Self-publishing with L_YX

Self-publishing with LYX

Alan L Tyree

To my wife Allison

Contents

List of Figures

List of Tables

Preface

In early 2007, I used LyX to layout and publish a cookbook on Lulu.com. A cookbook is a good test of publishing software since its layout is more complex than a novel but not as difficult as a brochure or newspaper.

The cookbook is "The Restless Minestrone", available in the "Cooking" section of Lulu.com.[1] If you look at the preview of the book, you will see that the combination of text, drawings and ingredients lists requires a certain level of layout sophistication.

Book design is a difficult art, and it is not likely that it will be achieved by the average person who uses a word processor. It is *possible* to use a word processor to produce a well designed book, but it is not easy. It is probably not possible unless you are a trained graphic designer with some experience and knowledge about book design.

What is required? A good basic design, consistency and simplicity. Most books produced by a word processor lack the first two and often the third.

You want to spend your time writing, not worrying about the layout and design. LyX allows you to do just that. It takes care of most of the design decisions, producing a book with professional layout and typesetting. You concentrate on the content.

That is the way it should work.

Alan L Tyree
August, 2007

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[1]http://books.lulu.com/content/728996

Some abbreviations

Everything is accessible from menus in LyX, but good touch typists will want to use key combinations as often as possible. LyX has many key combinations defined, and in the built-in help document "Customization" shows you how to add your own.

In this book, we will use the following special keys:

C The control key, usually labelled "Ctrl"

M The "meta" key, usually labelled "Alt" on most PC keyboards

S The shift key

Key "chords" can be represented in print by combinations of these keys. Some examples:

C-M-Space Hold down the Ctrl and the Meta key while pressing Space

M-p Hold down Meta while pressing p - gives a list of paragraph types

You get the idea.

The path ahead

This book is not a detailed explanation of how to use L_YX. If you see such a book, ask yourself what good it might be since L_YX has built-in tutorials and user guides that are excellent works. If you simply want to use L_YX, there is no need for any material other than what comes with L_YX.

This book explains why you should use L_YX if you are a self-publisher, and it examines those parts of L_YX that are of particular importance to you as a self-publisher.

So, here is how I propose that we proceed:

- In Chapter 1, I will try to convince you that you should be using L_YX to publish your book. If I fail in this, then you need read no further.

- If you choose to proceed, I will outline the essential features of L_YX and how you should think about using it.

- For the remainder of the book, I will show you the steps that I went through to publish this book.

Let's begin our journey.

Chapter 1

Why LyX?

I know, I know. You have a word processor and you have used it for years and you are very happy with it and . . .

Stop! You are not only writing a book, you are publishing it as well. If you sent it to a professional publisher, and if it were accepted for publication, it would be edited by a professional editor, made into a book by a professional designer and set into type by a professional typesetter. As a self-publisher, you have to do all of these things yourself.

1.1   Word processor limitations

A word processor might be suitable for writing, but it is not suitable for publishing. Why do you think that none of the professional publishers produce their books with Word or OpenOffice?

Word processors can produce a good looking product, but it is not easy. You want proof? Just look at the previews of the hundreds of books on Lulu.com.[1] You can tell which ones have been produced with a word processor.

Well, maybe not all. If the author is a graphic artist who knows a lot about book design, then it is possible that he or she has produced a professional looking book. Is that you? If not,

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[1] http://www.lulu.com

then your word processed book is going to look like, well, a word processed book.

OK, I hear you say, what about desktop publishing tools? Commercial ones like InDesign or Open Source ones like Scribus. Surely these can produce a professional looking book.

True. But go back to browsing Lulu.com books. You can probably spot the ones done with desktop publishing. They will lack consistency, have too many fonts and too many colours.

The problem with desktop publishing programs is that they give the amateur too much freedom. And they require too much from you. They demand that you place every item on the page. While this might be desirable, indeed, necessary, for a brochure or a newsletter, it is certainly overkill for your average book.

1.2   Beyond word processing

Ask yourself these questions: "What do I know about book design?" "What do I know about typesetting?" The most likely answer, if you are honest, is "Next to nothing!"

If this is you, then you need as much support from your software as you can get. You need a word processor type program to help you write your book simply and cleanly. You need software to help you with the design and typesetting of your book. In other words, you need software that will replace the professional help that you would get if you submitted to a commercial publisher.

This is not just my opinion. Consider the following quote from the Wikipedia article on self-publishing:

> Because professional-quality typesetting suites, such as LaTeX, are available as free software, the typesetting of a self-published book may be as good as a traditionally published work. However, these tools require some technical skill, and many self-published works are formatted using a word processor, which can give less appealing results by comparison. The development of relatively low-cost desktop publishing

software has put more powerful tools in the hands of self-publishers, but without any guarantee that they will be used to professional standards.

This is where LyX comes in. LyX is your friend. LyX is a good word processor, but more importantly it will take care of all the major problems of layout and typesetting. LyX will produce, on your behalf, a professional layout with better typesetting than you will get from most commercial publishers. LyX helps to overcome the problem of "technical skill" mentioned in the above quotation.

Here is the description of LyX from the LyX website:

> LyX is for people that write and want their writing to look great, right out of the box. No more endless tinkering with formatting details, 'finger painting' font attributes or futzing around with page boundaries. You just write. In the background, Prof. Knuth's legendary TeX typesetting engine makes you look good.
>
> On screen, LyX looks like any word processor; its printed output – or richly cross-referenced PDF, just as readily produced – looks like nothing else. Gone are the days of industrially bland .docs, all looking similarly not-quite-right, yet coming out unpredictably different on different printer drivers. Gone are the crashes 'eating' your dissertation the evening before going to press.

LyX can produce, directly in most cases, the PDF file that you need to submit to your printer for publishing. For more discussion on this, see the discussion in Chapter 11 on page 65

LyX is very stable software, but any complex software will crash from time to time. LyX has one of the best recovery systems I have ever seen. I have never lost even a single word of text following a LyX crash, and that included working on a very unstable system which shall remain nameless.

Are you convinced yet? Wait! There's more! L<small>Y</small>X can also assist you with professional style cross references, indexes and bibliographic references. These may not be important if you are writing a novel, but they are vitally important if you are writing technical or other non-fiction books. Many libraries will simply ignore non-fiction books that do not have an index, and any academic work without these elements lacks credibility.

1.3   Cross references

Cross references are a problem for many writers. In traditional systems, the writer cannot refer to a page number until the manuscript is completed and typeset. Even worse, if the writer decides to reorganise the work, all the cross references become invalid.

In the past, these problems have been addressed by referring to paragraph numbers or to section numbers. This allows the author to insert the cross references before the manuscript is typeset, but it does not solve the problem of rearrangement, addition or deletion. And you can be sure that once the manuscript is rearranged that you will miss some of the existing references.

L<small>Y</small>X makes cross referencing easy and foolproof. It supplies a number of different cross referencing forms such as page reference, section reference, etc. The important advantage is that the cross references are automatically updated if the manuscript is rearranged.[2]See section 6.1 on page 32.

1.4   Indexing

L<small>Y</small>X will make indexing less of a chore. Nothing can make indexing easy. It is a painful, time consuming process that nobody enjoys. Traditional indexing also suffers from the same problems as cross referencing: rearrangement of the manuscript corrupts

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[2]L<small>Y</small>X is not alone in this capability, but it's implementation is one of the easiest to use. This could have gone in the main text, but I wanted to show you a L<small>Y</small>X footnote.

all the former good work and, if index entries refer to page numbers, then it cannot be completed until the manuscript is laid out and typeset.

LyX makes indexing much more pleasurable. An index entry may be inserted into the manuscript at any time, sub-index entries are supported and the entire index is recomputed when the manuscript is rearranged. Section 6.2 on page 33 shows you how to use the LyX indexing features.

1.5   Bibliographies

Bibliographic references are a constant pain for academic writers. A bibliographic citation looks like this: see [Lamport, 1994] for a description of the BibTeX system. The thing about bibliographic references is that you want them to look exactly the same every time they appear in your book. Even the most careful writer will find that there is an annoying lack of consistency in the way that references are cited when they are entered by hand. Even the most careful researcher misplaces references, often requiring hours of work to find them again. The task is just too boring and too fiddly to be left to the human writer.

LyX uses the BibTeX reference system. References are kept in a database which is accessed through LyX menus. Citations are always consistent and the references are always there. Different citation forms are available and it is easy to design your own. Unlike some systems, the reference database is contained in a plain text format. Chapter 7 shows you how to insert citations and generate a bibliography. If you are an academic writer and have never used a system such as BibTeX, then you have been working too hard!

1.6   Should I use LyX for everything?

No. LyX is great when you are writing and publishing a "standard" book – one with a lot of text and relatively few illustrations. It is powerful because it takes care of most aspects of

design, ensures consistency, and assists you with indexing and cross-referencing.

It is also excellent for a book like "The Restless Minestrone" where the illustrations, although numerous, are placed in a reasonably regular fashion. The cookbook also has the advantage that recipes form "blocks" of information that may be treated as more or less independent.

But for some kinds of publishing, the way that LyX imposes a design is a hindrance. So, for example, if your publication is in the form of a newsletter, or a picture book, or, possibly, a travel book, you might be better off with other software.

Here is the test: does each page require customized, detailed layout and does that layout differ substantially from page to page? If the answer to this is "yes", then you will probably need to use a "desktop publishing" program.

Scribus is an open source software desktop publishing program. It is very suitable for the kind of book or publication that we have just been describing. It will require a lot more design input from you, and if you are not an experienced designer, the final product will probably show it.

Lyx will do for most kinds of books. As we will see, it offers the flexibility to mix text and figures in almost any combination. It will probably do a much better job of layout and design than you could do. You should consider something else only if your demands are very specialised and your talents sufficient to carry it off.[3]

1.7   LₔX summary

There are other programs that can do some of these things, some of them better than others. However, for the serious self-publishing author, no other program offers all of LyX's advantages:

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[3]And even then, you should consider using LaTeX. An example is where you might need multiple indexes. LyX is not too well suited for this at the moment.

- professional layout of the resulting book

- professional typesetting through the LATEX backend

- easy to use - easier than most word processors

- support for dynamic cross references

- support for indexing

- support for bibliographic database and automatic citation

All of these things can assist in making your book look profes-
sional and making your authoring job easier. In short, if you are
a self-publishing author and you are not using LyX, then you are
working too hard.

