A short 60 character title

Thesis Title

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A Thesis Submitted to the School of Graduate Studies in the Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy

Abstract

An abstract!

Acknowledgements

The acknowledgments and the people to thank go here, don't forget to include your project adviser...

Contents

List of Figures

List of Tables

Declaration of Authorship

I, John SMITH, declare that this thesis titled, "Thesis Title" and the work presented in it are my own. I confirm that:

- List each chapter
- and what you have done for it

Chapter 1

Introduction

1.1 Introduction

Here is where you can put a general introduction to your thesis. Just start typing away! You won't be able to render each of your chapters individually, as they are missing the preamble (the bit before the `\begin{document}`). Using Overleaf makes this simple, locally (i.e. your computer) it will only be a bit more tricky.

One of my favorite features of LaTeX is the ability to put comments in your document, that are not rendered into the PDF. I leave little notes to myself all the time. You will have noticed many of these already in the document. Anything that is prefixed with a % sign will be ignored when creating a PDF. The % sign is a special character in LaTeX (there are others too), so to print it you have to "escape it" as such: `\%`.

Quotes too a slightly different. Use the backtick (near your escape key) for the start and an apostrophe for the end of the quote. ''''.

1.2 Citations

When you need to cite a paper, it is simple. For a regular citation (Wright, 1932). Overleaf will even give you a drop down of possible references. For multiple citations, separate with a comma (Wright, 1932; Haldane, 1922). For multi-author citations, the `et. al` is automatically put in.

Other citation styles are called in a similar manner.

```
\citep{} = (Wright 2015)
\citet{} = Wright (2015)
\citealt{} = Wright 2015
\citealp{} = Wright, 2015
```

Citations themselves are held in the .bib file. The first line defines the key, which is used to call the citation in the text (such as "haldane1922sex"). You can change the key to whatever. There are ways to have multiple bibliographies using various packages

(bibLATEX, the one used here may support it) such as multibib and bibtopic, which would allow you to do things like print bibliographies at the end of each chapter.

With bibtopic you would have separate .bib files and then print them within a

```
\begin{btSect}{Chapt1.bib}
``some print command''
\end{btSect}.
```

As for the citation style at the end in the references section, I believe the GSA says go with whatever is the "standard" in your field. That will take a little Googleing to get right.

One nice feature is creating short names for species, and other acronyms. In the preamble of the main text, you can define these acronyms. They would look something like:

```
\acrodef{est}[EST]{expressed sequence tags}
\acrodef{Xl}[\textit{X.\,laevis}]{\textit{Xenopus laevis}}
```

These could allow you to write expressed sequence tags (EST) and *Xenopus laevis*, which will bring the full name the first time, then the short form all other times. So we can call them again EST and *Xenopus laevis* (*X. laevis*). We can even pluralize them ESTs, if necessary. For species names, I generally use `\aclu` the first time, then `\ac` the other times. If I mention another species with the same genus name, I use `\acsu` the first time (so that I do not repeat the genera name) and all other time use `\ac`

Another option for odd names is to define a custom command. This is set with

```
\newcommand{\oddname}{{\sc SoME goOfY LonG ThiNg With an AwkWarD
                                           NAme}\xspace}
```

Then called however you defined it: SoME goOfY LonG ThiNg With an Awk-WarD NAme.

1.3   Handling a supplement

You could drop supplemental sections directly in this chapter TEX file. There are fancy ways to have it as a separate TEX file, but that can get complicated with a book style document.

Alternatively, you could put it as an Appendix at the end of your thesis.

We can then reference the Figure in the supplement (Fig. A.1; see Chapter 2 for handling figures).

Chapter 2

The Next Chapter

Just for fun, you can see that acronyms are now redefined: expressed sequence tags (EST).

2.1 What About Figures

Figures are dead easy to call. Just call them from within a Figure environment.

And now, I do not need to remember the figure number. All I do is refer to the figure label that I gave it (Fig. 2.1).

As for my next figure, LaTeX will automatically do the numbering. It will also attach the chapter number to the figure.

Then I will call it same as before (Fig. 2.2). As you can see, it was placed on the next page, as LaTeX thought that was best, given its size. Figures will float around, but you will never have to worry about numbering. One potential problem is that the figure order may not end up the way you want it to (not that you have to worry about getting the numbers wrong). You can suggest placement with the [h] after the `\begin{figure}[h]` and strongly suggest placement with [h!]. There are ways to force a figure placement, but do try and avoid forcing things (could end up looking weird). You can force positioning by putting `\usepackage{float}` in the preamble, then setting up the figure with a [H] like so: `\begin{figure}[H]`. This stop the figure from floating.

