A Plain \TeX{} Sampler

Here is sampler to get you started in Plain \TeX{}. I have purposely kept the preamble short and included no macros. Since I have set the paragraph skip (\texttt{parskip}) to 0 points and the paragraph indentation (\texttt{parindent}) to 15 points, this is what I get when starting a new paragraph:

Suppose that I want to display a $3 \times 2$ matrix

\[ A = \begin{bmatrix} -1 & 0 & 2 \\ 9 & 2 & 3 \end{bmatrix}. \]  

(1)

Here is how to handle subscripts:

\[ A = \begin{bmatrix} a_{ij} \end{bmatrix}, \]  

(2)

\[ A = \begin{bmatrix} A_1 \\ \vdots \\ A_m \end{bmatrix}, \]  

(2)

\[ A = [a_1 \cdots a_n]. \]  

(3)

Superscripts and exponents:

\[ A^n = A \cdot A \cdots A, \]  

(4)

\[ A^{-n} = A^{-1} \cdot A^{-1} \cdots A^{-1}, \]  

(5)

for $A$ invertible.

Technical writers often require different fonts and alphabets. Here are a few that are available to the Plain \TeX{} user.

- Italic: \textit{This is in italics}.
- Slant: \textsl{This is slanted}.
- Boldface: \textbf{This is boldface}.
- Calligraphic: \texttt{A, E, Q}. Note that you need mathmode for the calligraphic characters.
- Greek lower case: \texttt{α, β, ξ, φ, ϕ, ω}, etc.
- Greek upper case: Σ, Φ, Ψ, Ω, etc. You also need mathmode for the Greek letters.

In \TeX{} you can define your own commands. Maybe you plan to use lots of Y’s. (Y is an uppercase upsilon, the 20th letter of the Greek alphabet.) Since Y is a Greek letter, it requires mathmode. It’s not hard to type $\$\textbackslash \Upsilon\$\$, but if you do it a lot, you may as well abbreviate the command. I’ve done this by adding the definition \texttt{“ups”} to the preamble. Now, when I want a Y, I need only type \texttt{“$\textbackslash \ups”}.

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