Chapter 2

L_YX basic concepts

L_YX looks a lot like an ordinary word processor, but unless you understand some basic principles you will become frustrated with it. For example, L_YX will not let you put multiple spaces between words. It simply refuses to respond to your spacing command. Similarly, it will not let you put extra lines between paragraphs. It just refuses to do it.

Why? We first need to understand the relation between L_YX and T_EX, the typesetting system behind it.

2.1   L_YX and T_EX

The story goes that Donald Knuth, the great computer scientist, was disappointed with the typesetting of the second edition of his work "The Art of Computer Programming". He decided to write a typesetting program to correct the deficiency, expecting it to take a year. In fact, it took ten years and the result was T_EX, pronounced "tek". It has gone through a number of revisions, and it is universally acknowledged to produce extremely good typesetting. T_EX is described in Knuth's own book: Knuth [1984].

One of the strengths of T_EX is that it is a powerful programming language. This allows "macros" to be written for regular tasks. One set of macros is known as L^AT_EX, and these macros

provide a set of instructions aimed at the design and simple creation of book-type manuscripts. LaTeX is described in a book authored by its creator, Leslie Lamport: see Lamport [1994].

LaTeX is a form of text "markup", and many authors find it distracting to have the markup in their manuscript. LyX goes a long way towards solving this problem. LyX allows you to use the power of LaTeX without being bothered by the markup.

2.2   Separation of content and format

It is one of the very basic LyX principles:

> As far as possible, the author should concentrate on structure and content. Layout and typesetting should be left to the software.

Word processors are designed to allow maximum flexibility in visual presentation. They allow visual alteration of text and paragraph properties. That is OK, some say convenient, for short works, but in a longer work consistency will inevitable suffer.

Professional book publishers use "content authoring" tools. Each text element is assigned a "style" that reflects its semantic content. At the end, if the visual output needs to be changed, then the "style" is altered and all text elements of that style will be changed.

As an example, consider the paragraphs in this book. The title of this section "Separation of content and format" is a paragraph which is intended to be a level two section heading. It should be assigned that style, and the author should not worry about whether it is in bold, in italics or any other aspect of the presentation. The author just marks it as a level two heading and lets the publisher and typesetter worry about the presentation.

The principle of separation of content is not carried to any extreme. LyX offers plenty of formatting and layout possibilities, but they are applied in a systematic way. You will learn some of these in the chapter on boxes and tables: see page 27. We will also look at various formatting and layout options as we continue.

However, the basic principle is important and you should not try to circumvent it.

L_YX uses two fundamental concepts:

- each document belongs to a document class

- each paragraph has a paragraph style; the available styles are determined by the document class.

2.3   The "book" document class

This book is primarily concerned with the "book" document class. It comes standard with every L_YX/LATEX installation. It provides quite a large number of paragraph types. The paragraph you are reading now is "standard", and the five bulleted paragraphs below are "itemize" paragraphs.

There are other document classes that you might find useful. Some examples:

- "Article" class for writing journal articles

- "Broadway" class provides paragraph types useful for writing plays

- "Hollywood" for writing screenplays

- "Curriculum vitae" for writing resumes

- "Letter" for writing letters.

Many scientific publishers provide their own document class. These not only provide paragraph styles but also set out citation standards, etc.

The "book" class is fairly simple. Authors sometimes want more "trimmings" on the final product. There are a couple of book classes that allow you a lot more control over the way things look. This is done by providing more paragraph styles for special purposes. The "Koma-script" book class is popular, particularly with European authors since its default settings are closer to European publishing conventions. The "Memoir" book class is also

highly configurable. If you have special requirements then you
should have a look at these. Both come with excellent documen-
tation and both are probably included in your TEX installation.

But the plain old "book" class is good enough for most books.
This book was typeset with it, and it is unlikely that you will
need more. Once you become a LyX wizard you can have a look
at these other classes, but I recommend that you stay with the
simple for the time being.

2.4   Document settings

Overall document appearance is set in the Document → Settings
menu. Figure 2.1 shows the dialogue for setting the document
class. Aside from setting the document class to "book", there is
nothing more to be done.
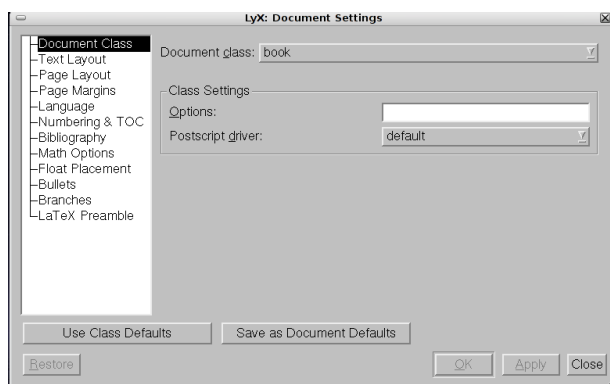
Figure 2.1: Setting the document class

Figure 2.2 shows the dialogue for setting up the text layout
for this book. As you can see, most of the settings are left at
"default" although I have made the type size 11pt instead of the
default 10pt.

Page size and layout is set in the Page Layout menu. There
are a number of standard page sizes, but the 6"x9" format of
Lulu.com is not one of them. For custom formats, you must
make sure that the "geometry" package is part of your LATEX
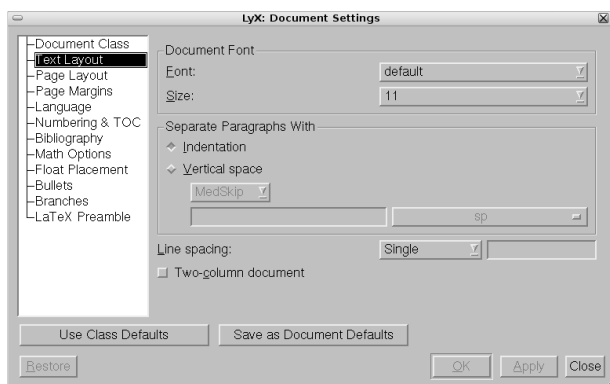
Figure 2.2: The Text Layout dialogue

installation: see page 73 for notes on the installation of LaTeX and LyX on your system.

The other change from the defaults that you should make is in the "Page layout" dialogue. Make sure that your "Page style" is set to "empty". This will prevent the typesetting system from adding numbers to your pages at this stage. Don't worry about this, since we will reinstate them later.
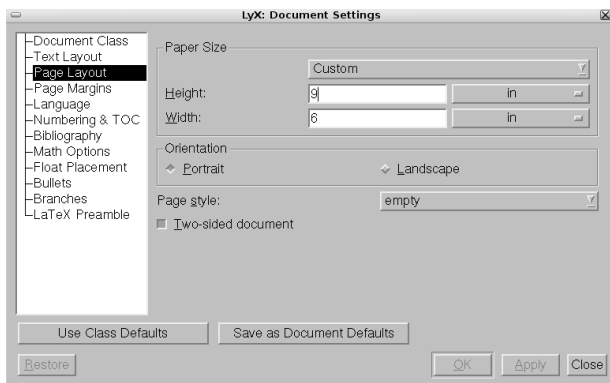
Figure 2.3: The Page Layout dialogue

If you change any of the defaults, click the "Apply" button to make them take effect on your document.

The only menu items that are not immediately obvious are the "Branches" and "LATEX Preamble" ones. We will not use "Branches", so it can be ignored. We will add some things to the LATEX Preamble, but we will discuss that when we come to it. We will also adjust some margins later, but we will discuss the details when necessary in Chapter 11 on page 65.

We are now ready to start writing!

Chapter 3

Publishing a novel

Publishing a novel or other plain text work is dead simple using LyX. This chapter is relevant even if your book is not a novel. All books have text, and that is what this chapter is about.

For the moment, let's forget about all that stuff at the beginning of a book (the "frontmatter") and get right into the body of it. Chapter 1. The nice thing here is that you don't even need to type "Chapter 1". Just open a new file and choose a paragraph type of "Chapter" from the drop down menu.

The system inserts "Chapter 1" for you. You can add to that title if you wish; I have added "Publishing a novel" to the title of this chapter. Hit "Enter" and start typing the great <American | Australian | New Zealand | insert name of your country> novel. Don't worry about how it looks, just write! Hit "Enter" for a new paragraph. Note that all the paragraphs that you are writing here are "Standard" paragraphs.

When you want to start a new chapter, hit "Enter" for a new paragraph, then go to the drop down menu and choose "Chapter". The system will insert "Chapter 2" on your behalf. Hit "Enter" again for a new paragraph. LyX is smart enough to know that you probably want a "Standard" paragraph as the first paragraph in your chapter.

These are probably the only paragraph types that you will need for a novel. If it is a very long one, you might want to divide it into parts. There is a "Part" paragraph type provided

for that very purpose. Another possibility is that you wish to include a quotation. The "Quotation" paragraph type fills the bill:

> This is a "Quotation" paragraph. Nicely indented and set off from the rest of the text. It can be as long or as short as you wish. When you hit "Enter" the paragraph type remains "quotation" so the quote may run for several paragraphs.

When you are finished with the quote, hit "Enter" for a new paragraph and choose "Standard" from the drop down menu to return to standard paragraphs.

Although it is unlikely in a novel, you might want to divide chapters up into "sections" and, conceivably, divide sections up into "subsections", etc. Each of these is a paragraph type in the book class that will insert a suitable heading.

Your novel might even contain lists. For a bullet list, choose paragraph type "itemize". For a numbered list, choose "enumerate". LyX will also do a "dictionary" type list, which LyX calls a "definition" paragraph type. It looks like this:

Akubra well known Australian hat

Rabbit animal from which Akubra hats are made

Dingo a wild Australian dog

Drongo not a dingo

Once finished with your list, make the next paragraph a "standard" one and continue writing.

Type enough of your novel to fill three or four pages and then we'll take a look at the final product.

3.1 Viewing the typeset text

Let's look at what we have so far. LyX can produce several types of output, some of which may depend on your particular

installation. All systems will produce dvi files which are "device independent" files. These are intended to look the same on screen or in print. Your TeX installation will include a dvi viewer.

