

Nomenclature

Roman Symbols

F complex function

Greek Symbols

γ a simply closed curve on a complex plane

ι unit imaginary number $\sqrt{-1}$

π $\simeq 3.14\dots$

Superscripts

j superscript index

Subscripts

0 subscript index

crit Critical state

Other Symbols

\oint_{γ} integration around a curve γ

Acronyms / Abbreviations

ALU Arithmetic Logic Unit

BEM Boundary Element Method

CD Contact Dynamics

CFD Computational Fluid Dynamics

<i>CIF</i>	Cauchy's Integral Formula
CK	Carman - Kozeny
DEM	Discrete Element Method
DKT	Draft Kiss Tumble
DNS	Direct Numerical Simulation
EFG	Element-Free Galerkin
FEM	Finite Element Method
FLOP	Floating Point Operations
FPU	Floating Point Unit
FVM	Finite Volume Method
GPU	Graphics Processing Unit
LBM	Lattice Boltzmann Method
LES	Large Eddy Simulation
MPM	Material Point Method
MRT	Multi-Relaxation Time
PCI	Peripheral Component Interconnect
PFEM	Particle Finite Element Method
PIC	Particle-in-cell
PPC	Particles per cell
RVE	Representative Elemental Volume
SH	Savage Hutter
SM	Streaming Multiprocessors
USF	Update Stress First
USL	Update Stress Last

Chapter 3

My third chapter

3.1 First section of the third chapter

And now I begin my third chapter here ...

And now to cite some more people Read [\[6\]](#), Ancy et al. [\[2\]](#)

3.1.1 First subsection in the first section

...and some more

3.1.2 Second subsection in the first section

...and some more ...

First subsub section in the second subsection

...and some more in the first subsub section otherwise it all looks the same doesn't it? well we can add some text to it ...

3.1.3 Third subsection in the first section

...and some more ...

First subsub section in the third subsection

...and some more in the first subsub section otherwise it all looks the same doesn't it? well we can add some text to it and some more and some more and some more and some more and some more and some more and some more ...

Second subsub section in the third subsection

...and some more in the first subsub section otherwise it all looks the same doesn't it? well we can add some text to it ...

3.2 Second section of the third chapter

and here I write more ...

3.3 The layout of formal tables

This section has been modified from “Publication quality tables in L^AT_EX^{*}” by Simon Fear.

The layout of a table has been established over centuries of experience and should only be altered in extraordinary circumstances.

When formatting a table, remember two simple guidelines at all times:

1. Never, ever use vertical rules (lines).
2. Never use double rules.

These guidelines may seem extreme but I have never found a good argument in favour of breaking them. For example, if you feel that the information in the left half of a table is so different from that on the right that it needs to be separated by a vertical line, then you should use two tables instead. Not everyone follows the second guideline:

There are three further guidelines worth mentioning here as they are generally not known outside the circle of professional typesetters and subeditors:

3. Put the units in the column heading (not in the body of the table).
4. Always precede a decimal point by a digit; thus 0.1 *not* just .1.
5. Do not use ‘ditto’ signs or any other such convention to repeat a previous value. In many circumstances a blank will serve just as well. If it won't, then repeat the value.

A frequently seen mistake is to use ‘`\begin{center}`’ ... ‘`\end{center}`’ inside a figure or table environment. This center environment can cause additional vertical space. If you want to avoid that just use ‘`\centering`’

Table 3.1 A badly formatted table

	Species I		Species II	
Dental measurement	mean	SD	mean	SD
I1MD	6.23	0.91	5.2	0.7
I1LL	7.48	0.56	8.7	0.71
I2MD	3.99	0.63	4.22	0.54
I2LL	6.81	0.02	6.66	0.01
CMD	13.47	0.09	10.55	0.05
CBL	11.88	0.05	13.11	0.04

Table 3.2 A nice looking table

Dental measurement	Species I		Species II	
	mean	SD	mean	SD
I1MD	6.23	0.91	5.2	0.7
I1LL	7.48	0.56	8.7	0.71
I2MD	3.99	0.63	4.22	0.54
I2LL	6.81	0.02	6.66	0.01
CMD	13.47	0.09	10.55	0.05
CBL	11.88	0.05	13.11	0.04

Table 3.3 Even better looking table using booktabs

Dental measurement	Species I		Species II	
	mean	SD	mean	SD
I1MD	6.23	0.91	5.2	0.7
I1LL	7.48	0.56	8.7	0.71
I2MD	3.99	0.63	4.22	0.54
I2LL	6.81	0.02	6.66	0.01
CMD	13.47	0.09	10.55	0.05
CBL	11.88	0.05	13.11	0.04