‘edengths.cls’: The Latex Class File for Formatting a Phd Thesis About Clever Stuff at The University of Edinburgh

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Doctor of Philosophy

THE UNIVERSITY OF EDINBURGH

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To my dearly departed cat,

Roxy

Abstract

Blah blah, blah blah.

Lay Summary

See the web page "How to Write a Lay Summary" for a guide.

Acknowledgements

I'd like to thank Danger Mouse, for being so awesome.

Declaration

I declare that this thesis was composed by myself, that the work contained herein is my own except where explicitly stated otherwise in the text, and that this work has not been submitted for any other degree or professional qualification except as specified.

Robert Bobertson

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Chapter 1

Some Simple Text

1.1 Using some 'natbib' Citations

The following paragraph demonstrates some simple text with some citations. The command

```
\citep[see][]{bibtex:key}
```

puts a citation in parathesis with the word 'see' before the reference itself. The second optional '[ ]' puts something after the reference, such as 'chapter 3' as seen in the second citation in the paragraph. Also the command

```
\citet[]{bibtex:key}
```

will produce an inline citation, i.e., not in parenthesis. Note that a blank line must be places between paragraphs in the raw latex, e.g.

```
Some text in first paragraph.

Some text in second paragraph.
```

At the beginning of this, I'd like to add a reference by Afjeh and Keith (1986) as it has a junior in it and it's good to see how that formats. Pellentesque id mi sit amet mauris elementum sagittis eget at neque. Quisque id sapien magna, et pharetra enim. Aenean congue turpis et libero faucibus vitae vulputate erat facilisis. Pellentesque iaculis orci a nisl scelerisque quis accumsan sem viverra. In nec risus dolor, vitae adipiscing erat (see Solomon et al., 2007) pellentesque id mi sit amet mauris elementum sagittis eget at neque. Proin tincidunt sollicitudin sagittis. Pellentesque id mi sit amet mauris elementum sagittis eget at neque. Quisque id sapien magna, et pharetra enim. Aenean congue turpis et libero faucibus vitae vulputate erat facilisis. Pellentesque iaculis orci a nisl scelerisque quis accumsan sem viverra. In nec risus dolor, vitae adipiscing erat (see Jaccard, 2005) pellentesque iaculis orci a nisl scelerisque quis accumsan sem viverra. In nec risus dolor, vitae adipiscing erat.

1.2 Entering and Referencing a Figure

The next paragraph demostrates a reference to a figure and then a the figure itself. Note the standard layout for a figure is

```
\begin{figure}[htb] % htb is positional preference (here, top, bottom)
  \centering
  \includegraphics[width=some width]{filename without extension}
  \caption{Caption Title}
  \label{fig:label}
\end{figure}.
```

The reference to the figure is then provided by something like

```
figure~\ref{fig:label}.
```

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Pellentesque id mi sit amet mauris elementum sagittis eget at neque. Quisque id sapien magna, et pharetra enim. Aenean congue turpis et libero faucibus vitae vulputate erat facilisis. Pellentesque iaculis orci a nisl scelerisque quis accumsan sem viverra. In nec risus dolor, vitae adipiscing erat. Etiam ultrices leo eget arcu faucibus congue. Nullam eget iaculis mauris. Ut gravida rutrum nisl eget auctor. Donec sodales enim at massa porta nec mattis est dapibus. Nunc nec vehicula tellus. Quisque massa tellus, lobortis vel sodales sed, aliquet varius dui. Proin tincidunt sollicitudin sagittis. Figure 1.1 shows something unrelated to this paragraph, but neatly demonstrates how to stick a figure in and reference it.

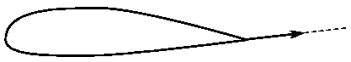


Figure 1.1: Alternative orientations of the wake vortex sheet as it separates from the trailing edge of the aerofoil.

1.3 Quoting Something

The final paragraph in this chapter illustrates a quote. To do a quote simply use the enviroment

```
\begin{quote}
 The quote text.
\end{quote}.
```

Note that the edengths class forces quotes to single spacing as the thesis regulations demand this. Also, there is an inline citation in the next paragraph.

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> “Lorem ipsum dolor sit amet, consectetur adipiscing elit. Pellentesque id mi sit amet mauris elementum sagittis eget at neque. Quisque id sapien magna, et pharetra enim. Aenean congue turpis et libero faucibus vitae vulputate erat facilisis.”