However, for printing you will probably want another kind of file. The most common these days seems to be PDF (Portable Document Format) files. LyX can usually produce PDF files directly. In fact, most installations have several ways of producing PDF files. It is likely that the commercial printer who will produce your book will ask for a PDF file, and it is the preferred format for publishing on Lulu.com.

So, let's look at your novel. Go to the "View" menu, then click on PDF (pdflatex). This will generate a PDF file and open the PDF viewer on your system. Let's note a couple of things. First, the typesetting is first class. Look at it under a magnifier if your system supports it.

Second, the output is set up for two sided printing. The outside margin will be a little larger than the inside margin. This seems counter-intuitive to the beginner, but the idea is that when the book is opened there will appear to be three more or less equal white spaces: the outside margin of the left hand (verso) page, the combined inner margins of the two facing pages, and the right hand margin of the right hand (recto) page.

These margins may need adjustment depending on the requirements of your printer, but we won't worry about that for the time being. These "final touches" will be discussed in Chapter 9 on page 51 and in the chapter on publishing your book, Chapter 11 on page 65

Also notice that LyX, actually LaTeX has made sure that your chapters start on the right hand (recto) page, even it is is necessary to insert a blank page.

The other thing you might notice, depending on the default settings of your out-of-the-box LyX, is that the pages look a bit plain. If you have followed my suggestions on page layout, not only are the pages plain, but they have no folios (numbers). Most novels have some "headers" and possibly "footers", and they certainly have folios. We will deal with this immediately.

3.2   Adding headings

Let's make the pages look a bit better by adding headers and
folios. A reasonably good style for a novel is to have the author's
name in the heading of the left hand (verso) page and the name
of the book, perhaps shortened, in the heading of the right hand
(recto) page. To achieve this, we will insert some LaTeX code at
the beginning of the text.

Don't be afraid. Go to the very beginning of your text. Go
to the Insert → TeX Code menu or click on the TeX icon. A
small box with red lettering will appear with a space for you to
insert material.

Type the following inside the box:

```
\mainmatter \pagestyle{myheadings}
\markboth{your name}{your title}
```

This can be all on one line, split over several lines or over several
TeX boxes. Of course, you should substitute your actual name
and title.

Let's look at the results. Go to the View menu, but this time
click on Update and then PDF (pdflatex). Depending on the
PDF viewer that you are using, the result may update itself au-
tomatically, may require you to do something (C-r on my viewer)
or it may open a completely new viewer. Worse, you may have
to exit the viewer and then restart it. This latter behaviour is
most annoying, but it has to do with the viewer that you use,
not any setting that LyX can control. It seems to be a problem
mainly for Windows users: see 12.2 on page 73 for suggested
alternatives.

If you have done everything correctly, you should see headings
similar to the ones in this book. Folios (page numbers) appear
on the outside top edge, and name and title are set in italics on
the inside of the headings.

Another common heading structure is to have the folios in
the headings along with a chapter title on the left hand page
and a section title with folio on the right. This is obtained by
changing the LaTeX instructions given above to:

```
\mainmatter \pagestyle{headings}
```

This may be preferable where the book is more technical. Indeed, it may have been a more appropriate choice for this book.

It is possible to get much fancier headings. Most LaTeX installations include the package "fancyhdr" which will allow you to define three part headers and footers for even and odd pages. LyX contains a pagestyle option to utilise the fancyhdr package, but you still have to insert LaTeX code to get it to work properly. The "Memoir" and "Koma-script" book classes also have facilities to do this. My own preference would be to use one of these more complex book classes if you need more flexibility in designing headers and footers. But since you are doing your own publishing, why not stick with the simple style for the time being?

3.3 Dropped caps

If you look at a work of fiction, you will often see that the first paragraph of the chapter or of a section has a "dropped" first letter. It looks like the first letter of this paragraph. To do this simply, you need to have the "dropping.sty" package in your LaTeX installation or be willing to add it. See the discussion at 12 on page 73. It is also possible to do in "plain tex", but if you are a beginner, you probably don't want to do this. For the stout hearted, the "Extended features" document that you can access through the "Help" menu has an example on how to do it.

So, how did I make the dropped cap? In the Documents → Settings → Latex preamble menu, type \usepackage{dropping}. Then at the place where you want the dropped cap, use the menu Insert → Tex. This will give you one of those red boxes. Inside the box, put \dropping{3}{I} to get the dropped cap of the previous paragraph. The "3" says that you want it to extend over three lines and the "I" is the letter that you want put there. You can have more than one letter if you like, but it doesn't look too hot.

A word of caution here. The "dropping" command does not play well with pdflatex on many systems. Try it with yours, but if you get an error, as I did on my system, it is probably because of this inconsistency.

The "fix" is to change the package declaration in the preamble. Go Document → Settings → Latex Preamble and change the entry to:

```
\usepackage[dvips]{dropping}
```

Note the different style of brackets in the declaration. This should allow you go generate PDF files directly with pdflatex.

We should note here that there are a number of different display formats. The "dvi" format is standard on every LaTeX installation. It stands for "device independent" files, meaning that they should look the same in print and on the screen. The PDF format should also have this quality, but PDF readers vary greatly in their ability to present PDF files.

For reasons that will become apparent in Chapter 11, the postscript format is also important. Very high quality printers process postscript files directly, and they may also be reliably converted to PDF files.

3.4   Final touches

Once you have finished typing and editing your novel or other text book, you need only add the "front matter". This is discussed below at page 43. This will probably give you all you need to submit your manuscript for printing, but if you are really picky about things, you will also want to read the chapter on "Fine tuning": see Chapter 9 on page 51.

Chapter 4

Adding pictures

Most books other than novels will have some illustrations or pictures. In this brief chapter, I will show you how to include graphic illustrations. LYX can handle a wide variety of formats. My own view is that the png format is best for black and white illustrations. Most colour pictures will be in jpeg format. LYX easily handles both for PDF or postscript output. There should be automatic conversion to other formats if you choose dvi output.

4.1 Inserting a graphic

It is easy to insert a picture or other graphics into your LYX manuscript. Go to the Insert → Graphics menu. Figure 4.1 shows the dialogue box that pops up. There are several things to note about this.

First, you have the option of showing the graphic in your LYX screen. You will ordinarily want to do this. The trouble is that if the picture is large, your screen will be very full and cluttered. Scale it down by the appropriate amount. I often set the scale factor at 10% since that means that the graphic is visible but it doesn't take up much real estate on the screen.

The "Output" part of the dialogue governs the size of the image in the final typeset manuscript. This is something of a trial and error exercise. Note that there are a number of ways of
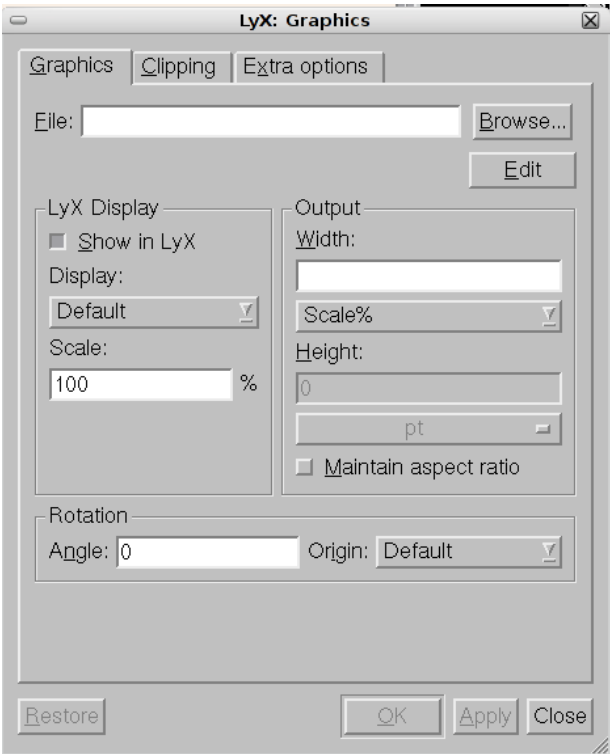
Figure 4.1: The graphics menu

setting the output size. I normally make it a percentage of the textwidth or column width and click on the "Maintain aspect ratio" button. You can also rotate the graphic if you so desire.

4.2 Floating a graphic

The problem with simply inserting a graphic is that it might mess up your page breaks, sometimes to a degree that is catastrophic. Remember that the idea of LyX is to leave layout to the typesetting software. You concentrate on the content.

The way to do that for graphics is to use a "float". The float construct allows the LATEX typesetting program to make the decision about the exact location of the graphic. All of the pictures of menus in this book are floats of png graphics files. Go to the Insert → Float menu or click on the appropriate icon. There are several options there, but we will only be concerned with the "Figure" option for the moment.

This will insert a "float" in your manuscript. There will be a "Figure #:" inside the box. Now you want to insert a graphic inside the box. There is a slight detail here to consider: if you want the caption to be below the graphic, you must first press "Enter" to get a new paragraph inside the box. Put the graphic in that position. If you are happy to have the caption above the graphic, just insert it at the end of the box. Type in a caption for the graphic in the space following the semicolon.

The other problem might be that the graphic is set to one side or the other. Place the cursor in the paragraph where the graphic appears, go to Edit → Paragraph Settings and center the paragraph. Each of the graphic floats in this book is centered in this way.

Floats may appear above, below or even on the next page of the location where you inserted the float. Don't refer to "the diagram below" or any such phrase. Put a label in the float, right after the "Figure #:", and then insert a cross reference to it in your main manuscript: see Chapter 6 on page 31 for a discussion of labels and cross references.

You can exercise some control over where LATEX puts the float. Right click inside the float box and make a choice from the menu that pops up. The best choice here, if you are not happy with the results, is "Here if possible". If you force the position to be "Here definitely" then you might as well not use the float. Just insert the graphic into your text. I don't recommend this, but it may be necessary or desirable in certain unusual cases.

4.3   Text Wrap Floats

Figure 4.2: A text wrap float

There is another kind of float that is nice to use sometimes, usually when the float is more of a decoration than an essential part of your exposition. The text wrap float allows your text to "flow" around the graphic. By right clicking in the box, it is possible to exercise a certain amount of control over the placement of the float.

It seems that you should place the float before the text that you want to wrap around since it sometimes starts a new paragraph.

