when drawing with LaTeXDraw.

- The colors associated with a geometric object.
- The many options associated with a text box.
- The many options associated with axes/grids.

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Why Use Anything Else?

Open the third example file (`.pdf`).

Use LaTeXDraw and include `pstricks` code into a `.tex` document to reproduce it.

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Why Use Anything Else?

In my view, this is a nice quick way to do some things—particularly free-hand drawing.

But for things like function graphs and node/node connections, writing the code by hand is still the way to go.