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PLASMA FLOW CONTROL

FOR NOISE REDUCTION

ON AIRCRAFT LANDING GEAR

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Michael C. Wicks

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PLASMA FLOW CONTROL

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A Dissertation

Submitted to the Graduate School

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in

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by

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Abstract

by

Michael C. Wicks

Please note that the full LaTeX source code (and an associated `Makefile`) is available from the University of Notre Dame Graduate Student Union web site. The Information Technology Committee page[1] has all the necessary files in download-able form. This particular dissertation was developed under Unix, but is also be usable under Windows with the appropriate LaTeX setup and was modified on a Windows system in 2012-2013. It should also work with on Mac.

While the source code for this document provides an excellent example for how to use the NDdiss2$_\varepsilon$ LaTeX class to write a Notre Dame thesis, it is *not* a substitution for the documentation of the NDdiss2$_\varepsilon$ LaTeX class (also available on the ND GSU web site).

In this thesis, I will tell all that I know about Gnus. Gnus are wonderful little creatures that inhabit the center of the earth and give us wonderful and plentiful trees, dirt, and other earthly-things.

In short, we should love and cherish the Gnus. They can be very friendly, and are often mistaken for squirrels on the University of Notre Dame campus. Feed

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[1] `http://www.gsu.nd.edu/`

them whenever possible. If they get caught in trash cans, tip them over so that they can get out.

This abstract is going to continue on, including a few formulas, just for the sake of spilling over on to two pages so that we can see the author's name in the top right corner:

$$a^2 + b^2 = c^2$$

$$E = mc^2$$

$$\frac{e}{m} = c^2$$

$$a^2 + b^2 = \frac{e}{m}$$

These equations, by themselves mean nothing. But to the common Gnu, they define a whole way of living. While intricate mathematical implications certainly do not infiltrate the majority of humans' lives, every Gnu, from birth, is imbued with a sense of mathematical certainty and guidance. All Gnus, great and small, feel at one with mathematics. The cute furry bit is just a scam for their calculating minds.

To Laurimar

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CHAPTER 1

INTRODUCTION

1.1 Overview

This is an overview of the introduction. In here, I will use many many buzzwords and other legalistic-types of terms, mostly beginning on the expounding of the holistic and synergistic energy that Gnus bring to our organizations.

1.1.1 Background

In preparation for reading this dissertation, I would highly recommend reading some of the other material available on Gnus [1, 2]. They are very well written and will give you a fuller understanding of Gnus.

Gnus are frequently mistakes for squirrels. They are not squirrels. They are Gnus. Don't call them squirrels, either (unless you have food in your hand); they tend to get a bit upset.[1] If you have food in your hand, they tend to ignore this insult and accept your food as a peace offering.[2]

1.1.2 Foreground

Table 1.1 shows some feeding frequencies for where Gnus like to eat around the Notre Dame campus. Gnus have work weeks, just like humans do, hence the much

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[1]This is frequently mistaken for the chattering and scampering away. Gnus are actually quite polite; they will leave if they have nothing nice to say, for fear of saying something offensive.
[2]Sometimes they'll follow you if you continue to refuse to feed them.

TABLE 1.1

WHERE Gnus LIKE TO EAT

Location	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Front of Dome	1	5	6	5	4	5	1
Stonehenge	2	9	10	12	9	14	2
The Rock	1	3	4	3	4	3	0
The ACC	3	4	5	5	5	4	1
Dining Halls	5	14	12	13	14	12	3
Hesburgh Library	2	3	5	2	3	4	2

lower frequencies on weekends. This can lead us to conclude that Gnu weekend shifts are much smaller than the normal work-week shifts. In fact, we can attempt to parametrize the sighting frequency, $\mathcal{F}$, by the student population, type of food, and day of the week as:

$$\mathcal{F} = \mathcal{F}(p, f, d). \tag{1.1}$$

Table 1.2 shows what they typically like to eat.

Figure 1.1 shows a nice graph of location distributions by day of week. I have no real reason for including it except to show that figures work as well. Did I mention that Gnus are really cool?

Gnus typically tend to come out when there are large gatherings of humans with food. Gnus work very hard at providing us with all the things that we like (trees, dirt, air, etc.), and so we should freely give them food. They will come

TABLE 1.2

WHAT Gnus LIKE TO EAT ON THE NOTRE DAME
CAMPUS, LISTED BY AVERAGE NUMBER OF
SIGHTINGS PER WEEKDAY

Food	Sun	Mon	Tue	Wed	Thu	Fri	Sat
Twinkies	1	5	6	5	4	5	1
Ding Dongs	2	9	10	12	9	14	2
Carrots	1	3	4	3	4	3	0
Lettuce	3	4	5	5	5	4	1
Twizlers	5	14	12	13	14	12	3
Jawbreakers	2	3	5	2	3	4	2

Figure 1.1. Location distributions by day of where, where the X axis is
the weekday (0 through 6), and the Y axis is the sighting frequency

up and stand a respectful distance away from you, waiting to see if they will be rewarded for their efforts. If you offer some food, they will take it and back off a respectful distance in order to consume their food while leaving you to your "personal space."

1.2   Groovin' Gnus

Gnus do tend to stay away from humans in their normal day-to-day workings. This is mainly because humans don't, for the most part, understand what they are doing. If a Gnu is working, and a human approaches it, the Gnu will tend to drop whatever it is doing and run away. This is probably do to the tendency for humans to have "group meetings" and "productivity seminars." Most Gnus are deathly afraid of such overmanagement, and run at the slightest hint of it, for fear that it will cripple their real work.

It is interesting, however, that Gnus have chosen an Institution of Higher Education for their BOO.[3] It is often said that:

> Academic politics are the dirtiest, meanest, ugliest, and generally the most low-down, in-your-face, and kick-em-while-they're-down than anywhere else (even Washington D.C.) because the stakes are so low.

It has been hypothesized that the Gnus are subtly trying to affect a change for the better (i.e., eliminating the overmanagement problems) by working the very system that they are trying to change, from within. That is, the graduates from Notre Dame can learn from the examples of the Gnus here, and run screaming (or chattering) at the slightest hint of overmanagement, and let the real work proceed unhindered.

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[3]Base of Operations.

BIBLIOGRAPHY

1. G. Ganston and G. Greenfield. *Gnus and You: The Art of Being New*, volume I. Grapping Books, NY, August 1998.

2. G. Greenfield. *Getting to Know Gnu*. PhD thesis, Geoffrey Garfield School of Gnus, August 1996.