4.4   Graphics requirements

You should talk to your printer about graphics requirements such as resolution and whether it should be black and white or grayscale. Do this at an early stage of your book so that you don't have to repeat a lot of work later. If you don't yet know a local printer, then follow the rules for publishing on Lulu.com.

If you are publishing with Lulu.com, there is a wealth of information on preparing your graphics. Most importantly, images should be scanned or entered at 300dpi. If your book has colour in the main body, then black and white images should be grayscale with a gamma of between 2.2 and 2.4.

I used grayscale images in "The Restless Minestrone" even though the book was entirely black and white. The results were good.

There is a slight problem with screenshots. The basic screenshot is normally 72dpi. If printed as part of a PDF file, it will appear fuzzy. The solution is to rescale the graphic using something like the GIMP or Photoshop. Using the GIMP, Image → Scale Image and rescale to 300dpi. Set the Interpolation to "None (Fastest)". This should give reasonably good images in the printed product.

Chapter 5

Boxes and tables

Boxes are treated by the typesetting system as a single unit, just as though it were a single letter. Boxes can be of any size, but they will never be split across lines or pages. This is both a strength and a weakness, for there is nothing to warn you that a box is too big.

5.1   Minipages

In spite of this problem, boxes are extremely useful for layout and formatting. For example, we may wish to put two graphics side by side. In a cookbook, we will often want a list of ingredients and a graphic to appear side by side. Boxes are your friends in this case. Here is an example of a list of ingredients and a graphic from "The Restless Minestrone":

- 1 large cauliflower

- 1 onion, chopped

- 1 cup whole milk

- 1 1/2 teaspoons white vinegar

- 2 tablespoons butter or margarine

- salt and pepper to taste

- chopped parsley

This was constructed by putting two boxes side by side. They are each 45% of the column width, and I have left-aligned the paragraph. Both boxes are "middle" aligned.

There are several different kinds of boxes, but the only one you need to know is the "minipage". A minipage is treated just exactly as though it were a separate page. A variation on the theme is a "Shadowbox"Here is an example which also shows how footnotes are treated:

> This is a "shadowbox"[a] mini-page with a column width of 50% and aligned at the "top".
>
> ---
> [a]Choose from the menu by right clicking on the box.

I put the box on the right side of the page by inserting a "horizontal fill" to the left of the box. A horizontal fill expands to fill as much space as necessary. The box is a little tight against the previous paragraph. This could be fixed by using a small vertical space above the box, but I have left it as an example to be dealt with later: see the Chapter on "Fine tuning" at page 51.

Right clicking on the inserted box allows you to choose from the box menu. Most of the items are self-explanatory, but the "alignment" options may be confusing.

"Top" aligns the top of the box with the text line on which the box is inserted. "Bottom" and "center" align, respectively, the bottom of the box or the center of the box with the line.

Here are two boxes, one top aligned and the other bottom aligned: | Top | | Bottom aligned box |. I have framed these boxes to give a better visual indication of how boxes work. Notice that the boxes are too close to other text and to each other. They should be separated with spaces as described in the chapter on "Fine Tuning" at page 51. These boxes are also very narrow at only 10% of the column width.

5.2   Tables

Tables, like graphics, should usually be floated. They are handled well by LyX, but it is wise to plan carefully what you want in your table before entering it in LyX. Both tables and floating tables can be inserted from the menus or from the toolbars. Like graphics floats, the table float provides room for a caption. As with graphics, if you want the table to appear above the caption, press and "Enter" first to make a new paragraph above the caption and put the table there.

You can put text in tables	2.4
If you want	35.1

Table 5.1: Sample table

If the table is a very long one so that it is likely to spill over into later pages, then you should specify that it is a "longtable". This is done in the table menu which, as usual, is obtained by

right clicking on the table. The sample table, was placed using the "Here if possible" option on the float table.

Chapter 6

Cross references and indexes

Cross referencing and indexing are never easy. In the old days, these two tasks were extremely unpleasant. Even worse, they could not be completed until the "page proofs" were returned to the author. Since this was late in the book production cycle, the task was done under pressure accompanied by many cups of strong coffee.

Some book publishers attacked the problem with numbered paragraphs. By using a notation like [2-55] to refer to paragraph number 55 in chapter 2, the author could insert cross references and index items which referred to the target paragraph rather than to the page number. This allowed the author to perform these tasks during the authoring stage of the book rather than at the page proof stage.

The numbered paragraph solution helped, but it still meant that the insertion or deletion of material meant that the cross references and index entries had to be reviewed and changed. Errors inevitably followed.

6.1   Cross references

Modern word processors have made the cross referencing task easier. Most of them support some form of "label" which is the target for the cross reference. OpenOffice.org, for example, has a "Cross-reference" dialogue which is under the Insert menu. Abiword and Microsoft Word have similar functions.

LyX has a simple and easy to use cross referencing system. A "label" is a mark in the text that identifies the point where the label is inserted. In the LyX document window it shows up as a small button with the name of the label printed on it. A label may be inserted by using the Insert → Label menu, but it is easier to click on the little tag-like icon in the toolbar. A label dialogue appears which provides a suggested label.

The suggested label is "smart" in the sense that it is context sensitive. A label inserted immediately after a section or a chapter will look like "sec: some word" or "ch: some other word". For example, there is a label in this manuscript just after the title "Cross references". The label suggested automatically by LyX is "sec:Cross-references".

To make a cross reference, use either the Insert → Cross-reference menu or the icon on the toolbar which looks like a book with an arrow on it (or something like that!). Whichever way you do it, a cross reference dialogue will pop up giving you choices of the type of cross reference that you would like to insert. First choose the label that you wish to refer to, then click on the drop down format box. This will give you a choice of reference types. Here are several examples of cross references to the label at the beginning of this section.

- Here is a plain <reference> cross ref: 6.1

- The (<reference>) style cross ref doesn't work here. See the explanation below.

- Here is a <page> style cross ref: 32

- Here is a "on page <page>" style: on this page

- Here is a "<reference> on page <page>" style: 6.1 on the preceding page

- And here is a "Formatted reference" style: Section 6.1

As you can see, each of these produces a slightly different form of cross referencing and requires a different form of "lead in".

The "on page <page>" style is interesting and very useful. It will normally produce output such as "on page 72", but it cleverly knows when the reference target is on the same page, the next page, on the preceding page or on the facing page and adjusts its output accordingly.

In all cases, the author no longer has to worry about the location of the target of the cross reference. LyX, actually LaTeX, keeps track of the location for you.

The (<reference>) type is confusing and slightly misleading. It inserts a LaTeX command \eqref{}. This is not listed in the LaTeX reference, and it does not compile when exported to a LaTeX file. The easiest way to deal with it is to leave it alone. Don't use it.

I also note that the "Formatted reference" depends on the existence of the prettyref.sty package. If this is not installed on your TeX system, then it will not work in LyX. It is included in most TeX installations.

As an extra navigation feature, right clicking on the cross reference button in LyX will take you to the target label in the manuscript.

6.2   Indexing

Indexing a long document like a book is a difficult task at the best of times. Like cross referencing, the old way was to wait for the arrival of page proofs, then use a stack of index cards to make entries and note page locations. Since the publisher was always in a hurry to get the corrected page proofs back, the procedure was not very pleasant.

As with cross referencing, using paragraph numbers as the basic unit allowed the author to do the indexing at an earlier

point in the process. Insertion or deletion of new material made a mess of everything.

Some word processors include indexing abilities, but they tend to be clumsy and inefficient to use. LyX has one of the best.

First, let's talk about the indexing process. There are essentially two ways that a book can be indexed. First, the author should make index entries early in the authoring process. At this stage, the indexing should closely follow the heading structure of the text.

So, for example, in writing this chapter, I should index the terms "cross reference" and "index" at an early stage of writing. This will provide a basic index to the work.

The second stage of indexing will usually occur when the work is finished. Usually, the author will go through the text and find words that should be indexed.

But merely indexing words will seldom be an adequate approach to indexing. If it were, the whole process could be mechanised. A look at some indexes will convince you that the mechanical process gives a bad index.

So, the final stage of indexing is to look for "concepts" that need to be indexed. These may need to be indexed even though there is no corresponding word in the manuscript.

LyX makes all this as easy as possible. Go to the menu Insert → Index Entry or click on the toolbar icon that looks like a little set of filing folders. A small "Index" button will appear. Click on the button to see the index entry. If inserted at the end or the beginning of a word, then that word will appear as the one indexed.

So, for example, let's index a word that won't appear anywhere else in this book. The word is xxxyyy and I clicked on the index icon immediately after typing the nonsense word. Check in the index of this book, and you will find that the word is indexed to the proper page.

Of course, it is not necessary to insert the index entry immediately when typing. You can insert an index item anywhere.

Just click the index icon when the cursor is at the beginning or the end of the word that you want to index.

If you want to index a phrase or combination of words, select the phrase in question and then position the cursor at the end of the selection. Clicking the index icon will then index the combination of words.

If you want to index a concept, then you will need to fill in the index entry by hand. Suppose I want an indexing entry for "Indexing procedures", but I don't actually have that phrase in my text. Click the indexing icon at the point where you think the index entry should point to. You will then have to click on the Idx button, erase the entry there and put "Indexing procedures" in its place. I have put an "Indexing procedures" entry at the beginning of the first paragraph on page 33.

Although the LyX documentation does not mention it, you can also do "hierarchical" indexing. So, for example, under the heading "Index", I might like to have subheadings "words", "phrases" and "procedures". The Idx buttons for these will be Index!words, Index!phrases and Index!procedures respectively. You can see how these appear in the index of this book.

Finally, to make the actual index appear in the book, go to the end of your manuscript. Go to the menu Insert → List/TOC → Index list. This will insert an Index button into the LyX manuscript which will be used to generate your index when the document is compiled. The index will begin on a new page at the end of the document.

It's not easy, but if you have ever done it the old fashioned way you will think that Christmas has come early!

Chapter 7

Bibliographic references

LYX uses the BibTEX system of storing bibliographic references. BibTEX allows you to store all your bibliographic references in a single database which is then referenced by a "key". If you have never used BibTEX or a similar system for storing references, then you are simply working too hard. BibTEX allows you to enter a reference once only and, almost as important, to cite it consistently throughout your work.