You may notice the `\,` that just puts in a small space after the Fig "period". Personal preference, and there are too many space options in LaTeX.

2.2 Tables – how to

2.2.1 Typing in Tables

Small to medium tables I would suggest just typing it in to the TeX file (see Table 2.1 below). There are also packages to create LaTeX tables (such as xtable in R) and
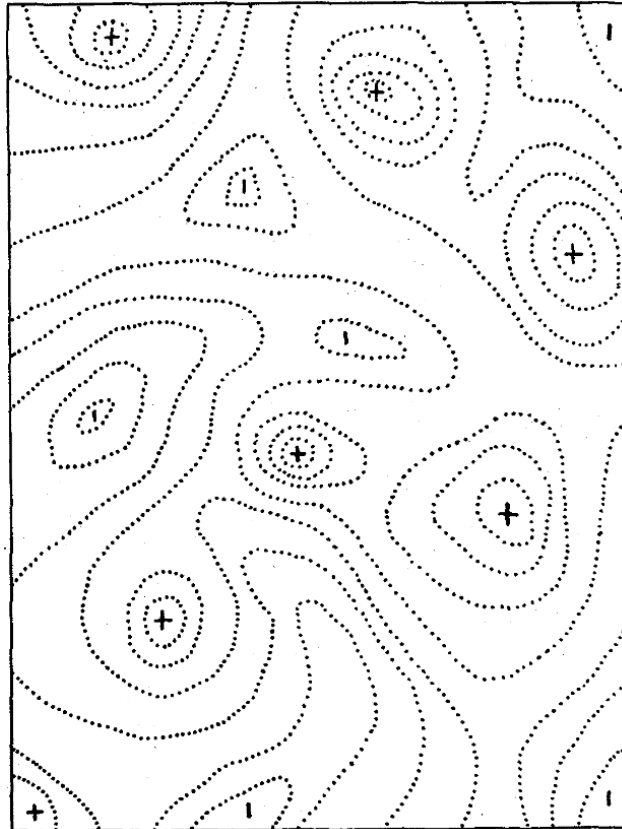
FIGURE 2.1: Early adaptive landscape sort of stuff

packages to read in csv/tab files, like you read in figures. There are ways to make multi-column and multi-row values in tables; you will have to Google it (it is not hard to do). The `\usepackage{multirow}` will allow you to do multirow values. The command `\multicolumn{}{}{}` is already available.

2.2.2 Reading in CSV table

You can copy and paste the information into LaTeX to keep things together, but it has to be dropped into the preamble in the main tex. Or you can call in the data file (Table 2.2).

Using `\usepackage{pgfplotstable}` is the package to use.

If tables do not fit, you can shrink them by wrapping in a box or shrinking text (Table 2.3).

And it is just as easy to rotate tables, and only a little bit difficult to do multi-page rotated tables, any what ever else you want, but packages exist to handle it.

A. Increased Mutation or reduced Selection 4NU, 4NS very large B. Increased Selection or reduced Mutation 4NU, 4NS very large C. Qualitative Change of Environment 4NU, 4NS very large D. Close Inbreeding 4NU, 4NS very small E. Slight Inbreeding 4NU, 4NS medium F. Division into local Races 4nm medium
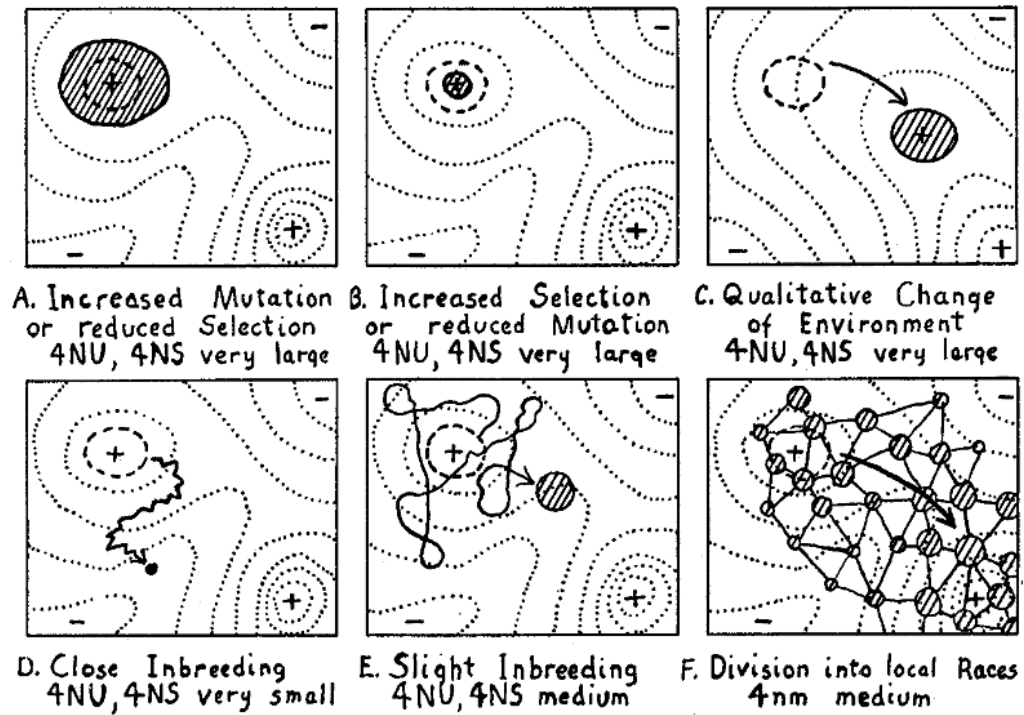
FIGURE 2.2: Wowza, glad I don't have to do figures by hand. Also, you may have noticed in the includegraphics command I rotated the image. If it was a multipage pdf you could also call specific pages

