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Computational Fluid Dynamics for Visual Effects

– Monograph –

November 15, 2014

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Acknowledgements

I would like to thank first and foremost my little brother Jayanthan for reading and correcting this book. Coming from the realms of Philosophy it can be quite difficult to read through higher level mathematical descriptions. Also I want to thank Ken Thomson and Dennis Ritchie, who passed away 2011. Both of them were very inspiring to me and led me to pursuit my passion in computer science.

Contents

Part I Part Title

1	Chapter Heading	3
1.1	Section Heading	3
1.2	Section Heading	3
1.2.1	Subsection Heading	4
1.3	Section Heading	6
1.3.1	Subsection Heading	7
	Appendix	8
	Problems	8
	References	8
A	Chapter Heading	11
A.1	Section Heading	11
A.1.1	Subsection Heading	11
	Glossary	13
	Solutions	15

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Chapter 1

Chapter Heading

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Use the standard `equation` environment to typeset your equations, e.g.

$$a \times b = c, \quad (1.1)$$

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$$\begin{array}{l} a \times b = c \\ \mathbf{a} \cdot \mathbf{b} = \mathbf{c} \end{array} \quad (1.2)$$

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1. Livelihood and survival mobility are oftentimes coutcomes of uneven socioeconomic development.
 - a. Livelihood and survival mobility are oftentimes coutcomes of uneven socioeconomic development.
 - b. Livelihood and survival mobility are oftentimes coutcomes of uneven socioeconomic development.
2. Livelihood and survival mobility are oftentimes coutcomes of uneven socioeconomic development.

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- Livelihood and survival mobility are oftentimes coutcomes of uneven socioeconomic development, cf. Table 1.1.
 - Livelihood and survival mobility are oftentimes coutcomes of uneven socioeconomic development.
 - Livelihood and survival mobility are oftentimes coutcomes of uneven socioeconomic development.
- Livelihood and survival mobility are oftentimes coutcomes of uneven socioeconomic development.

Fig. 1.1 If the width of the figure is less than 7.8 cm use the `sidecaption` command to flush the caption on the left side of the page. If the figure is positioned at the top of the page, align the sidecaption with the top of the figure – to achieve this you simply need to use the optional argument `[t]` with the `sidecaption` command

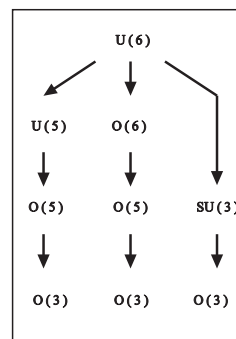
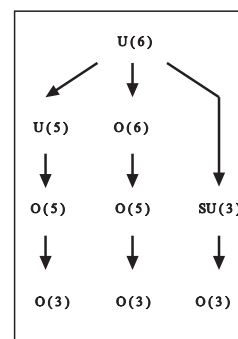


Fig. 1.2 Please write your figure caption here



Run-in Heading Boldface Version Use the \LaTeX automatism for all your cross-references and citations as has already been described in Sect. 1.2.

Run-in Heading Italic Version Use the \LaTeX automatism for all your cross-references and citations as has already been described in Sect. 1.2.

Table 1.1 Please write your table caption here

Classes	Subclass	Length	Action Mechanism
Translation	mRNA ^a	22 (19–25)	Translation repression, mRNA cleavage
Translation	mRNA cleavage	21	mRNA cleavage
Translation	mRNA	21–22	mRNA cleavage
Translation	mRNA	24–26	Histone and DNA Modification

^a Table foot note (with superscript)

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Type 1 That addresses central themes pertaining to migration, health, and disease. In Sect. 1.1, Wilson discusses the role of human migration in infectious disease distributions and patterns.

Type 2 That addresses central themes pertaining to migration, health, and disease. In Sect. 1.2.1, Wilson discusses the role of human migration in infectious disease distributions and patterns.

1.3.1 Subsection Heading

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If you want to emphasize complete paragraphs of texts we recommend to use the newly defined Springer class option and environment `svgraybox`. This will produce a 15 percent screened box 'behind' your text.

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Theorem 1.1. *Theorem text goes here.*

Definition 1.1. Definition text goes here.

Proof. Proof text goes here. \square

Paragraph Heading

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Theorem 1.2. *Theorem text goes here.*

Definition 1.2. Definition text goes here.

Proof. Proof text goes here. □

Acknowledgements If you want to include acknowledgments of assistance and the like at the end of an individual chapter please use the `acknowledgement` environment – it will automatically render Springer’s preferred layout.

Appendix

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$$a \times b = c \tag{1.3}$$

Problems

1.1. A given problem or Exercise is described here. The problem is described here. The problem is described here.

1.2. Problem Heading

- (a) The first part of the problem is described here.
- (b) The second part of the problem is described here.

References

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1. all works by the author alone, ordered chronologically by year of publication
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1. Broy, M.: Software engineering — from auxiliary to key technologies. In: Broy, M., Dener, E. (eds.) *Software Pioneers*, pp. 10–13. Springer, Heidelberg (2002)
2. Dod, J.: Effective substances. In: *The Dictionary of Substances and Their Effects*. Royal Society of Chemistry (1999) Available via DIALOG. [http://www.rsc.org/dose/title of subordinate document](http://www.rsc.org/dose/title%20of%20subordinate%20document). Cited 15 Jan 1999
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⁴ Always use the standard abbreviation of a journal's name according to the *ISSN List of Title Word Abbreviations*, see <http://www.issn.org/en/node/344>

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Appendix A

Chapter Heading

All's well that ends well

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A.1.1 Subsection Heading

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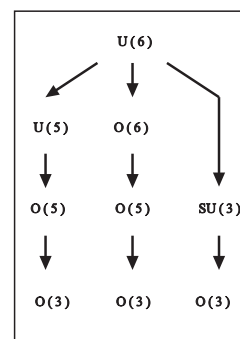
For multiline equations we recommend to use the `eqnarray` environment.

$$\begin{array}{l} \mathbf{a} \times \mathbf{b} = \mathbf{c} \\ \mathbf{a} \times \mathbf{b} = \mathbf{c} \end{array} \quad (\text{A.1})$$

A.1.1.1 Subsubsection Heading

Instead of simply listing headings of different levels we recommend to let every heading be followed by at least a short passage of text. Furtheron please use the

Fig. A.1 Please write your figure caption here



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Table A.1 Please write your table caption here

Classes	Subclass	Length	Action Mechanism
Translation	mRNA ^a	22 (19–25)	Translation repression, mRNA cleavage
Translation	mRNA cleavage	21	mRNA cleavage
Translation	mRNA	21–22	mRNA cleavage
Translation	mRNA	24–26	Histone and DNA Modification

^a Table foot note (with superscript)

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Solutions

Problems of Chapter 1

1.1 The solution is revealed here.

1.2 Problem Heading

(a) The solution of first part is revealed here.

(b) The solution of second part is revealed here.