BibTEX can produce a number of different style bibliographies. Set the type you want in Document → Settings → Bibliography.

If you are using a standard Linux distribution then you will probably have the BibTEX system installed as part of your TEX authoring installation. Similarly, if you are using Windows, then it should be installed as part of the LYX standard installation procedure. See Chapter 12 on page 73 for the discussion of installation.

If you know nothing at all about BibTEX, then you should probably read Appendix B of [Lamport, 1994]. Note that this citation was inserted in accordance with the instructions of this chapter.

Don't be afraid! A BibTEX entry is simple once you get the knack of it. Here is an entry from my BibTEX database:

```
@Article{tyree99:_legal_natur_elect_money,
 author = {Alan L Tyree},
title = {The Legal Nature of Electronic Money},
journal = {JBFLP},
year = 1999,
volume = 10,
number = 4,
pages = {273--281}
 }
```

A citation to this looks like this: [Tyree, 1999].[1] It will now
appear in the Bibliography at the end of the book.

You can create and maintain a BibTeX file with any text
editor, but it will help to have a specialised tool. If you know
Emacs, there is a BibTeX mode that makes entry and main-
tenance particularly easy. The above BibTeX entry was made
using Emacs. The key is chosen automatically.

Pybliographer is a Python based tool for manipulating bib-
liographic databases including BibTeX. For Windows users,
WibTeX is a graphical front end that allows you to create and
maintain BibTeX files, and also interfaces with MS Word. KBib
is a bibliography reference manager for the KDE desktop. Bib-
Desk is an OS X program for Mac users. Each of these programs
work well with LyX. See section 12.4 on page 74 for details on
how to get these programs.

7.1   Using BibTeX

Assuming that you have your BibTeX database established, go
to the end of your document and then Insert → List/TOC →
BibTeX Bibliography. A button will appear in your LyX manuscript,
and a dialogue will pop up.

Click on Add to add a database to your document setup.
You should add the name of your BibTeX file without the .bib

---

[1]Using the Natbib and the Author-year style. I don't know if it is a bug
in version 1.4.3, but I had to put a \bibliographystyle{plainnat} in the LaTeX
preamble to get this to work right.

extension. The "Style" determines how your citations will appear
both in the text and in the bibliography section. If you are
writing for a particular publisher, they may require certain styles.
Some publishers have their own BibTEX style files which can be
installed into your TEX installation.

Since this book is about self publishing, there is no need to
worry about changing the default styles. The default is "plain"
and it produces the results that you see in this book. I think it
is worthwhile adding the Bibliography to the Table of Contents
which you can do by clicking the button in the dialogue.

It is also possible to make your own style file with an utility
called makebst. It is easy to use and you can experiment with
various bibliography formats. This will be useful if some estab-
lished publisher decides that your book should be published by
them. The nice thing here is that nothing needs to be changed
except the style file that you specify for the bibliography.

7.2   Inserting citations

Once you have the bibliography file set up, inserting a citation
is as simple as using the menu Insert → Citation or, as usual,
clicking on the citation icon. I can't describe the citation icon
since this is a place where a single word is worth a thousand
pictures. Just check your toolbar and find the icon that inserts
citations and commit it to memory.

The Add-citation dialogue, see Figure 7.1 on the next page,
shows you a list of keys down the left side and the appropri-
ate bibliographic entry on the right. The BibTEX database can
be searched by keyword in the "Find" space. The search can
be by regular expression if you know how to use these. If you
don't know, you should learn. The search is over all fields of the
BibTEX database, not just the keys shown on the left.

Once you have found the entry you want, click to add it. The
LyX citation dialogue will show you the way that the reference
will appear in the bibliography: see Figure 7.2 on page 41. There
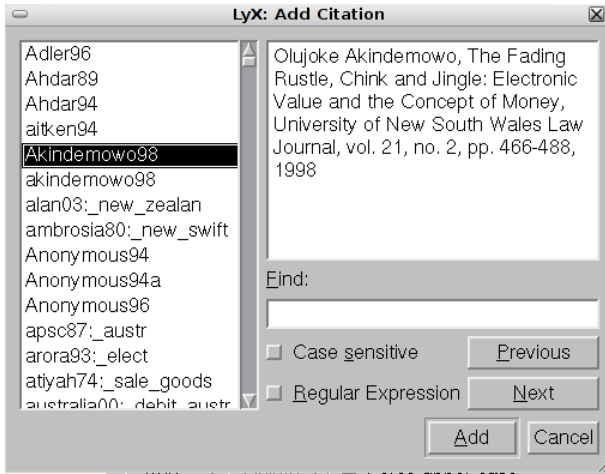are certain adjustments that you can make, including placing

Figure 7.1: The Add-citation dialogue

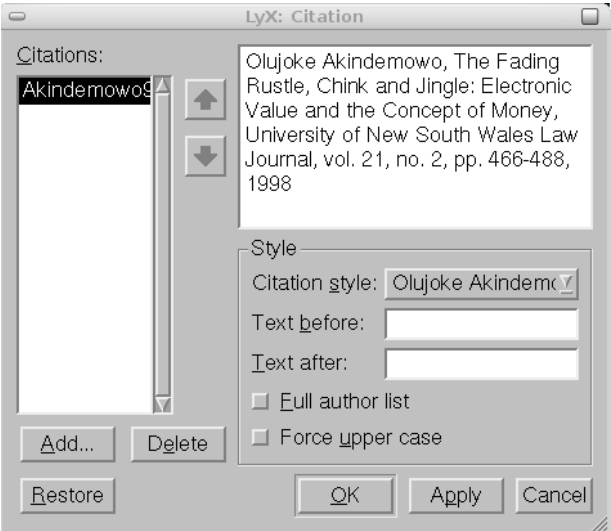some text before and after the citation. When you are satisfied, click "Apply".

That's it!

Figure 7.2: The citation dialogue

Chapter 8

Front matter

Look at the first few pages of a professionally produced book. This is the so-called "front matter", and there is a fairly standard sequence of pages. The "folios", i.e., page numbers, will normally be lower case roman. The first few pages will not contain folios although they are counted.

The front matter consists of title pages, copyright pages, tables of contents and figures and other elements to be discussed below.

8.1   The first four pages

The very first page of a book is usually the "half-title page". The page is very simple, containing only the main title of the book. It does not contain the sub-title, the author or any other information. The page has no folio. It is sometimes said that the original purpose of this page was to protect the main title page.

The reverse of the half-title page, the first verso page, may contain printing history or series information if the book is one of a series. Most often, the page is blank.

The third page of the book is the title page. It is a recto page and contains the full title of the book, the author or editor and the name of the publisher at the bottom of the page.

The fourth page, the verso of the title page, is the copyright page. It contains the copyright notice for the publica-

tion, the printing and publishing history, and the ISBN/CIP (Cataloguing-in-publication) information. It is common for this page to be printed in a smaller type.

8.2   Remaining frontmatter

These four pages appear in almost every professionally produced book. In addition to these four pages, there may be a dedication page which appears as recto, and the verso of this page is blank. If these pages appear, they are also unpaginated.

The remaining pages of the front matter contain folios. The first of these will be paged as "v" or as "vii" depending on whether there is a dedication page. The following list of elements are common front matter material:

- Table of contents
- List of figures
- List of tables
- Foreword
- Preface
- Acknowledgments
- Introduction
- Abbreviations

It would probably be unusual to find all of them in a book. A novel might not contain any of them, but most books contain some of them. When they do appear, their order is somewhat arbitrary. The foreword is usually written by someone other than the author, preferably a person who carries some authority in the field. The preface is written by the author and will usually contain some information about why the book was written. The preface also usually contains some more personal remarks than would appear in the body of the book.

The introduction may be part of the front matter, but it is perhaps more common to make this the first chapter of the main text. I have put an introduction in this book, but titled it "The path ahead".

LyX is helpful here since it can build a the first three items automatically.

I do not find LyX to be particularly helpful in building the first four, six if you include a dedication, pages of the front matter. There is a "Title" paragraph style, but it seems inflexible in what it produces. It is really better to "handcraft" the first four pages pages. The following describes the process that I use for building the initial pages.

8.3 Handcrafting the title pages

First, we do not want folios on the first four pages or the first six pages if there is a dedication. I have found that the best way to accomplish this is to go to the Document ->→ Settings → Page Layout menu. Go to the Page Style drop down menu and choose the "empty" page style. If you have followed my earlier instructions, then you have already done this.

You can design your own title pages if you like, but the title pages of this book are more or less standard. I'll explain the construction of the title pages for this book.

8.3.1 The half-title page

The first page is the short title page. It begins with a \frontmatter command at the very beginning of the manuscript. Use the Insert → TEX Code menu or the TEX button on the toolbar. This ensures that when folios do appear, they are small Roman numerals.

I then followed it with a vertical space from the Insert → Special Formatting → Vertical space menu. I used a vertical space of 2 inches. This is obtained by choosing "custom" from the drop down menu. You must click on the "protected" button

in the dialogue box. This is because vertical spaces are ignored at the beginning or end of a page unless they are "protected".

Type in your title, highlight it and choose the text style button from the toolbar. Make your title big and bold, then follow with a page break (Insert → Special Formatting → Page break). You should either centre the title or make it right justified: use the Edit → Paragraph Settings menu.

8.3.2   The half-title page verso

The next page, the "verso" of the short title page, should be blank. To be safe, put something non-printing on it. I inserted a "protected space" by typing C-space. Sometimes LaTeX is so smart that it leaves out a completely blank page, so we fool it with the protected space. Follow this with another page break.

8.3.3   The title page

The next page is the full title page. I put a couple of horizontal lines on either side of the title and author (Insert → Special Formatting → Horizontal line). This is followed by a vertical fill from the Insert → Special Formatting → Vertical space dialogue. Vertical fills are "rubbery" lengths that fill up as much space as they can. The publisher information at the bottom is a centered paragraph with a line break, C-Enter, after the first line. In this book, I right justified the title and author as well as the horizontal lines: use the Edit → Paragraph Settings menu.

8.3.4   The copyright page

The next page, the verso of the full title page, is the copyright page. I did a left flush paragraph at the top which describes the publisher and copyright information. Each line ends with a line break inserted by typing C-Enter. Then put in a vertical fill.