TABLE 2.1: A simple typed in table. Note the special lines used in the table. Yes, typography rules call for different thickness of lines. The command hline will put in just a regular horizontal line

col1	col2	col3	col4
1	2	3	4
1	2		3

TABLE 2.2: Reading in a table

XX	YY	ZZ	AA
1	2	3	4
1	2	3	4
1	2	3	4

TABLE 2.3: Reading in a table smaller

XX	YY	ZZ	AA
1	2	3	4
1	2	3	4
1	2	3	4

2.3   Clickable Fig/Table refs

One of the really nice thing about LaTeX (well, when using certain packages) is that the Figure and Table references in text are clickable and will take you to whatever is being referenced (click this number – Fig. 2.1). There are also commands you can put in to then return, but these are a bit more tricky.

The same is true for your section headings and the entire table of contents and lists of figures/tables. Additionally, anything that has been given a `\label{}`, when called with a `\ref{}` will be clickable.

Appendix A

Chapter 1 Supplement

Here is the supplemental file for chapter 1, as an alternative to including it in the main TeXfor chapter 1. This allows the figures/table to be numbered in a different way and for the section to be listed in the table of contents differently.
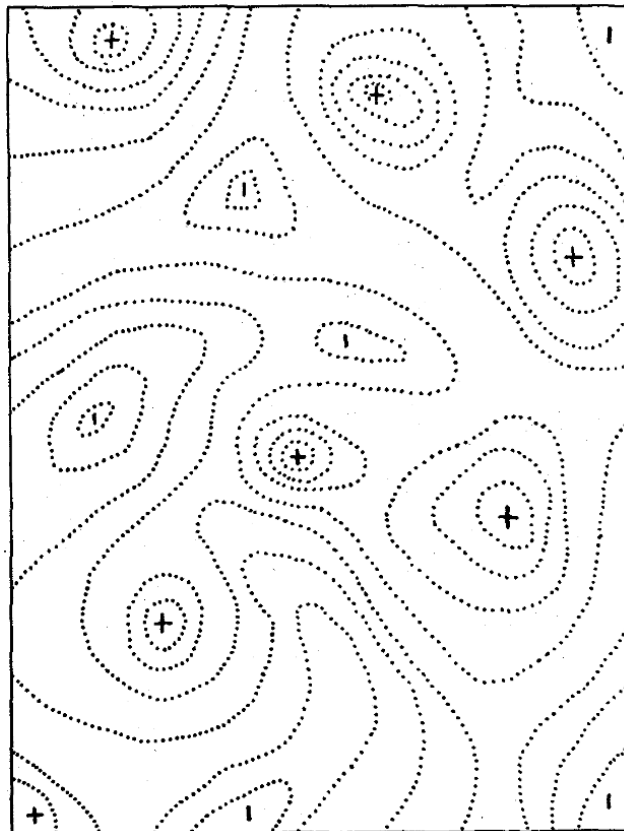

FIGURE A.1: Same fig as before, but in the appendix!

Bibliography

Haldane, J BS (1922). "Sex ratio and unisexual sterility in hybrid animals". In: *Journal of genetics* 12.2, pp. 101–109.

Wright, Sewall (1932). *The roles of mutation, inbreeding, crossbreeding, and selection in evolution.* Vol. 1. Proceedings of the Sixth International Congress of Genetics, pp. 356–366.