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Chapter 2

Another Chapter

2.1 The first section

Note that all section and chapter titles should use lower case except for the first character of the first word. Here is a reference to a paper Smith (1998). Figure 2.1 is a weird picture.

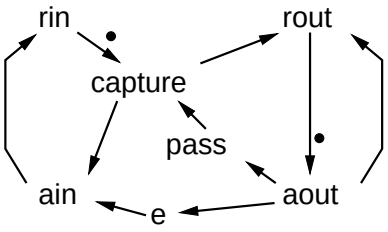


Figure 2.1: This is an example of pdf with a very long caption and *some italics* to see what happens and it should see what happens over two lines.

2.1.1 A subsection

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Maecenas nec orci lacus, ac sollicitudin tortor. Maecenas rutrum vestibulum rhoncus. Vestibulum non ligula nibh. Cum sociis natoque penatibus et magnis dis parturient montes, nascetur ridiculus mus. Phasellus egestas sodales lacus, ac scelerisque nulla venenatis sed. Ut elementum turpis ac lacus consectetur consequat. Sed at est eros. Praesent erat velit, dictum id adipiscing eu, ultrices vel nisi. Nullam at nisl ut est posuere commodo tincidunt eget nisl. Integer id erat non metus adipiscing dignissim quis sed enim. Curabitur viverra lobortis eleifend. Proin vestibulum nunc eu augue dapibus quis porttitor ipsum rhoncus. Duis tortor tellus, suscipit sit amet ornare id, lacinia sed lacus. Ut in molestie ligula. Praesent euismod lectus vitae arcu malesuada tempus. Aliquam pharetra tincidunt augue in eleifend. Curabitur porttitor vulputate quam, ut fringilla mauris porta eu. Curabitur sodales, felis non vestibulum feugiat, urna diam bibendum purus, ac scelerisque massa eros sit amet ipsum. In elementum laoreet aliquam.

A subsubsection

Aliquam eget sapien tellus, sed rutrum leo. Vestibulum et quam sit amet dolor gravida sagittis. Aenean dapibus urna a nibh sollicitudin pharetra. Sed nisi augue, vehicula sed tristique facilisis, lacinia ut augue. Nam quis tempor mi. Vestibulum lorem leo, aliquet at sollicitudin vitae, fringilla id odio. Aenean a orci odio. Mauris tincidunt eros ac libero suscipit molestie. Donec feugiat turpis a urna suscipit in pellentesque magna pretium. Vivamus eget nunc vitae nunc ultricies tincidunt. Duis dictum eros et lorem auctor id ullamcorper diam commodo. Pellentesque quis dolor nec urna vestibulum pellentesque. Donec luctus mi ut nisi hendrerit pulvinar. Donec fringilla, lectus vitae accumsan sollicitudin, sem metus mollis risus, nec laoreet ante arcu ut augue.

2.1.2 Another subsection

Table 2.1 is an example of a [1] simple table.

1.0	2.0	3.0
4.0	5.0	6.0

Table 2.1: A table

2.2 Another section

This is a long and boring paragraph for the purpose of testing the spacing between paragraphs and the use or otherwise of indentation. I think a space between paragraphs and without the first line indented is somewhat easier to read than no space between paragraphs and with the first line indented.

Another equally exciting paragraph, one two three four five six seven eight nine ten eleven twelve thirteen fourteen fifteen sixteen seventeen eighteen nineteen twenty and so on.

$$z(k,l) = \frac{2}{N}\alpha(k)\alpha(l)\sum_{m=0}^{N-1}\sum_{n=0}^{N-1} x(m,n)\cos\frac{(2m+1)\pi k}{2N}\cos\frac{(2n+1)\pi l}{2N} \tag{2.1}$$

$$x(m,n) = \frac{2}{N}\sum_{k=0}^{N-1}\sum_{l=0}^{N-1}\alpha(k)\alpha(l)z(k,l) \tag{2.2}$$

1. this is a footnote

> This is a quotation, another equally exciting paragraph, one two three four five six seven eight nine ten eleven twelve thirteen fourteen fifteen sixteen seventeen eighteen nineteen twenty and so on. Just checking it is single spaced.

2.3 Section with a landscape image

Figure 2.2 is an image on a landscape orientated page with the header removed and a simple footer added.