This is followed by the "Open source" paragraph that describes the software used, then another vertical fill. This in turn is followed by the "Creative Commons" paragraph and another vertical fill.

The final paragraph is the Cataloguing-in-publication entry obtained, in my case, from the Australian National Library. See the chapter on ISBN and CIP at page 59 for information on the CIP process. The paragraph has a number of line breaks.

Notice that the effect of the three vertical fills is to put equal spaces between the paragraphs. Vertical fills split the available space equally between themselves. I have sometimes heard vertical fills described as "compressed air" spaces. This is a nice description and illustrates how the fills result in a vertically centered paragraphs.

Follow this with a page break and that is the end of the first four pages of the front matter. A nice touch is to make the copyright page appear in slightly smaller type: highlight all the text on it and then click on the "text style" button on the toolbar.

8.3.5 The remaining frontmatter

The remainder of the front matter is to some degree a matter of choice. Again, I will describe the material at the front of this book. The dedication page is a simple one line paragraph preceded by a "protected" vertical fill and followed by the same thing, resulting in a vertically centered paragraph. Make the paragraph horizontally centered by using the Edit → Paragraph Settings dialogue or calling it up from the toolbar icon.

The table of contents is inserted from the Insert → List/TOC menu. This just puts a button in your manuscript that says "Table of Contents" on it. There is a minor glitch here: the Table of Contents will begin with a numbered page, "vii" in this book, but then the numbers disappear again. The fix is easy: immediately before the Table of Contents button, insert another TeX command, namely, \pagestyle{plain}. That will reinstate folios as the default for remaining pages.

While you are in the neighbourhood, you might as well add the buttons for the List of Figures and for the List of Tables. There is no need to hand-craft page breaks here since the system automatically begins these on a new page.

Now is a good time to look at another preview of your book. Generate the preview and then have a look at the pages of your frontmatter. If the first four pages are OK, then have a look at the table of contents. The table is generated from the headings in your document. If you have a lot of lower level headings, then the table may appear cluttered. Not a problem! Go to Document → Settings → Numbering and TOC. There you will find sliders that allow you to adjust the level of headings that will appear in your Table of Contents.

As long as you have the preview there, notice also that the first four pages, six pages if you have a dedication, have no folios, but that the table of contents has a "vii" at the bottom and the small roman numerals continue on each page. Just as we wanted!

The "Preface" title is a "Chapter*" style paragraph. "Chapter*" style paragraphs are not numbered nor do they appear in the table of contents. It does have the effect of beginning the preface on a recto page.

I think you get the idea now. Pages in the front matter will be numbered with small Roman folios until LATEX encounters the \mainmatter command. It will then switch to Arabic folios which will be placed according to the pagestyle that you have chosen.

I should mention again that if you use one of the extended book classes, "Koma-script" or "Memoir", then you will have more options for layout. However, for beginners, the normal book class does everything you need and more. As you can see from this book, it provides a very professional looking book layout with minimum effort.

8.4 How to make very long titles readable in the table of contents

I have made the title of this ridiculously long to illustrate the point. The title is so long that it would look ugly in the Table of contents. LYX provides you with a method to overcome this embarrassment.

Immediately after typing the long title go to Insert → Short title. This inserts a small button labeled "opt" where you can type in a "short title". The heading will appear in the Table of Contents with the "short title" instead of the ridiculously long title.

If you check in the Table of Contents of this book, you will see that I used "Long titles" as the short title for the ridiculously long title of this section.

As a side benefit, the short title will appear in the Navigate menu, making it easier for you to find your way around your document.

8.5   List of figures

Making an index of the figures in your document could not be easier. First position the cursor in the frontmatter at the place where you want the table to appear. Go to the "Insert" menu, then to "List/TOC". Choose the "List of figures" and a button appears that is similar to the Table of Contents button. Time for another preview!

8.6   List of tables

You should know how to do this by now. Position the cursor in the frontmatter at the point where you want the list to appear. Go to Insert → List/TOC → List of tables. A button will appear in your manuscript, and when you do a preview of the document, you will see a list of tables at that point.

Chapter 9

Fine tuning

When you have finished, *really finished*, your book, you will want to go carefully through the PDF file to find things that are not quite right. In this chapter, we will look at some common problems that you might face, and the tools available to deal with them.

First of all, you probably don't need to do anything. LaTeX is a very clever typesetter. Some of the things that we are going to look at in this chapter will improve the looks of your final product, but not by much. Unless you know exactly what to look for, chances are that you would never notice that they can be improved.

I cannot emphasise strongly enough that you must not do this until you are absolutely, positively, no-more-excuses finished with the writing of the book. We are going to be putting commands in the text that alter the final appearance, and if you change even one word of the manuscript you may need to start all over again.

So, under penalty of death, do not even read this chapter until you are finished with your book. Really finished. Got it?

9.1   Widows and orphans

Widows and orphans are single lines of paragraphs that appear at page breaks. One line of the paragraph is on one page, the rest of the paragraph is on a different page. It doesn't look right.

An orphan is where the line is on the bottom of one page with the remainder of the paragraph at the top of the next. A widow is the opposite: the body of the paragraph is on the bottom of one page with the widow at the top of the next. There is a cute little mnemonic to remember which is which:

A widow has a past, but no future. An orphan has a future, but no past.

Generally speaking, LATEX is very good at avoiding widows and orphans, but it will occasionally slip up. You can improve LATEX's performance here with a command in the preamble. Use:

```
\clubpenalty=10000
\widowpenalty=10000
```

If you are having trouble with widows and orphans, then this is your first step. Make a new preview and have a look. Chances are that your problem will have disappeared. If not, read on!

Orphans are easy to deal with. Just enter a page break before the beginning of the paragraph.

Widows are harder to handle. There are several possibilities, and there is no telling ahead of time which is likely to work best. The two main strategies are:

- Make a little more space on the bottom of the first page, thereby making space to accommodate the widow on the first page; or

- Make a little less space on the bottom of the first page, thereby forcing the penultimate line onto the next page.

The first strategy will work if you have space on the first page to play with. This was often the case in my work with the cookbook.

It will also work when you have one or more sectional titles on the page.

Implementing the strategy calls for inserting a small vertical negative space on the page. "Negative space"??? Yes. The argument in the vertical space dialog does not need to be positive. Putting in a small negative argument will often free up enough space to accommodate the widow. Since we are attempting to make space for lines, I recommend using "ex" as the unit of measurement. Try "-.5ex" first, then preview. Depending on the contents of your page, you might be able to use a couple of these at different points.

A second, and possibly better, way to "enlarge" a page is to use the following TEX command:

```
\enlargethispage{\baselineskip}
```

Depending on your installation, it may be necessary to put this command between two paragraphs of the page that you want to enlarge.

The second strategy is probably your best if your first page is largely text. In that case, you don't have much in the way of blank space to play around with. Try putting small positive vertical spaces after each paragraph.

If these tricks don't work, then my advice is to rewrite the offending paragraph or forget about it and accept the widow or the orphan. Since you are self-publishing, the choice is up to you!

9.2   Protected spaces, thin spaces.

There are several circumstances that trick LATEXinto doing the wrong thing. For example, the LATEX code that I entered in the last sentence. There is no space between the "LATEX" and the "into" in the sentence. This is so even though I put a space between the code entry and what comes after, it does not show up on the final printout. The solution here is to use an "interword" space. This inserts a space between the code and the following

word that will be respected by LaTeX. It appears on the screen as a small blue open box. You can insert an interword space from the Insert menu or by using the C-M-Space key combination.

There is another common situation where you want to ensure that two words are not split across lines. What you need is a "protected space", essentially a hard-coded space that is outside the rules of LaTeX. LaTeX will not allow the words on either side of a protected space to be run together or to be split between lines. So, for example, in expressions like 3 kg (short for "three kilograms") or s 14 (short for "section 14" in legal writing), you do not want LaTeX to split the line between the "3" and the "kg" or between the "s" and the "14". If the words are in the middle of a sentence, then the protected space looks just like an ordinary space, but if they would be split at a line break, then LaTeX adjusts its rules to keep them together. The way to get the protected space in LyX is to use the Insert menu or the C-Space key combination. It appears on the screen as a small red open box.

English usage is to put more than a single space between sentences. When LaTeX sees a punctuation mark followed by a space, it thinks that it is the end of a sentence. However, that is not always the case. Abbreviations are a case in point. Sometimes we write e.g. as an abbreviation for "for example", but we want a normal interword space after the "g.". The solution is to use an interword space after the "g." so that LaTeX isn't fooled. That is what I have done in the sentence above. You get an interword space from the menus Insert → Special formatting → Interword space or by using the keyboard combination C-M-Space.

There are other circumstances where a full space after a full stop (a period for my American readers) is too much. For example, in writing the name of an author with initials. Consider:

A. L. Tyree

Because the punctuation is followed by a blank space, LaTeX gives the space after the initials the same space it would give to the end of a sentence. We could use interword spaces:

A. L. Tyree

That is better, but it still appears to be too much space.

Thin spaces are spaces which are half the size of normal between word spaces. Here is the author's name using thin spaces:

A. L. Tyree

That is probably the best that we can do. Thin spaces may be inserted via the Insert → Special formatting menu or the C-S-Space key combination.

Is this worth the effort? Probably not unless you just like to fiddle with typesetting. Would you have ever noticed the different spacing in ordinary text? Probably not, but there is a certain satisfaction in getting it just right.

9.3   \raggedbottom

LaTeX attempts to keep the text height even on each page. That way, when you open a book flat, the text on each page appears to be equal sized rectangles.
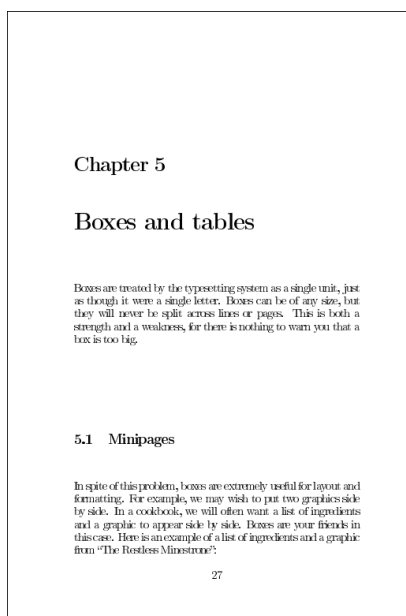
Figure 9.1: Default layout

Boxes and other non-breaking text blocks sometimes cause this spacing to look strange. The problem occurs in this book on page 27. Because the list box and the graphic box cannot be split across pages, there is too little text on the preceding page. How should this text be arranged? In the original version of this book, it appeared as shown in Figure 9.1 on the preceding page.

