

TEX INSTRUCTIONS

K. IGUSA

ABSTRACT. These are instructions on how to write papers in LaTeX. It is approximately the same thing that I explained in class.

INTRODUCTION

The final version of your final paper must be in TeX. You should write something very short to practice. More on that later. These notes are to reiterate the things I explain to you in class. I explain the basic idea of TeX and the “begin-end” format which is called “environments.”

1. BASIC CONCEPTS OF TEX

The first concept that I explained was that of *symbols*. These are enclosed in dollar signs \$ and are the name of the symbol preceded by a backslash \. For example, if you type α you get: α The equation will be in the line of text. If you want an equation set off in the middle of its own line you surround the command with two dollars. So, α gives you:

$$\alpha$$

Next, there are *functions* or *operations*. In math we write $f(x)$ for a function of x . In TeX function names have a backslash in front and (x) is replaced with braces: $\{x\}$. The example I did in class was underline (or was it overline?) this goes like this: Type $\underline{\text{whatever}}$ and you get: $\underline{\text{whatever}}$. (If you type $\overline{\text{whatever}}$ you get an error message because you don't normally put lines over text, only over symbols.)

Sometimes functions have two or more arguments: $f(x, y)$. In TeX you write: $f(x, y)$. The example I did in class was the fraction whose command is $\frac{1 + \beta}{\gamma}$. Thus $\alpha = \frac{1 + \beta}{\gamma}$ gives

$$\alpha = \frac{1 + \beta}{\gamma}$$

Finally, one very useful item is user defined shortcuts. For example, I don't like to type the words *alpha* or *lambda* over and over so I make the shortcuts:

```
\def\alpha
```

```
\def\lambda
```

\def is a function which takes two arguments. It defines the first item to be a shorthand for the second item. But, I forgot to say, your shorthand must be only letters, no symbols or spaces. Using this shorthand I write $a = \lambda$ to get:

$$\alpha = \lambda$$

Date: November 6, 2008.

2. LATEX ENVIRONMENTS

In LaTeX you have parts of your document which are set off. These are “environments.” For example, if you put two dollars $\$$ you start a set-off-equation environment which ends when you put two more dollars.

Your paper should start with an abstract. You write the abstract between the “begin abstract” and “end abstract” commands:

```
\begin{abstract}
```

This is a paper about clusters and binary trees.

```
\end{abstract}
```

The abstract should be short with only a vague description of your paper. After that there should be an introduction with more details and an outline of your paper:

```
\section*{Introduction}.
```

The asterisk means no number on the section.

```
\section{Basic definitions}.
```

Most papers have as first section (after the introduction) a section which goes over the definitions of things that everybody knows. You start with a short paragraph stating what you will do in this section:

“We will review the definitions of binary trees and noncrossing partitions.”

The way you type a definition is:

```
\begin{definition} A \emph{binary tree} is ...
```

```
\end{definition}
```

What you get is:

Definition 1. A *binary tree* is ...

3. REFERENCES

We also talked about references. In the final output, e.g., in your midterms which you will probably write by hand, you put references in square brackets with numbers or letters indicating the first initials of the authors. For example, you might have [1] or [IT] and at the end you have references. References are one thing that everyone cuts and pastes from some source.

REFERENCES

- [1] Kiyoshi Igusa and Gordana Todorov, *A characterization of finite Auslander-Reiten quivers*, J. Algebra **89** (1984), no. 1, 148–177.
- [2] Richard P. Stanley, *Enumerative combinatorics. Vol. 1*, Cambridge Studies in Advanced Mathematics, vol. 49, Cambridge University Press, Cambridge, 1997, With a foreword by Gian-Carlo Rota, Corrected reprint of the 1986 original.