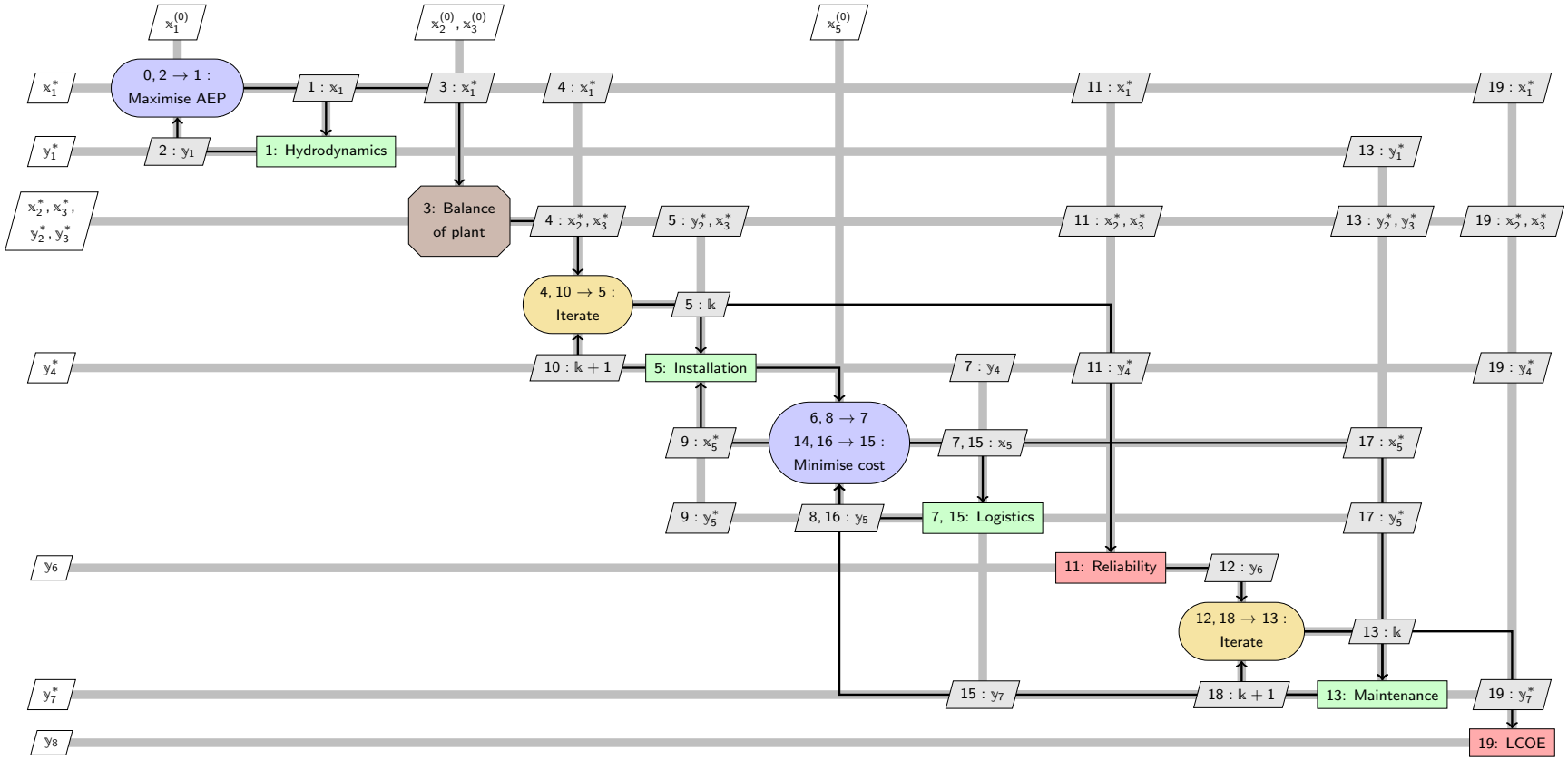


Figure 2.2: XDSM diagram. Reproduced from (Topper et al., 2021).

Appendix A

Collocation Method at the Wake Edges

A collocation based gradient method is formulated in Gray, Phan, and Kaplan (2004, sec. 5). In that paper it is proved that the method, although applicable to a general Laplace problem, is not applicable to the crack problem. The difficulty arises from an additional constant in the shape functions for the most singular point. However, the zero value of

The development of the collocation method is very similar to that of the edge adjacent integral, expect that only one polar transformation is available. To begid effect of differ

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Smith, J. (1998, July). Another of my publications. In *Journal of papers* (Vol. 1, p. 1-3).

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