I don't like that spacing. One solution is to put \raggedbottom in the LaTeX preamble. This stops LaTeX from forcing equal text blocks and gives the page the form it now has.

Neither solution is entirely satisfactory, but it is not really a LaTeX problem. A human typesetter would have to make the same decisions, probably with the same outcomes. I like the current layout a little better, but it really is personal choice. Since you are self-publishing, it is your choice!

9.4 Spacing around boxes

I find that text following boxes sometimes seems to be cramped against the boxes. This was a problem, for example, on page 28. The paragraph beginning "This was constructed..." was not separated enough from the "chopped parsley" list entry. It is easy to fix this by putting a small vertical space before the paragraph in question.

I would normally have put a small space before the shadowbox on the same page, but I have left it in its raw state to illustrate the problem.

The fix is simple. Go to Insert → Special formatting → Vertical space. In the drop down dialogue, select "Smallskip" or, if you prefer, "Custom". If you decide to put in a custom vertical space, I suggest that you use the "ex" as your unit. One "ex" is the length between baselines and so is a natural unit to use to make small vertical spaces.

9.5 Don't do it much

Don't do much fine tuning. It can be absorbing and very, very time wasting. Chances are that the output from LyX will be

satisfactory right out of the box. You may be able to find some things such as we have discussed that can be improved, but you have to ask yourself if the improvement is worth the time involved. Most of your readers will never notice.

Chapter 10

ISBN, CIP and Copyright

Unless your book is just for family and friends, you should get an ISBN for it. Without an ISBN you can forget about your book ever being sold by bookstores or purchased by libraries.

Cataloguing-in-publication is a service offered by some national libraries. The CIP entry is what your book catalogue "card" will look like, or would look like if libraries still used cards instead of computer entries. By supplying the information during publication, you are able to include it on the copyright page. If you look at the bottom of the copyright page of this book, you will see the CIP entry for this book. Unfortunately, some countries restrict the publishers who may submit books for CIP.

10.1   Getting an ISBN

An ISBN is an "International Standard Book Number". An ISBN is a unique identifier for your book, and is available only from an authorised agency in your own country. To find the agent for your country, visit the web site:
http://www.isbn-international.org/en/agencies.html.

The details of pricing and availability differ from country to country. For example, at the time of writing, Australian ISBNs may be purchased individually or in blocks of ten. In the USA, you cannot purchase individual ISBNs. The smallest block is one of ten.

The purpose of an ISBN is to identify one title or edition of a book. If you put out a new edition which is significantly different from the previous one, that is, it is not just a reprint, then it requires a new ISBN. The ISBN system allows efficient marketing of products by booksellers, libraries, universities and others. Now you see why an ISBN is important if you expect anyone else to deal with your book.

The ISBN system is relatively new. It originated in the United Kingdom with the large booksellers and stationers W. H. Smith. The original was a 9-digit code which was later adopted an an international standard by the ISO, the International Standards Organisation. The ISBN was expanded to a 10-digit code, the last number being a "check digit".

Since January 1, 2007 the ISBN has been 13 digits. The code consists of

- a three digit prefix

- a group identifier code which groups countries sharing the same language

- a publisher identification code

- a title identification code and

- a single check digit.

The number of digits assigned to each of these groups might vary. A large publisher may have a small group assigned to the publisher identification code which leave space for a larger number of title codes.

For those of you who are interested, the check digit is assigned as follows: using the first 12 digits, multiply each digit alternately

by 1 or 3. Add the results up modulo 10, giving a result from 1 to 10. If it is 10, replace it with 0. The result is the check digit.

The purpose of a check digit is to catch elementary transpositions. The one just described catches most, but not all. The old 10 digit ISBN use a procedure which was then summed modulo 11. Since 11 is prime, the "blind spot" doesn't happen.

The ISBN should be printed on the copyright page. If you are going for a CIP, then you need to supply the ISBN on the application form.

The ISBN should also be printed on the back cover and, if you are going to do it right, be accompanied by a bar code for automated scanning. If you are publishing with Lulu.com (see Chapter 11), then a bar code will be added automatically. If you are arranging your own printing, you will need to generate your own bar code. There is software available for doing this, but you can also do it on line at:

- http://www.tux.org/~milgram/bookland/ or

- http://www.terryburton.co.uk/barcodewriter/generator/.

If you don't feel confident about generating your own bar code, there are commercial outlets which will do it for you, but the process is simple and you should explore the free option before paying out your hard earned money.

10.2   National Library CIP

Most national libraries will accept a Cataloguing-in-Publication application from independent publishers. The US Library of Congress is a notable exception. For some inexplicable reason, the Library will only provide the free service to major publishers. It will not provide the service at all to individual new publishers. I can't help you here. I suggest that you write to your political representative and ask them to explain why a taxpayer funded service goes only to the rich.

For the rest of us, check out the web site of your national library. You should find instructions on applying for CIP. The

purpose of CIP is to provide cataloguing information for inclusion on your copyright page. The cataloguing information is then made available to booksellers, libraries and others.

You can see an example of CIP by looking at the copyright page of this book.

10.3   Legal deposit requirements

Most countries require a book published in that country to be deposited with the National Library. Political sub-units such as states and provinces may have a similar requirement.

The so-called "deposit libraries" are charged with preserving the material deposited with them for the use of future generations. A further benefit is that the deposited materials normally serve as the basis for national bibliographies as well as other, more specialised, bibliographies. These bibliographies are widely distributed both nationally and overseas.

Also, the CIP process is not completed until such time as the deposit copy is received. This is important for those of us who live in those countries where the CIP procedure is available to the little guy.

10.4   Copyright

There is widespread confusion about copyright. Most importantly, it is NOT necessary to apply for copyright. You have copyright in your book as soon as it is written. There is no formal procedure necessary.

There is, however, a minor formal procedure which is necessary to protect your work in some (not all) countries. You should have, on the copyright page, a phrase similar to "© 2007 <Your name>. All rights reserved." If you do not reserve all rights, the statement should be modified accordingly: see the example on the copyright page of this book.

How do you get the "©" symbol? Insert → Tex Code and then type \copyright in the little box. Don't forget to put an interword space after it: C-M-Space.

Copyright protects the expression of an idea. It does not protect the idea. In particular, if you have a very clever plot for your novel, copyright protects the expression of that plot, that is, the words of the novel. It does not protect the plot. I can come along and write a book with exactly the same plot so long as I do not use your words.

Copyright is personal property. It may be sold or inherited. You should consult the appropriate legislation in your own country to see precisely what rights are granted by copyright in your jurisdiction, but commonly you have the exclusive right

- to reproduce the work in a material form

- to publish the work

- to perform the work in public (very important for plays!)

- to broadcast the work and

- to make an adaptation, e. g., a screenplay of your novel, or a translation

These are your rights to do with as you wish. You may sell them. You may die and leave them to your relatives or others named in your will. You can even give them away, either partly or in their entirety.

Because of the rise of Free and Open Source Software (FOSS), copyright licences have been developed which are similar in spirit to the GPL used in licencing software. This book itself is licenced under a Creative Commons licence which permits you to copy and distribute it without seeking my permission provided you do not do so for commercial gain and provided the work remains "attributed" to me. Since I am writing and publishing the book using FOSS, it is a way of returning some value to the community that has made it possible and to whom I owe so much.

That is my choice, but you are not bound by it. For your own book, you may use the FOSS and still retain full rights and powers as granted to you by the copyright legislation in your jurisdiction. It is your choice.

Chapter 11

Publishing your book

First of all, let's be clear about what it means to publish a book. The publisher is not the author, the editor, the designer, the typesetter or the printer of a book. Some of the parties mentioned in the previous paragraph may actually be the same person, and since you are interested in self-publishing, most of them will be you.

Publishing is a business, even if sometimes a very unprofitable one. The publisher is the person who takes the risk, who organises the production of the book and arranges for its distribution.

Self-publishing, in its strictest sense, means that you do all these things. This doesn't mean that you need to do all of them directly. You will almost certainly use a commercial printer to produce and bind the books. You may pay someone to assist in the design of a cover or in the distribution of the book. But you are in charge. All of the decisions are yours. You reap the profits (good luck!) and wear the losses.

You must distinguish self-publishing from "vanity publishing". In vanity publishing, you pay for the process but have no control over it. Avoid vanity publishing as you would the bubonic plague. It is expensive, and the contracts inevitably impose no obligation on the publisher but to provide you with a few author's copies. The four colour ads are seductive, but you will, most likely, end up with nothing but these copies which will have

cost you many, many times what you could have obtained them
for by self-publishing.

There have always been self-published books, but the advent
of the computer has changed everything. It is now possible for
the author to present a manuscript which is well designed and
typeset at a professional standard. That is important, but for
our purposes it is equally as important that the computer, in the
form of digital printing, now permits cost-effective short print
runs. Indeed, it may be cost-effective to print a single copy of a
book, the so-called "print on demand" (POD).

Black and white books will be much, much cheaper to pro-
duce than texts with colour. The difference, for example, be-
tween a cent or two per page and fifteen to twenty cents per
page.

We will look at a couple of the more common options: using
a local printer and publishing on Lulu.com.

11.1   Local printers

I used a local printer for the Australian edition of "The Rest-
less Minestrone". My advice and comments are based on that
experience.

First of all, talk to your printer at an early stage of your
project. It will be important to know what size paper may be
used and how the printer wants the final manuscript and art
work. It is almost certain that the printer can deal best with a
PDF manuscript which is why I have emphasised that output in
this book.

Available book sizes will depend on your location. Most of
the world uses the international A and B series of paper sizes.
B5 is 176mm x 250mm and is a good size for many books. It is
the size that I used for the Australian version of "The Restless
Minestrone".

The USA tends to use other sizes. A popular size for novels
and other books is 6in x 9in which works out to be 152.4mm x
228.6mm. That is the size that this book uses since Lulu.com

does not offer a B5 option, and it is the size that I used for the Lulu.com version of "The Restless Minestrone".

