ON THE PREDILECTION OF SHEEP FOR GRASS A REALLY LONG TITLE WITH MULTIPLE LINES

A Dissertation Presented

by

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Sheep Studies

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To those little lost sheep.

ACKNOWLEDGMENTS

Thanks to all those fine shepherds. Not to mention all the great border collies and suchlike fine animals.

ABSTRACT

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FEBRUARY 1995

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Sheep like grass. Why? Let me tell you. Sheep are ruminants, like cattle, deer, and horses. They have stomachs that are specialized...

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INTRODUCTION

Why on earth do I want to study sheep anyway?

CHAPTER 1

AN INTRODUCTION TO SHEEP

Every dissertation should have an introduction. You might not realize it, but the introduction should introduce the concepts, backgrouand, and goals of the dissertation.

CHAPTER 2

SAMPLE MATHEMATICS AND TEXT

2.1 In-line and Displayed Mathematics

The expression $\sum_{i=1}^{\infty} a_i$ is in-line mathematics, while the numbered equation

$$\sum_{i=1}^{\infty} a_i \tag{2.1}$$

is displayed and automatically numbered as equation 2.1.

Let H be a Hilbert space, C be a closed bounded convex subset of H, T a nonexpansive self map of C. Suppose that as $n \to \infty$, $a_{n,k} \to 0$ for each k, and $\gamma_n = \sum_{k=0}^{\infty} (a_{n,k+1} - a_{n,k})^+ \to 0$. Then for each x in C, $A_n x = \sum_{k=0}^{\infty} a_{n,k} T^k x$ converges weakly to a fixed point of T .

Two sets of LaTeX parameters govern mathematical displays.[1] The spacing above and below a display depends on whether the lines above or below are short or long, as shown in the following examples.

A short line above:

$$x^2 + y^2 = z^2$$

and a short line below.

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[1] LaTeX automatically selects the spacing depending on the surrounding line lengths.

A long line above may depend on your margins

$$\sin^2\theta + \cos^2\theta = 1$$

as will a long line below. This line is long enough to illustrate the spacing for mathematical displays, regardless of the margins.

2.2 Mathematics in Section Heads $\int_\alpha^\beta \ln t dt$

Mathematics can appear in section heads. Note that mathematics in section heads may cause difficulties in typesetting styles with running headers or table of contents entries.

2.3 Theorems, Lemmata, and Other Theorem-like Environments

A number of theorem-like environments is available. The following lemma is a well-known fact on differentiation of asymptotic expansions of analytic functions.

Lemma 1 *Let $f(z)$ be an analytic function in $\mathbb{C}_+$. If $f(z)$ admits the representation*

$$f(z) = a_0 + \frac{a_1}{z} + o\left(\frac{1}{z}\right),$$

for $z \to \infty$ inside a cone $\Gamma_\varepsilon = \{z \in \mathbb{C}_+ : 0 < \varepsilon \le \arg z \le \pi - \varepsilon\}$ then

$$a_1 = -\lim z^2 f'(z),\ z \to \infty,\ z \in \Gamma_\varepsilon. \tag{2.2}$$

Proof. Change z for $1/z$. Then $\Gamma_\varepsilon \to \overline{\Gamma}_\varepsilon = \{z \in \mathbb{C}_- : \overline{z} \in \Gamma_\varepsilon\}$ and

$$f(1/z) = a_0 + a_1 z + o(z). \tag{2.3}$$

Fix $z \in \overline{\Gamma}_\varepsilon$, and let $C_r(z) = \{\lambda \in \mathbb{C}_- : |\lambda - z| = r\}$ be a circle with radius $r = |z| \sin \varepsilon/2$. It follows from (2.3) that

$$\frac{1}{2\pi i} \int_{C_r(z)} \frac{f(\lambda)\, d\lambda}{(\lambda - z)^2} = \sum_{m=0}^{1} a_m \frac{1}{2\pi i} \int_{C_r(z)} \frac{(\lambda - z_0)^m\, d\lambda}{(\lambda - z)^2} + R(z), \tag{2.4}$$

where for the remainder $R(z)$ we have

$$\begin{aligned} |R(z)| &\le r^{-1} \max_{\lambda \in C_r(z)} o(|z|) = r^{-1} \max_{\lambda \in C_r(z)} |\lambda| \cdot O(|z| + r) \\ &= \frac{|z| + r}{r} \cdot O(|z| + r) = \frac{1 + \sin \varepsilon}{\sin \varepsilon} \cdot O(|z|). \end{aligned}$$

Therefore $R(z) \to 0$ as $z \to \infty$, $z \in \overline{\Gamma}_{\varepsilon/2}$, and hence by the Cauchy theorem (2.4) implies

$$\frac{d}{dz} f(1/z) = a_1 + R(z) \to a_1, \text{ as } z \to \infty,\ z \in \overline{\Gamma}_{\varepsilon/2},$$

that implies (2.2) by substituting $1/z$ back for z. ■

Head	Head	Head
entry	entry	entry
entry	entry	entry
entry	entry	entry

Table 2.1. Sample table.

CHAPTER 3

A CHAPTER ABOUT SHEEP

Is there life after sheep. Yes, I say there is.

3.1 Pulling the Wool Over Your Eyes

Sheep are fabulous creatures. The noises they make are truly stupendous [**?**].

3.1.1 All About Sheep Noises

Lots of text here just to fill up some space so we can be sure that we really are double-spacing and doing all the other things that might be necessary in formatting a dissertation to U.Mass. guidelines.

APPENDIX A

THE FIRST APPENDIX TITLE

With some text. Baah, baah, baah...

APPENDIX B

THE SECOND APPENDIX TITLE

With some text. Baah, baah, baah...