You local printer will also advise on margins and, in particular, what "gutter" you need. The gutter is an additional margin on the inside of each page to account for the part of the book that is "lost" due to binding. Some printers will make that adjustment for you so that you don't need to change your manuscript.

Talk to your printer about binding and covers. The two common forms of binding for paperback books are "perfect" and spiral. Perfect binding essentially glues the pages and covers together. It is suitable for novels and other books that will be read more or less from beginning to end. For reference books or other books where you want to refer to a page while doing something else, spiral binding is preferred since the book will open flat. I used spiral binding on "The Restless Minestrone" since a cookbook is usually used for referral while cooking. A computer manual might be another good candidate for spiral binding.

One advantage to using a local printer is that he or she is likely to want the book to look as good as it can. After all, the finished product is as much a work of the printer as it is of the author/publisher. This interest means that the printer will help you at each step to produce a high quality product. You can talk to your printer about the quality of paper, its color and other aspects of the production.

The disadvantage of using a local printer is that you will probably need to have a decent size print run. 500 is likely to be the smallest print run that will give you a decent break in prices, and even at that the price is likely to be close to that of a POD supplier.

11.2   Lulu.com

Lulu.com offers print on demand publishing to authors at a reasonable price. You are perhaps more limited in the paper sizes and textures, but the advantage is that the process is automated and hassle-free. Lulu.com offers genuine self-publishing as well as a couple of "distribution services".

11.2.1   Distribution services

Lulu.com, at the time of writing, offers "self-publishing", "Published by Lulu" and "Published by You". The first service is free, and Lulu.com does not call it "self-publishing". Their description of this service is that you use Lulu.com as the sole retail site for your work. This is not entirely accurate, since you may order multiple books from Lulu.com and use them in any way you like. In particular, you may sell them through bookshops or your own web site.

"Published by Lulu" is a fee-based service. Lulu.com is the publisher of record, and they obtain the ISBN for your book. Lulu.com has arrangements with Amazon, Barnes & Noble and other retail outlets.

"Published by You" has you as the publisher, which entails obtaining your own ISBN, but makes use of Lulu.com's retailing and distribution connections. According to the web site, the service allows you to register to become your own publisher and purchase your own ISBN from the US ISBN agency. You also obtain a listing in the wholesaler's catalogue. The "Published by You" service is only available to residents of the USA, US Virgin Islands, Guam and Puerto Rico.

Of course, there is nothing to prevent you from applying directly to the ISBN agency for your own ISBN anyway.

11.2.2   Lulu marketplace

Lulu.com calls the self-publishing option the "Lulu marketplace". You are in complete control of setting up your book. You may use your own ISBN if you have one (I recommend that you get one), and the book is available for on-line purchase at the Lulu.com website. The procedure for getting your book printed is simple since Lulu.com has a "wizard" that takes you through the process.

Lulu.com says to leave at least .5 inch margins and recommends a "gutter" of .2 to .3 inches. For coil bound books, the gutter recommendation is .375 inches. LaTeX uses very generous

margins in the book class so it may not be necessary to specify a gutter.

After some experimentation, I used custom margin settings for "The Restless Minestrone". You set these in the "Margins" dialogue of the Document → Settings menu. These were:

- Top: 2.5cm

- Bottom 2.5cm

- Inner: 2.5cm

- Outer: 2.0cm

To give you an idea of how that looks, I have used the same margins for this book. For a perfect bound book, you might even consider increasing the inner margin to 3cm or so, about 1.2 inches. The nice thing about publishing on Lulu.com is that you can experiment at very modest cost.

Covers pose something of a problem. You can use a standard cover chosen from the Lulu.com gallery. These are generally very high quality, but you can expect to see other books with covers just like yours (except for the title, of course).

I don't think that LyX is suitable for making covers. I used the GIMP (the Gnu Image Manipulation Program) for the cover of "The Restless Minestrone". You can see that at the Lulu.com website.[1] The GIMP is available for GNU/Linux systems and for Windows. The commercial equivalent is Photoshop which a lot of Windows users seem to have. You could also use a desktop publishing program such as Scribus or Adobe InDesign. Lulu.com requires covers to be in the PDF format.

In any case, when making the cover, be sure to follow the guidelines on the Lulu.com web site. These guidelines give the exact pixel measurements that your cover should have. Follow these faithfully and you should have no problems. Getting the colours exactly right is something of a hit and miss procedure unless you have a very sophisticated workstation.

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[1]http://books.lulu.com/content/728996

11.2.3   Lulu.com MS requirements

L_YX produced PDF files are printed faithfully by the Lulu.com printing partners. The body of this book was produced on a Debian GNU/Linux system using L_YX with the pdflatex output. "The Restless Minestrone" was printed from a L_YX produced PDF file, both on Lulu.com and at a local Australian printer.

However, if you wish to use one of the Lulu.com distribution services, Lulu.com says that the PDF file *must* be produced by the Adobe Distiller. I have no idea why this requirement exists, but I must accept that it is a genuine requirement.

You can buy a copy of the Adobe Distiller if you wish. It is not cheap, but perhaps you have other uses for it that make it worthwhile.

If you do not wish to purchase the software, do not despair. Lulu.com will produce a PDF file for you from a number of different formats. The format that we should use, as L_YX users, is the postscript format. Postscript files are "printer ready" as they stand, but Lulu.com will convert it to a PDF file that is acceptable under their distribution agreements.

You must take some care with this conversion process. It should go flawlessly and, indeed, the few trials that I have made have proceeded without pain. But there is risk with any conversion process that something will come out the other side that doesn't look quite right. In other words, examine the final PDF product very carefully and make sure that it is a faithful conversion.

11.3   Other POD publishing

Lulu.com does not have a monopoly on POD publishing. In fact, it doesn't even do its own printing, instead using a service called Lightning Source. That company will not, however, deal with individuals. This is not an overwhelming obstacle if you are willing to establish your own business, but that is a subject for a different book. If you are interested in pursuing this, I suggest that you read the excellent "Aiming for Amazon" Shepard [2007].

A number of other POD services exist, but they are often coupled with some form of publishing agreement. These may provide more or less the same services as a normal commercial publisher, but often they appear to have the flavour of a vanity press. Approach with caution.

POD services will proliferate as the machines come down in price. Shop around.

11.4 Pricing and marketing

What price should you set for your book? A lot depends on how you intend to market it. You must realise that short print runs or POD means that your book is going to cost more to produce than it would if produced by a big publisher with a print run of thousands.

If you are going to market through bookstores, then you need to know that they will expect a very healthy discount from the retail price. My experience has been that a 30% discount is acceptable to local bookstores, but my reading suggests that 40% and more might be expected in other places. You have to take this into account when you are thinking about the retail price of your book.

A rule of thumb for traditional marketing is to double the production cost of your book. This gives you the "elbow room" to offer the substantial trade discounts that will be required.

If you are willing to market only through on-line markets, then you may be able to get along with a lower markup. On-line marketing is not easy, but it is relatively cheap if you don't count your own time.

A safe approach is to price your book at twice the production cost, but then sell on-line at substantial discounts. In a way, this is the best of both worlds, but the local bookstores that have taken your book may have a darker view of it.

Marketing your book is like marketing any other product. You will have to work at it, swallow your pride, and try to think of novel ways of getting it out there. Good luck!

Chapter 12

Getting and installing

12.1 Linux

L_YX is dead easy to install on any of the major Linux distributions. For Debian based systems, use apt-get, aptitude or synaptic to install the L_YX package. You will also need the packages for the texlive system.

RPM based distributions are no more difficult. I have no direct experience with these, but each comes with L_YX and texlive packages. Install in your usual way.

I had only one issue with my initial installation. L_YX uses the geometry.sty package to alter page and margin sizes. I found that the basic TeX installation did not contain that package. The problem was easily fixed by making a full TeX installation.

12.2 Windows

L_YX has a very good installer for the Windows system. Using the standard L_YX installer will ensure that you get L_YX as well as a full Miktex TeX installation. Get the latest installer from: ftp://ftp.lyx.org/pub/lyx/bin/.

Most Windows users will have the Adobe Acroread PDF reader installed. This is a very good reader, and it is the one which probably gives the truest picture of your manuscript. It is not, however, a good viewer to use with L_YX since it does not

have a "reload" facility. When you refresh your preview of your manuscript, you must actually exit Acroread and then restart it to see the fresh view. I am told that the latest LyX has scripts which do this automatically. You might find that satisfactory, but if you have an older/slower machine, you probably should consider alternatives.

Windows users on the LyX user mailing list have suggested several alternatives. I cannot comment on the relative merits, but here are a few suggestions:

- Foxit:
  http://www.foxitsoftware.com/PDF/rd_intro.php

- SumatraPDF:
  http://blog.kowalczyk.info/software/sumatrapdf/

SumatraPDF has been recommended as very quick which is important if you are doing frequent update previews.

12.3   Apple

LyX is only available for the OS X systems. Get the latest software .dmg file from:
ftp://ftp.devel.lyx.org/pub/lyx/bin/ and install as normal. You need to install a TeX system. MacTeX is recommended: see http://www.ctan.org/tex-archive/systems/mac/mactex/.

See the Mac group on the LyX Wiki for more information.

12.4   BibTeX managers

For BibTeX managers, the following are recommended:

- For Gnome based systems, Pybliographer. Install from your distribution packages or from the home web site: http://pybliographer.org/.

- For KDE desktop systems, KBib. Install from your distribution packages or from the home web site: http://user.digisurf.com.au/~thachly/kbib/.

- For Windows users, WibTEX. Get from the home web site: http://www.wibtex.de/.

- For OS X users, BibDesk. Get from the home web site: http://bibdesk.sourceforge.net/.

- For any system: Emacs with BibTEX mode.

12.5 Resources

The LyX user mailing list is informative and very friendly. Join by following the instructions at the LyX web site: http://www.lyx.org/internet/mailing.php.

The LyX Wiki will answer a lot of your questions and is full of useful tips and tricks see: http://wiki.lyx.org/LyX/LyX.

If you publish on Lulu.com, have a look at the forums which are informative and helpful. Lulu.com's website is a maze of FAQs and helpful hints.

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Index